DEVELOPMENT OF AN IMPROVED WEB-BASED SYSTEM FOR HUMAN RESOURCE MANAGEMENT UNIT OF SOMALI UNIVERSITY

BY

ABDULLAHI SAID MOHAMED

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DECLARATION

I declare that this research work is my original work and has not been submitted for any other award of a degree or published at any institution of higher learning.

Signature:……..……

Student's Name: **ABDULLAHI SAID MOHAMED**

Date:……/……/……

APPROVAL

I have read and hereby recommend this thesis report titled ”Development of an Improved Web-Based System For Human Resource Management Unit of Somali University” for the acceptance by the School of Computing and Information Technology in partial fulfilment of the requirements for the award of Master of Computer Science (MCS) of Kampala International University, Uganda.

DR AJIBOYE, ADELEKE RAHEEM _____

Main supervisor Signature and Date

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ABSTRACT

Human Resource (HR) unit is a vital department in any institution of higher learning. The unit manages the staff welfare, recruits new staff and keep track of their records until retirement. The unit is also responsible for adequate dissemination of information through official memo and online communication to the entire stake holders of the institutions and beyond. The main objective of this study was to introduce a substantial improvement to the existing website that was been used by the HR unit of Somali University. The analysis of the old system shows that it requires improvement in the areas of security, usability, design patterns etc. In an attempt to achieve this, the stake holders within the unit were interviewed and some relevant information they gave was documented. Opportunity was also given to interact with the old system and some of its weaknesses were also documented for improvement. Specifically, the security and administration, information dissemination module, design styles module and navigations were some of the areas identified for improvement. The combination of these modules into one application assures the perfect platform for re-engineering and aligning Human Resource processes with a view to achieving sustainable Institutional goals. This study model some activities with Unified Modelling Language (UML), and the new improved system uses dot net framework for the overall implementation of the designs, while CSS was used for the menu design. Also, Sql server 2014 was used as the backend for the systems and the system undergoes testing as the development progresses in line with the waterfall model software development strategy. The usability of the system as tested by 50 users in conformance with System Usability Scale (SUS) approach shows that, the system has a usability of 75.15%. The proposed system is found to achieve significant improvements when compared to the old system based on a number of metrics.

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INTRODUCTION

1.1 Background to the Study

The background of this study is conversed based on four viewpoints namely: historical, theoretical, conceptual and contextual perspectives

1.1.1 Historical Perspective

HRIS has grown in popularity since the 1960s (Cascio, 2005), in equivalent with the growth of a new attentiveness of the personnel function from been an amassing office to a company strategic partner. The on-going development procedure, which started with the massive restructuring of organizations in the 2010s, sees today two equivalent phenomena: on the one hand a large-scale outsourcing of transactional HR activities (payroll, benefits administration, some types of training). On the other hand, the re-integration of those activities into a single, internal information/service system enables staffs to manage themselves in a variety of "self-service" HR activities.

The difference between today and 2010s approach consists of a supplemented interest in the social part of the socio-technical view of HRIS. According to Cascio (2005), if transactional activities are being excluded, then the survival of in house HR talent depends on a demonstrated ability to add value to the business. In order to do that, a number of key capabilities are necessary.

In the present framework of globalization, employing groups and their surroundings have become progressively complex. Managers in these groups face growing difficulties in coping with workforces that may be spread across various nations, cultures, and political systems. Given such trends, manual HR systems administration is completely inadequate (Beckers & Bsat, 2014). On the other hand information technology has considerable potential as a tool that managers can use, both generally, and in human resource jobs in particular, to increase the competences of the organization (Martison, 2013). Those running the human resource functions have not ignored such potential, and a widespread use of human resource information systems (HRIS) has occurred (Hendrickson, 2014).

The application of advanced technology in organizations of all sizes has become popular until recently and this has bring about a large number of changes in the commerce world. It touches the business in two main categories: (1) the improvement of business in efficiency, effectiveness and productivity; (2) the transition of commerce in the way people create, organize, manage and operate an enterprise (Zhang &wang 2013). Managerial executive's appearance more interests in effectively exploiting and utilizing the power of technology, especially in the administration of human capital.

There is a growing attentiveness of the role of human resource administration (HRM) in providing a competitive advantage. Since the occurrence of the internet, a new era of HR named as a web based HRM has initiated, dramatically reengineering the HR practices and processes to work in a highly modest marketplace. According to Gürol (2010) the application of information systems in HRM is not a new topic but it is the development and upgrading in the use of such technology that mesmerised us. As a result, HRM has undergone a change process in terms of HRM functions over the last period.

Azungah (2017), confirms that it is the heaviness and priorities facing HR divisions that change the traditional practices and create the managerial innovation. HR executives nowadays have been required to be more strategic, flexible, and cost-efficient and client oriented (Snell, Stuebner&Lepak 2015). Yeung, Brockbank and Ulrich (2015), opined that HR functions have been in the process of reinventing itself in many corporations. The interviews with top executives in 10 major corporations revealed that the roles and responsibilities of HR specialists and line administrators were redefined; many transactional events were automated, streamlined and reengineered and more significant HR specialists saw the link between the delivery of HR services and business desires. Ruël, Bondarouk and Van Der Velde (2013) were very confident towards the possibility of HRMS to become more strategic with the maintenance of it to perform administrative tasks.

1.1.1 Theoretical perspective

This research work was directed by Adaptive Structuration Theory (AST) identified by DeSanctis G & Poole MS (2012) and advanced by Avolioet al. (2000). This theory is important in guiding this study because it studies how Advanced Information Technology (AIT) could effect on leadership and was influenced by leadership.

The study is relevant in guiding the management of HR because it reiterate that once human resource systems are not effective, it will be very difficult for managers of an institution to conduct quick and effective human resource activities. In relation to this study, development of a web-based system for human resource management at Somalia University is an attempt to improve the old system of human resource management. Having identified that the old systems of HRM are ineffective, there is a need to update to an automated system of human resource management.

In relation to this, DeSanctis& Poole's (2012) defined it "as a tool, techniques, and information that enable multiparty contribution in managerial and inter-organizational activities through cultured collection, processing, management, retrieval, communication, and show of data and knowledge".

On the one hand, it is argued that when AIT is used in economy, it creates a new setting for leadership because it affects real-time information availability, better knowledge sharing with investors and the use of this information and knowledge to figure "customized" relationships. On the other hand, AIT is practical with the hope of business and personal welfares with increased efficiency, productivity and productivity, but concrete indicators, especially financially measured pointers, has not yet appeared (Avolioet al, 2000). The same prospects and problems also relate to HRIS.

1.1.3 Conceptual perspective

Web information system: Ahmad, (2015) defines a web-based information system, as an information system that uses internet web technologies to deliver information and services, to users or other information systems/applications. It is a software system whose main purpose is to publish and maintain data by using hypertext-based principles.

Human resources (HR) is a term that is used in business to refer to the people who work for a company or organization. It also used to refer to the department of a company that is responsible for managing those resources, such as hiring and training new employees and overseeing the benefits and compensation packages provided to all of the company's employees (Zhang &wang 2013).

Human resource management (**HRM** or **HR**) is the strategic approach to the effective management of people in a company or organization such that they help their business gain a competitive advantage. It is designed to maximize employee performance in service of an employer's strategic objectives (Hendrickson, 2014).

1.1.4 Contextual Perspective

The knowledge that a web Based HRMS only serves "a contracted range of organizational decisions" (Broderick & Boudreau, 2015) has been held by Cipd (2015), which stated that a limited number of administrations used technology for a transformational objective. Foster (2012) also illustrates the developing acuity of technology among specialists with an stimulating statistics of a famous book in 2015 "the upcoming of HRM: 64 thought leaders explore the dangerous HR matters of today and tomorrow" (Losey, Meiseinger & Ulrich 2015) and sadly decided that 64 "thought leaders" did not see technology as an important part of future for HR (if any).

Ruël, Bondarouk and Looise (2014), reported that their experiential study in five large corporations on web-based HRM obtainable a limited evidence of a web based -HRMS outcomes which led to enhancements or changes in the experiences of the workforce. Reviewing a web based -HRMS research, Strohmeier (2017) inquiry the ability of a web based-HRMS to convert HR into a real business partner that creates value to the organization. Bondarouk and Ruel (2016) also extra that organizations often refused to announce their actual attainment of a web based HRMS goals as HR attractive a strategic companion. In light of all these, this study challenges to provide several specific and critical points which will expectantly contribute to a better understanding of a web based-HRM. In a context of a multinational businesses operating in a rising country, the perception of a web based-HRMS and its impact will be carefully observed at under several views from both HR professionals and line administrators.

1.2 Problem statement

Human Resource Information System (HRIS) has been described as a tool that administrations uses to solve and manage a variation of issues and processes connected to the administration of societies. Technology may be used for different determinations within particular Human Resource (HR) functions - for recruitment and selection, performance evaluation, compensation and benefits, training and development, healthiness and safety,

employee relations and legal issues, retaining and work-life balance (Enshur, Nielson, & Grant-Vallone, 2014).

Martinsons (2012), illustrates between "unsophisticated" use of technology in HR, such as payroll and welfares management, and "sophisticated" use such as recruitment and selection, training, growth and performance appraisal.

1. **Lacking of HR modules**

The current system does not address content relating to staff recruitment, retrenchment, retirement, etc. these are key functions of HR department. The platform also does not address staff deployment to various department and units within the university system.

2. **Issues in security**

Further exploration and navigation of the existing HR website is found to lack the features that can promptly inform the university community as regards training, conferences and academic workshops. Most importantly, the existing system security administration requires some major improvements.

3. **Less user friendly interface**

The existing website dedicated for use at the HR unit at Somali University lacks some basic useful features required for better management in its current form, as the system is found not to meet the global institutional standard.

In view of the above, this study was designed to address the aforementioned weaknesses of the existing HR website. The old system designed for the HR unit which is regarded as an existing system in this context is no longer in operation as it lacks some basic features as highlighted above. This study therefore, proposed some major improvement on the old system (also regarded as existing system) to make it operational and to meet basic acceptable standard.

1.3 The Aim of the Study

The aim of this study is to improve the existing web based system for Human Resource Management unit of Somali University.

1.4 Objectives of the study

The following are the specific objectives set out to achieve the aim of this study:

1. To analyse the existing system in order to identify the areas required for improvements.
2. To design an improved web-based HR system.
3. To implement the HR system designed in (2)
4. To test the acceptance of new HR website using System Usability Sale (SUS) approach.

1.5 Research Questions

Based on the identified problems and objectives formulated in this research, some questions that were answered are:

i. How can the existing HR web-based system be improved upon to bring about some enhancement?

ii. Which appropriate techniques can be used to design a web site?

iii. What combination of software resources should be implored for proper implementation of a standard institutional website?

iv. How can the improved web-based system developed be tested and validated?

1.6 Scope of the Study

1.6.1 Geographical Scope

This research focuses on enhancing the existing website at the HR unit of Somalia University. The University of Somalia (UNISO) is a private university in Mogadishu, Somalia. The institution was established in 2005 by a group of independent professors. It is headquartered in downtown Mogadishu, and also has a branch in El-shaBiyaha.

1.6.2 Content Scope

HRIS form an incorporation between human resource management (HRM) and Information Technology. Even though these systems may rely on centralized hardware resources operationally, a small group of IS specialists exist in within the personnel department increasingly achieve, support, and maintain them. HRIS funding planning, management, decision-making, and control, the system maintenances applications such as employee selection and placement, payroll, pension and benefits management, intake and training forecasts, career-path, equity monitoring, and productivity evaluation. These information systems increase managerial efficiency and data reports capable of improving decision-making. Thus, this research study focuses on development of a web based human resource management system for optimal information dissemination within the registry of Somali

University.

1.6.3 Time Scope

The design of this improved web-based system which addresses all the identified weaknesses was carried out between January and July 2019.

1.7 Significance of the Study

This study is significant in several ways:

The development of this web-based system will be beneficial to human resource professionals by ensuring their tasks are performed in a faster and secured way.

The improved system is developed in a way to showcase the institutions achievement to the whole world.

The improved system for Human Resource Management proposed in this study will also go a long way to simplify the daily operations of the users, fast-track record keeping and information dissemination.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter entails the review of the related literature as regards software development approaches for human resource management in organizations. Literature is reviewed basing on the objectives of the study which are to; analyse the existing system to identify the areas required for improvements, design an improved web-based HR system, implement the HR system designed in (2) and test and validate the improved system developed.. Also discussed in this chapter are the concept human resource management and others.

2.1 Human resource management system framework

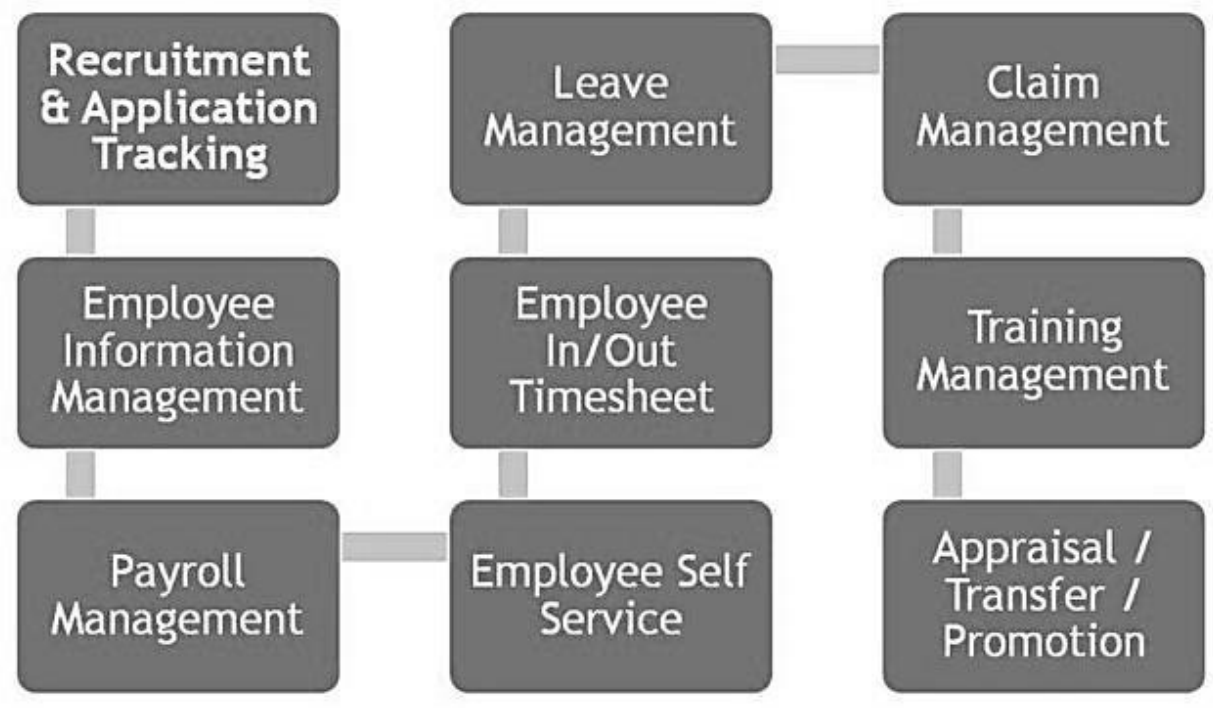


Figure 2.1: Chart showing institutional HRMS adopted from (Benjamin brandall)

2.2 Analysis of the existing system to identify the areas required for improvements

Analysis of the human resource systems is based on the level of HR Productivity. While the HRIS features are supposed to benefit the organization in many ways, one of the most important of all HRIS benefits relates to the ability of the software program to improve productivity of human resources employees. These systems are highly detailed, and they are designed to enhance and speed up the efforts of HR employees in a number of ways. For example, they can assist with recruitment by simplifying the process of collecting resumes, reviewing candidate information and more. This implies that when human resource productivity remains low, the systems being used for HR activities need improvement hence the need to update human resource information system (Azungah, 2017).

Performance of the existing human resource system is assessed through examining the errors being made in the HR activities. Many HR tasks are highly regulated, and because of this, even a minor error on the part of a human resources employee could result in considerable legal issues and even financial loss for the company. For example, when resumes are not reviewed in a fair and just manner during the hiring process, a lawsuit may ensue. A HRIS can provide guidance to avoid these types of issues before they escalate. Thus when an organization HR system makes a number errors, a need to improve the system arises (Martinsons, 2012).

Performing analyses and reviewing metrics related with various aspects of the organization can assist in examining the quality of the existing HR system. For example, the human resources department is responsible for analysing hiring costs and calculating the turnover rate in different departments. The results of these calculations may be used to make important business decisions and to develop strategies for moving the organization along a successful path. Hence the performance analysis of HR tools can be used in understand the relevance of the new human resource information system (Zhang &wang 2013).

Analysis of the existing system is done through knowing the level of access to information. A human resource information system is supposed to improve communication among organization staff. HR team need to access employee information readily and this is provided by the existing human resource information system. An HRIS system can eliminate paper and turn all of your employee records into easy to access online data. These can be retrieved simply by anyone with authorization and are backed up remotely to ensure safety. Hence when an organization human resource system cannot easily provide information to employees, it requires updating (Broderick & Boudreau, 2015).

Analysis of the performance of the HR system can be done through examining the level of employee tracking. An effective human resource system is supposed to track employee performance, attendance and absenteeism. When you know who is in your main office, who is working from remote locations, and who is unaccounted for, you enhance workflow and security. With biometric timekeeping, your HR team knows in real time where employees are in case they are needed. This can be especially helpful in situations where deliveries need to be made or customers need in-person help (Yeung, Brockbank &Ulrich, 2015).

2.3 Related literature

Related literature is presented basing on the objectives of the study;

2.4 Development of Information System at Human Resource Unit

Recent growths in technology have made it potential to create a real-time information-based, self-service, and interactive work setting. Personnel Information Systems have changed from the automated worker recordkeeping from the 1960s into more multifaceted reporting and decision systems of late (Gerardine & DeSanctis, 2014).

Today, directors and staffs are pretentious activities once measured the domain of human resource specialists and administrative personnel. This represents a important break with the past, but an enhancement in overall managerial effectiveness. Consequently, given the ability and relevant manageable information for decision making, both administrators and staffs respond more quickly to changes (Lengnick-Hall & Lengnick-Hall, 2014).

A) Definition Of Human Resource Information System

Tannenbaum (2010), defines HRIS as a technology-based system used to obtain, store,

manipulate, evaluate, retrieve, and distribute pertinent information about an organization's human resources. Kovach et al., (2013) defined HRIS as a systematic process for collecting, storing, maintaining, retrieving, and validating data needed by organization about its human resources, personnel activities, and organization unit features.

Additionally, HRIS form an integration between human resource management (HRM) and Information Technology. It combines HRM as a discipline and in particular basic HR activities and procedures with the information technology arena (GerardineDeSanctis, 2014: 15).

As is the instance with any multifaceted managerial information system, an HRIS is not restricted to the computer hardware and software applications that encompass the technical part of the system it also includes the people, policies, procedures, and data necessary to manage the HR function (Hendrickson, 2014).

B) Components Of HRIS

Kovach et al., (2013) offered the three major functional modules in any HRIS by giving the model below: Input Data Upkeep Output. The Input function enters personnel information into the HRIS. Data entrance in the past had been one way, but today, skimming technology permits scanning and storage of actual appearance of an original document, including signatures and handwritten records.

The upkeep function modernizes and increases new data to the database after data have been entered into the information system. Furthermore, the most visible function of an HRIS is the output engendered. According to Kovach et al., (2013), to generate valuable output for computer users, the HRIS have to progression that output, make the necessary calculations, and then format the performance in a way that could be understood. However, the note of caution is that, while it is easy to consider of HR information systems in terms of the hardware and software packages used to implement them and to extent them by the number of workplaces, applications or users who log onto the system, the most significant elements of HRIS are not the computers, rather than the information.

The lowest line of any comprehensive HRIS have to be the information validity, reliability and utility first and the computerization of the process second.

C) Users Of HRIS Applications

HRIS meet the needs of a number of structural stakeholders. Typically, the people in the firm who interact with the HRIS are segmented into three groups: (1) HR specialists, (2) directors in purposeful areas (production, marketing, engineering etc.) and (3) workers (Anderson, 2013).

HR specialists rely on the HRIS in satisfying job purposes (supervisory reporting and compliance, compensation analysis, payroll, pension, and profit sharing administration, skill inventory, benefits management etc.). Thus, for the HR proficient there is an increasing reliance on the HRIS to fulfil even the most fundamental job tasks.

As human resources play a larger role in competitive advantage, functional bosses expect the HRIS to deliver functionality to meet the unit's goals and purposes. Furthermore, leaders rely on the HRIS's capabilities to provide greater data collection and analysis, especially for performance appraisal and performance management. Additionally, it also includes skill testing, assessment and development, résumé processing, recruitment and retention, team and project administration, and administration development (Fein, 2011).

Finally, the different workers become end users of many HRIS applications. The increased difficulty of worker benefit options and the consistent need to monitor and modify category ranges more frequently has increased the responsiveness of HRIS functionality among employees.

Web-based access and self-service options have simplified the alteration process and improved the usability of many benefit options and management alternative for most employees.

2.5 Integrating the Technologies of HR

Purposeful HRIS must create an information system that allows an assimilation of policies and processes used to manage the firm's human capital as well as the procedure necessary to work the computer hardware and software applications (Hendrickson, 2014).

While information technology affects Human Resource (HR) practices (LengickHall et al.,

2014) HRIS and HRIS management comprise a distinct supporting function within HR. Some of the HRIS functions include the following:

A) Integrating the Technologies of HR

Is a fact that improvements in Information Technology have affectedly affected traditional HR functions with nearly every HR function (example, compensation, staffing, and training) undergoing some sort of reengineering of its processes.

However, this process of change has created significant challenges for HR specialists resulting in the alteration of traditional processes into on-line processes.

B) Increased Efficiency

Speedy computing technology has permitted more transactions to occur with fewer fixed resources. Typical examples are payroll, flexible benefits management, and well-being benefits processing.

However technologies of early supercomputers provided important efficiencies in these areas, the difference is that the record processing competences that were once only available to large firms are now readily available to any association size (Ulrich, 2011).

C) Increased Effectiveness

Furthermost, as with processes, computer technology is intended to improve effectiveness either by in terms of the accuracy of information or by using the technology to shorten the process. This is especially the situation where large data sets require reconciliation.

However, onerous manual reconciliation processes may be performed faster, but also with near perfect accuracy using computerized systems. For instance, pension and profit sharing applications, benefits administration, and worker activities are just to mention but a few. Using computer technology in these processes confirms accurate results and offer considerable simplification and timeliness over manual processing. Consequently, the vast majority of HR functions have had some gradation of automation applied in order to gain both efficiency and effectiveness.

D) IT-Enabled Processes

While many of the application areas' gains are through increased efficiency and competence

over manual processing, some are only possible using contemporary technologies. Most notably, computer-based (web-based) training is a growing area of HR practice that was not available until computer software was shaped.

Even computer based training was not as practical as it is today because it was geographically discrete until the training was upgraded from computer-based to web-accessible training. However, by taking traditional computer-based training software package and making them accessible on the Internet, firms have created a powerful tool to upgrade and assess employee skill sets. Moreover, many other traditional HR functions have evolved Information Technology (IT) -reliant on components with the beginning of the Internet.

Online recruitment centres, along with the ability to conduct virtual interviews, background checks, and personnel tests on-line have dramatically changed those processes, growing the geographic reach of firms for potential staffs.

2.6 Cost and benefit of HRIS

An HRIS system signifies a large investment decision for companies of all sizes. Consequently, a convincing case to persuade decision makers about the HRIS benefits is necessary. The common welfares of HRIS frequently cited in studies included, upgraded accuracy, the provision of timely and quick access to information, and the tradable of costs (Lederer, 1984; Will and Hammond, 1981).

Lederer (1984) conversed why the accuracy and timeliness of HRIS is very significant in terms of operating, controlling, and planning activities in HR. In addition, Kovach et al., (2014) listed several organisational and strategic advantages to using HRIS. Likewise, Beckers and Bsat (2014) pointy out at least five reasons why companies should use HRIS. These are: Increase competitiveness by improving HR practices; Produce a greater number and variety of HR operations; Shift the focus of HR from the processing of transactions to strategic HRM; Make workers part of HRIS, and Reengineer the entire HR function.

In the HRIS survey, Watson Wyatt (2014) initiate that the top four metrics used in formal business cases supporting HRIS were improved productivity within HR organization, cost reductions, return on investment, and improved worker communications.

However, companies realize many of these cost reductions and efficiency gains early in the implementation of an HRIS system, so they provide compelling evidence needing to get a project up and running. In fact, the payback period, or the time it takes to recoup the investment, may be as short as one to three years (Lego, 2001).

HRIS contribute to cost reductions, quality/client satisfaction, and invention (Broderick and Boudreau, 1992). According to Sadri and Chatterjee (2014) computerized HRIS function enable, faster decision making, growth, planning, and administration of HR because data is much easier to store, update, classify, and analyse.

Furthermore, while it may be potential to identify many of the relevant costs (e.g., software and hardware), it is more difficult to quantify the intangible benefits to be derived from an HRIS system. Beyond cost reductions and productivity developments, HRIS potentially and basically affect revenue channels. However, establishing direct and objective benefits measures is more difficult to achieve.

On the other hand, there are costs associated with HRIS execution. Moreover, to capitalize on all HR possibilities, workers need to have personal computers and global Internet

connections. Some companies facilitate this by providing employees computer discount programs to reassure home usage.

In addition, there is unescapably transition costs associated with moving from traditional HR to an HRIS, including slowdowns, mistakes, and other consequences associated with changing legacy systems to integrated suites (Brown, 2014). Hardware prices for servers and software costs for application programs entail sizeable initial outlays and continuing costs over time as better technology becomes available. While many businesses are adopting HRIS systems and extolling their benefits, others are reluctant in embarking on such an expensive and time consuming change. Nevertheless, some firms are adopting less complex forms before attempting to transform their HR departments.

However, for those who have previously adopted HRIS, many are yet to apprehend its full benefits. A survey by Towers Perrin found that whiles 80 percent of respondents affirmed employee self-service ability to lower FIR costs, only 5 percent fully achieved this objective; another 35 percent had only partially achieved that objective, and only 3 percent was accelerating HR's transformation to a strategic partner.

2.7 Human Resource Information System role in Human Resource Management

The reviews of numerous related studies conducted in this important field of research is obtainable. For the sake of clarity, the literature has been reviewed under the following headings: HRIS usage, role/impact and implementation.

Within the last decade, the explosion in information systems connected literature confirms that information technology, its implementation, use and benefit is a very well investigated area in organizational studies (Robinsson, 2013).

However, human resource information systems (HRIS), their role on strategic human resource managing (SHRM), and how this role is affected by the size of an association have largely been deserted in these literatures in terms of both theory and evidence (Kinnie and Arthurs, 1996; Kossek *et al*., 2012) cited in Hussein et al., (2007). Nevertheless, a small amount of related case study and survey works exists, some of which has been theorized (Torrington and Hall, 2014; Martinsons, 2013). Following are some of these recognized cases and surveys:

Additionally, of those administrations that used HRIS software, less than half of the sample used it in training and recruitment, and only very, few of these employed less than 500

people.

A) The role and impact of Human Resource Information System

Hussain et al., (2006) deliberate 'the use and impact of human resource information systems on human resource management specialists'. The aim was to assess and equate the specific areas of use and to introduce a taxonomy that affords a framework for academicians. They also sought to determine whether HRIS usage was strategic, a perceived value-added for the organization, and its impact on professional standing for HR specialists.

The researchers used two techniques to consider the IS impact on HRM. Both a questionnaire survey and in-depth semi-structured interviews were used. Whiles the former was used to obtain responses from HR specialists in the UK organizations, the latter targeted a small number of senior executives, such as directors, in order to gain deeper insights into emerging issues.

A questionnaire was sent to HR managers at 450 organizations located in the UK. A stratified random sampling from the UK commercial directory was used and it covered the different sectors of the economy. Of the questionnaire received, 101 were from senior HR professionals, representing a 22% return; and these were used in the following analysis.

The results showed that, on average, few differences existed between small medium enterprise (SME) and large company HRIS' usage. Further, the authors observed that the professional standing has been enhanced by the specific HRIS usage for strategic collaborating, but cautioned that it was not as pronounced as that experienced by those other professions. In conclusion, the researchers noted that for senior HR professionals, strategic use of HRIS was increasingly the norm, irrespective of company size.

In addition, they observed that strategic use of HRIS enhanced the perceived standing of HR professionals within organizations; senior non-HR executives however did not share this view.

Florkowski (2006) in his study, 'The diffusion of human-resource information technology innovations in US and non-US firms', evaluated the diffusion of eight information technologies that are transforming HR service-delivery in North America and Europe. Such information technologies include HR functional applications, integrated HR suits, IVR systems, HR intranets, employee and manager self-service applications, HR extranets, and

HR portals.

The study applied external, internal, and mixed-influence models of Human Resource Information Technology (HRIT) -adoption decisions of cross-sectional sample of US, Canada, UK and Irish firms. Senior HR executives provided the underlying data by means of a dynamically branching, web-based survey. The researcher reviewed that overall diffusion was best characterized as an outgrowth of internal influences, fuelled primarily by contacts among members in the social system of potential adopters.

Similar results were obtained when controls were introduced for national setting, targeted end user, and technology type. The paper showed that the modest correlation between the number of acquired Information Technologies (IT) and HR-transactions automation supports the general call for more formalized HR-technology strategies at the firm level to coordinate purchasing and implementation decisions.

Gascó, Llopis and González (2013),in their paper 'The use of information technology in training human resources'- An e-learning case study, they sought to address the influence of information technology in human resources management, specifically on training policy through the experience of a Spanish telecommunication firm, Telefonica. In consequent, Gascó et al., (2013) investigated the characteristics of the training model designed, technology used, key actions as well as the disadvantages and success factors in training policy. Information about Telefonica was by interviewing the executives and consultants who collaborated to implement information technology (IT) in training, and an analysis of the internal document that the organization used to carry this process. Gascó et al., (2013) identified encouraging results on Telefonica's newly e-design training models.

There was accessibility at any time and place with regard to large set of teaching materials, simulations of situations that were very difficult or risky in real life, and applications based on the universally applied Information and Communication Technologies (ICTs). The system provided user-friendly cultural tool for all Telefonica employees, and job related development opportunities or the possibility for employees to improve their performance.

However, there were hindrances to the system implementation there by causing delays. Included were initial investment and permanent equipment update, heterogeneous and unconsolidated technology, limited technological culture in both trainers and trainees, self-motivation in trainees and finally problems related to intellectual property. The researchers

revealed that Telefonoca's accumulated experience in the implementation of ICT-based training programs, brought to light certain success factors.

These included flexibility in the management of learning times, trainers' active participation, and the development of control mechanisms that ensured training effectiveness. While this is good, Barry (1998) and Elswick (2014) however cautioned that technology on its own do not suffice for experts to share knowledge with others.

Neither will it make employees eager to acquire knowledge, however, if an organization already has the aspirations, the skills and the attention focused on knowledge, technology will facilitate the access to the knowledge, and pave the way for the suitable knowledge to reach the right person in the right moment.

2.6 Gap of the study

Leadership style is said to be an important factor of employee retention amongst other factors such as career growth, interpersonal relationships with co-workers and pay (Bhatnagar, 2007) and previous research has found that a relationship exists between leadership style and employee retention (Kleinman, 2013). However, there is a gap in literature about the information system that best encourages retention of employees with focus on transactional and transformational human resources especially in the somalian HR department institution. This research has therefore been designed to investigate the impact of HR on employee retention, identifying the leadership style that best encourages employee retention in microfinance institutions in Mogadishu, Somalia.

CHAPTER THREE

METHODOLOGY

3.0 INTRODUCTION

This chapter provides a description of research methodology used for the software development, the processes and tools involved in developing the new system, the system requirement specifications, data flow diagram and other modelling diagrams are illustrated here.

Also discussed in this chapter the detailed procedures followed to realize the research objectives. This chapter presents the detailed description of the research methodology.

3.0.1 HUMAN RESOURCEMANAGEMENT SYSTEM FLOW CHART

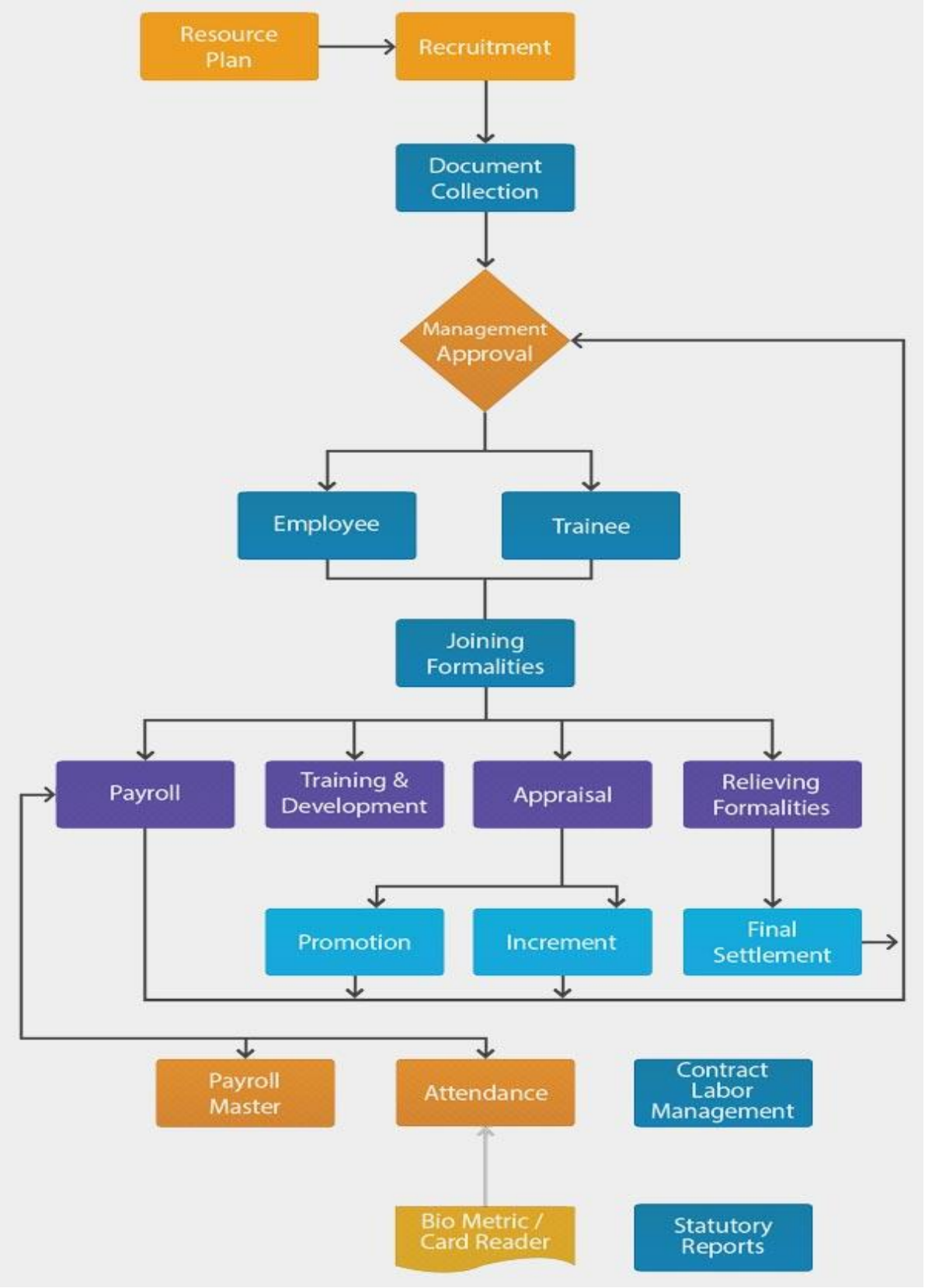


Figure 3.1 HRM flow chart (adopted from www.freeprojects.com)

3.1 DATA COLLECTION

This study is not a survey research; however, the software developed in the course of this study needs to be evaluated by a number of users. Specifically, interview was conducted to know the gap that needs to be filled in the existing system, primary data was collected through the use of questionnaires as the main instrument. This was mainly to determine the usability of the new system.

Interview: In order to know the weaknesses of the existing system, a number of staff at the HR unit of Somali University was interviewed and their responses were documented.

Questionnaire: To evaluate the system developed, some users that are already familiar with the exploration or navigation of website were engaged to response to a number of questions that focused on the system usability. A total number of fifty (50) people evaluated the usability of the software and their responses was analysed as shown in Figure 5.8 and Table 5.1 in chapter five. This is the approach used in software testing and their responses were computed in line with the principle of System Usability Scale (SUS).

3.2 SOFTWARE DEVELOPMENT MODEL

There are several models for developing software system. This study adapts the concept of water fall model for the development of the proposed system.

3.2.1 Waterfall System Development Life Cycle Model

Waterfall System Development Life Cycle model is a sequential software development process in which progress is regarded as flowing increasingly downwards (similar to a waterfall) through a list of phases that must be executed in order to successfully build a computer software.

Originally, the Waterfall model was proposed by Winston W. Royce in 1970 to describe a possible software engineering practice Royce, W. (1970). The Waterfall model defines several consecutive phases that must be completed one after the other and moving to the next phase only when its preceding phase is completely done. For this reason, the Waterfall model is recursive in that each phase can be endlessly repeated until it is perfected.

Waterfall model sequence of stages in which the output of each stage becomes the input for the next, These stages can be characterized and divided up in different ways, generally takes more time to complete the software life cycle as when a stage completes it is signed off and development goes onto the next stage.

The model follows a number of stages from analysis to maintenance stage. The stages are briefly discussed for clarity sake and illustrated in Figure 3.1

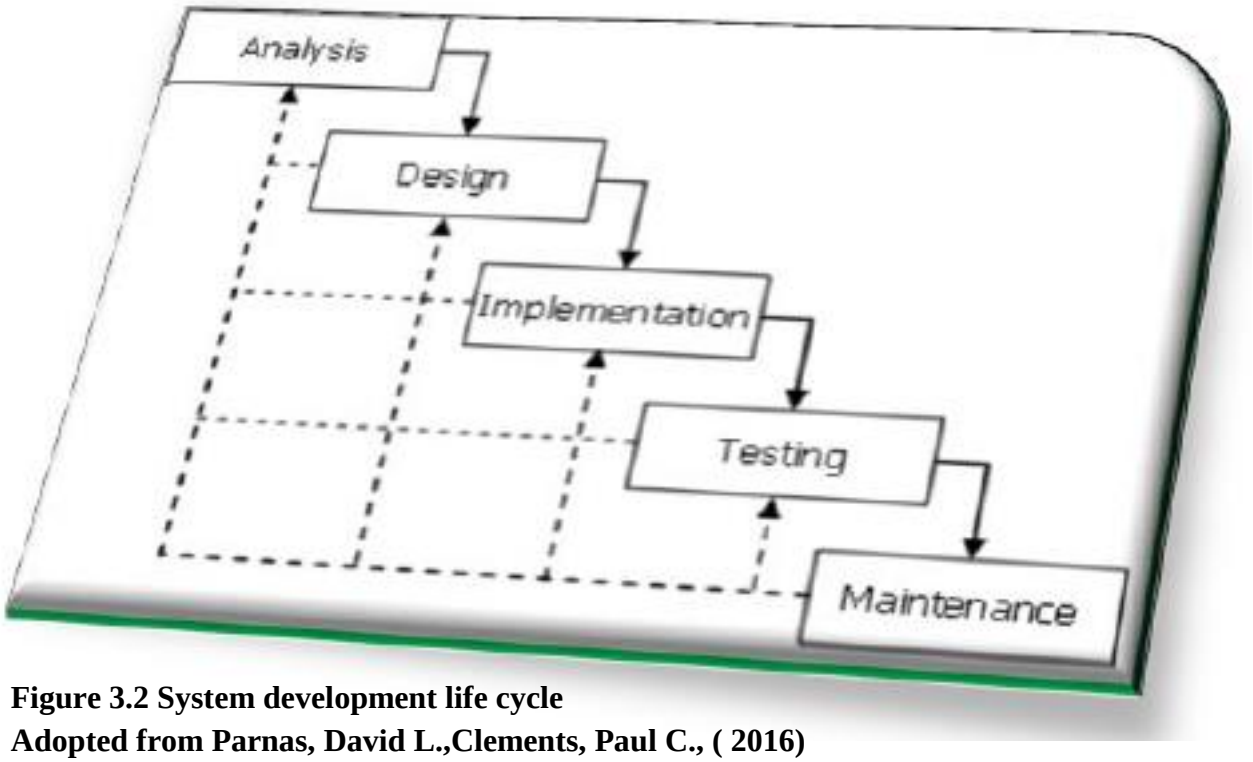


Figure 3.2 System development life cycle
Adopted from Parnas, David L.,Clements, Paul C., (2016)

3.2.1.1 Analysis of the system development cycle

This is the first phase of waterfall model which includes a meeting with the customer to understand his requirements. This is the most crucial phase as any misinterpretation at this stage may give rise to validation issues later. The software definition must be detailed and accurate with no ambiguities. It is very important to understand the customer requirements and expectations so that the end product meets his specifications.

3.2.1.2 Design of the system

The customer requirements are broken down into logical modules for the ease of implementation. Hardware and software requirements for every module are identified and designed accordingly. Also the inter relation between the various logical modules is established at this stage. Algorithms and diagrams defining the scope and objective of each logical model are developed.

In short, this phase lays a fundamental for actual programming and implementation. Design can be consider as alternative ways of solving the problem; plan what hardware, software, procedures and data need to be created, purchased or assembled.

3.2.1.3 Implementation of the system

This is the software process in which actual coding takes place. A software program is written based upon the algorithm designed in the system design phase. A piece of code is written for every module and checked for the output. Before the completed system could be implemented to the customer, a number of tests were conducted in order that the system had meets the user requirements, the tests include unit testing, system testing and user acceptance test.

3.2.1.4 System Testing

The programmatically implemented software module is tested for the correct output. Bugs, errors are removed at this stage. In the process of software testing, a series of tests and test cases are performed to check the module for bugs, faults and other errors. Erroneous codes are rewritten and tested again until desired output is achieved.

3.2.1.5 System Maintenance

What happens during the rest of the software's life: changes, correction, additions, and moves to a different computing platform and more? This, the least glamorous and perhaps most important step of all, goes on seemingly forever.

Maintenance is being conducted after the system had been implemented to the targeted user. This is to ensure that the system operate as it should be according to the user requirement. However, there are sometimes that the maintenance will lead to some changes on the system.

3.3 System Requirement Specification

System requirement Specification (SRS) document describes all data, functional and behavioural requirements of the software under production or development.

3.3.1 System interface

The use of digital technologies to produce and deliver access to content provides blind and visually impaired sales users with a high degree of choice and independence in exercising that

choice. Users in the digital environment are confident that the optimal use of digital technologies will result in optimal service delivery,

In addition, that their individual needs was met. They have varying degrees of computer knowledge and competency, from the expert computer user to the beginner. Some users have personal computers and use the Internet to access information directly within the digital environment

3.3.2 User Interface

The user of this system doesn't need any software to install, but only requires a browser interface to access it. The optimal resolution setting to view the system is 1024 x 768 and 800 x 600 pixels. The software would be fully compatible with Microsoft Internet Explorer for version 6, version 7, and version 8 and above. To access the system, users is be required to have login.

3.3.3 Hardware Interface

Hardware Interfaces exist in computing systems between many of the components such as the various busses storage device other I/O devices, etc

Server-side	**Client-side**
Intel CPU Core i5	CPU Dual Core 2.6 GHZ or above
8GB RAM	4 GB RAM
750 GB hard disk	320 GB hard disk
Network Adaptor (NIC)	Network Adaptor (NIC)

3.3.4 Designing of Software Interface

Software interface may refer to arrangement of deferent types of interface and different "levels" in an operating system may interface with pieces of hardware. The interface design of software interface basically requires server-side software. This study uses ASP.NET

Server-side	Client-size
1. MS-SQL Server 2014	Microsoft Internet Explorer 6.0 or above
2. ASP.NET	

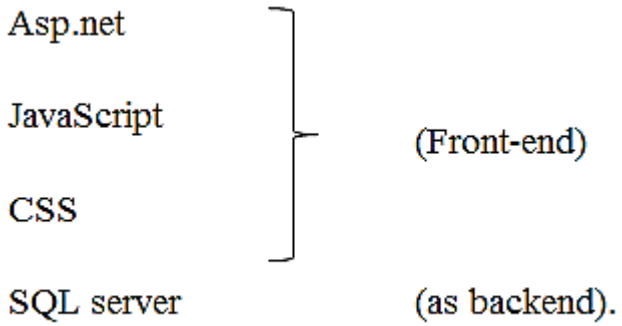
Applications or programs running on the operating system may need to interact via streams, and in object oriented programs, objects with in an application may need to interact via methods.

3.3.5 Communication Interface

The system should be accessed over LAN or WAN. For customers to access application server the network should be running TPC/IP protocol.

3.4 Software Development Tools Specification

The following software tools were used to create the project software:



Main task	Tool Name
Front end	Microsoft Visual Studio .NET 2013 (ASP.NET), CSS and java script
Back end	Microsoft SQL Server 2014

3.5 User requirements specification

Although the university Human Resource office is using simple computerized system which is Desktop system for years, for the moment; the requirement for online system becomes clear that will handle all the Human Resource Operations automatically.

The online Human Resource system that is web based application, is expected to provide a working environment that is flexible, efficient and user-friendly by affording easy of work

with significant reduction of time in Human Resource administration. Hence, the need for the proposed system.

3.6 The proposed system

The proposed Human Resource Management System was developed based on the procedures listed in the waterfall model. The system is carefully designed to address the weaknesses of the existing system will need more reliable security to uniform application in secure way to the visitors of the site. The administrator of the system was capable to give different privileges and permissions to the users and visitors of the system, and all permissions were monitored in restricted way.

Some online systems available now was developed with old versions of Software that causes the system's speed to be slow or totally unsuitable. They are static and unchangeable sites. However we are trying to develop a new system with the latest versions of Software to be fast and reliable.

Online Human Resource Management System (OHRMS) is aimed to automate required activities of the Human Resource. OHRMS will give possibility to provide high quality Operations to the Human Resource members, also to have high planned and fast work.

3.6.1 Why the choice of ASP.NET

ASP.NET is a programming framework built on the common language runtime that can be used on a server to build powerful Web applications. ASP.NET has many advantages – both for programmers and for the end users because it is compatible with the .NET Framework.

This compatibility allows the users to use the following features through ASP.NET: a) Powerful database-driven functionality: ASP.NET allows programmers to develop web applications that interface with a database. The advantage of ASP.NET is that it is object-oriented and has many programming tools that allow for faster development and more functionality.

b) Faster web applications: Two aspects of ASP.NET make it fast – compiled code and caching. In ASP.NET the code is compiled into "machine language" before a visitor ever comes to the website. Caching is the storage of information in memory for faster access in the future. ASP.NET allows programmers to set up pages or areas of pages that are commonly reused to be cached for a set period of time to improve the performance of web applications.

In addition, ASP.NET allows the caching of data from a database so the website is not slowed down by frequent visits to a database when the data does not change very often. ASP.NET also supports code written in more than 25 .NET languages (including VB.NET, C#, and Jscript.Net). This is achieved by the Common Language Runtime (CLR) compiler that supports multiple languages. ASP.NET is a compiled, .NET-based environment, you can author applications in any .NET compatible language, including Visual Basic .NET, C#, and Script .NET. Additionally, the entire .NET Framework is available to any ASP.NET application. Developers can easily access the benefits of these technologies, which include the managed common language runtime environment, type safety, inheritance, and so on.

3.6.2 The choice of SQL Server 2014 as a database

In this project, SQL server 2014 is used as the backend database.

The features of SQL server 2014 are given below:

1. SQL server is a relational database management system. A relational database stores information in different tables, rather than in one huge table. These tables can be referenced to each other, to access and maintain data easily.

2. The database software can be used and modify by anyone according to their needs.

3. It is fast, reliable and easy to use to improve the performance.

4. A multithreaded application performs many tasks at the same time as if multiple instances of that application were running simultaneously.

The concept of UML (in particular, use-case and activity diagram) was also being required to model the interaction of staff with the proposed web-based system.

One of the existing software models were also is adopted in the course of this study.

3.7 Data Flow Diagram (DFD)

Data Flow Diagrams is a common form of process modelling which represent a logical model that shows what the system does, not how it does it. The DFD is an excellent communication tool for analysts to model processes and functional requirements. Used effectively, it is a useful and easy to understand modelling tool. It has broad application and usability across most software development projects.

It is easily integrated with data modelling, workflow modelling tools, and textual specs. Together with these, it provides analysts and developers with solid models and specs. Alone, however, it has limited usability. It is simple and easy to understand by users and can be easily extended. DFDs graphically show the movement and transformation of data in the information system.

DFDs use four symbols: Process is a unit of work that operates on the data. The process may be automated or manual. The symbol for a process is a rounded rectangle; Data flow is a named flow of data through a system of processes, data flow is shown as a directed line on the diagram; Data store is a logical repository of data.

It may be an automated file, a paper file, etc. a data store is shown as an open-ended rectangle; External Entity is a source or destination of data. The external agent occurs outside of the system of processes. An external agent is depicted by an overlapping rectangle.

Several different versions of DFDs exist, but they all serve the same purpose. In this project was used popular version called the Gane and Sarson symbol.

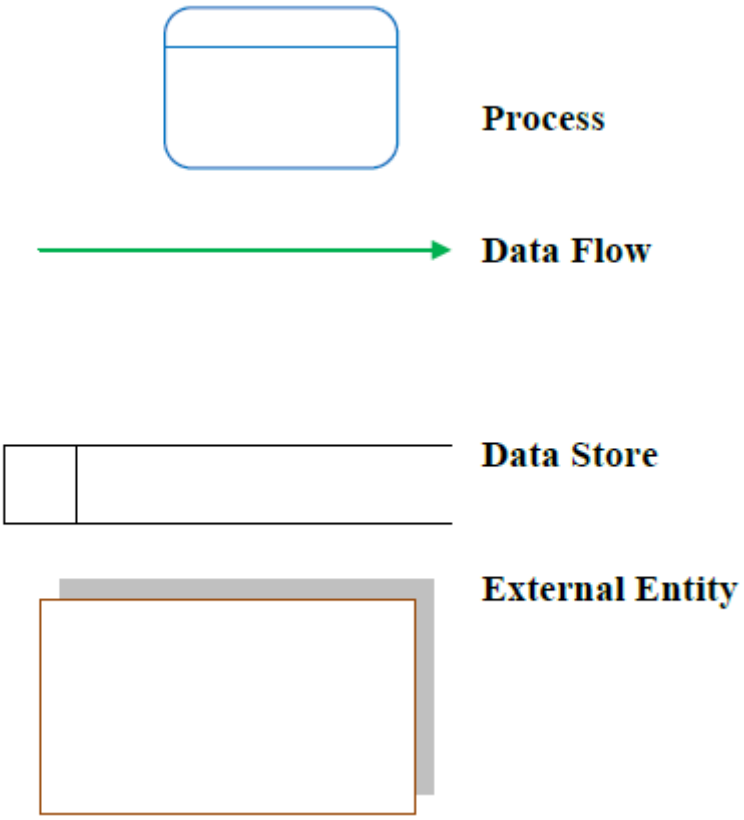


Figure3.3. Gane and Sarson symbols (adopted from cenceptdraw.com)

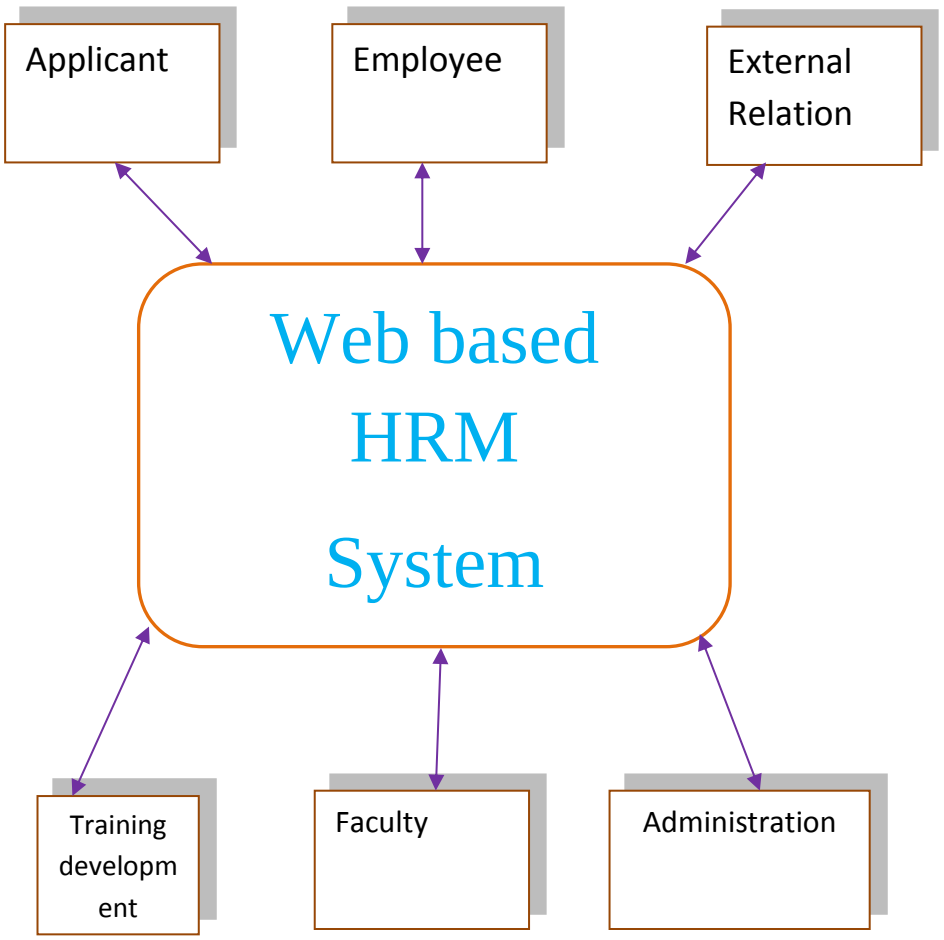


Figure3.4 The proposed Context Diagram of the new system

3.8 Analysis of the existing system

In this study, existing system and old system are used interchangeably. There was an oral interview with the stake holder at the HR unit of Somali university. Some information received from the unit regarding the old system were noted.

- ❑ Subsequently, there was an interaction with the old system.
- ❑ Findings reveal some areas that needed to be improved.

Specifically,

1. The old system is tedious in terms of generating the final report since data is recorded in different books.

2. The old system is expensive in terms of studying and analysing the data and requests of employees of the University.
3. The old systems can be easily fed with incorrect data such as wrong names and wrong qualification and this create challenges in management of the employees in the University.
4. The old system has limited capability for tracking all activities in a timely manner.

3.9 Requirement analysis of the proposed system

Process Data

Display: - User with defined roles can display the content of the database. Being more specific, employee can only view his/her personal information. Head of unit can both his personal information and that of the employee's under his/her unit. The admin can display their personal information and all employees' information.

Edit: - Admin can edit all information related to all employees and update the database.
Update authentication- Admin can update the enrolment details of an employee. If an employee got promotion and his role type was changed from employee role id to HOD. Admin was able to update this authentication mechanism.

Leave Application/Approval: - The user can be able to apply for a leave a certain number of times specified by the administration. Then the admin can approve or reject the leave applications based on the reasons stated, length of leave as well as available human resources at that moment. Leave days accrued- The user shall be able to check the number of leave days accrued.
Add new employee: - HR role type is able to add a new employee to the database. The new employee will have all the required personal information related to him/her. The new created employee will have an id, where the unique id was specified by the system.
Report generation: - Admin shall be able to generate a report in word format for each employee based on the information in the database.

3.10 Use case modelling

A use case defines a goal-oriented set of interactions between external users and the system under consideration or development. Thus a Use Case Scenario is a description that

illustrates, step by step, how a user is intending to use a system, essentially capturing the system behavior from the user's point of view.

In order to create relevant use cases for the system, the following actors for the system have been identified:

- Employee (could be lecturers, accountants, technicians)
- Human Resource (HR)
- Administrator

Table 3.1: The key actors, Use case and their Description

Actor	**Use Case**	**Description**
Employee	Edit Profile	Employee is being able to edit personal details such as emergency contacts as well as technical skills acquired.
Employee	Apply Leave	Employee is being able to submit leave request along with supporting documents
Employee	Check Leave Days	Employee is being able to check leave days
Admin	Add new employee	Admin is being able to create new employees
Admin	Edit user role	Admin is being able to edit user roles
HR	Accept leave application	HR is accepted leave application from employees
Admin	Reject leave application	HR is reject leave applications from employees
Admin	View user activity log	Admin is being able to view activity log of all users in the system
HR	Generate reports	HR is being able to generate reports containing employee information

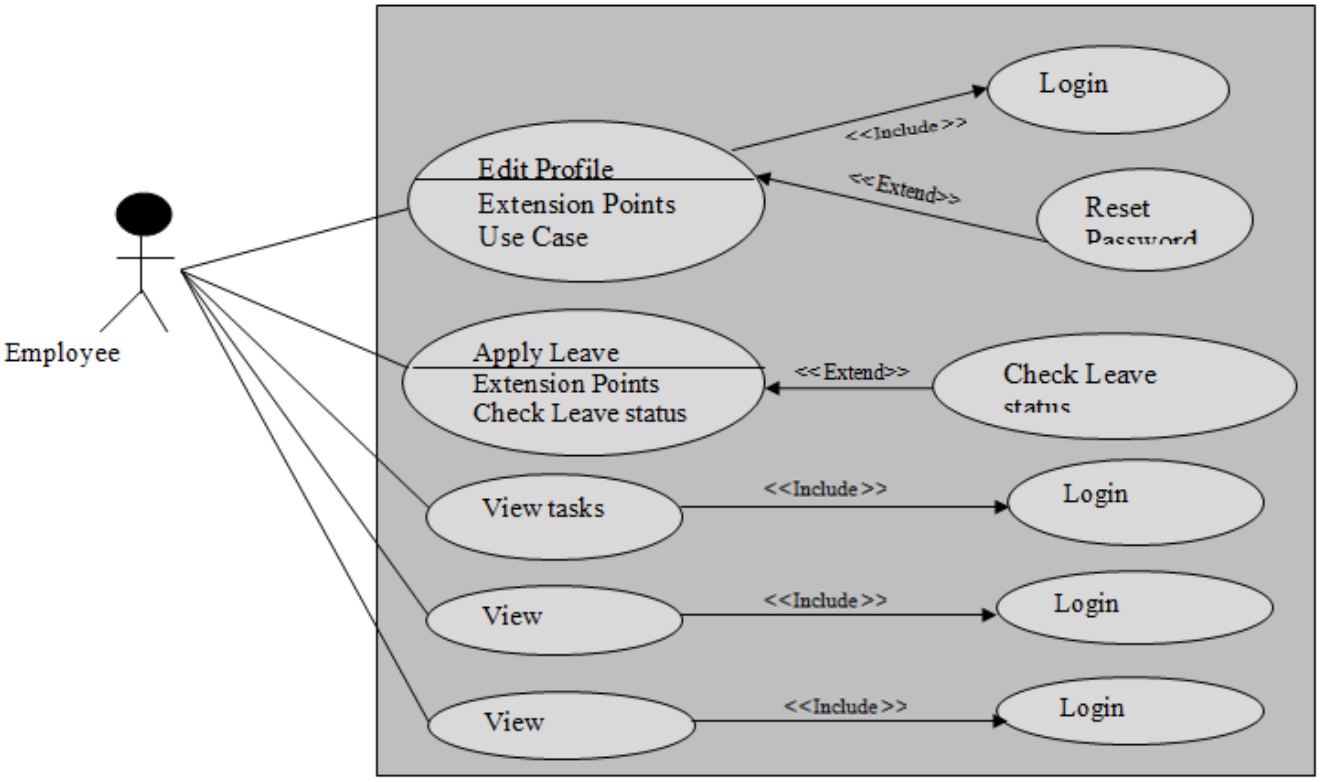


Figure 3.5: Showing employee use case diagram of the proposed new system

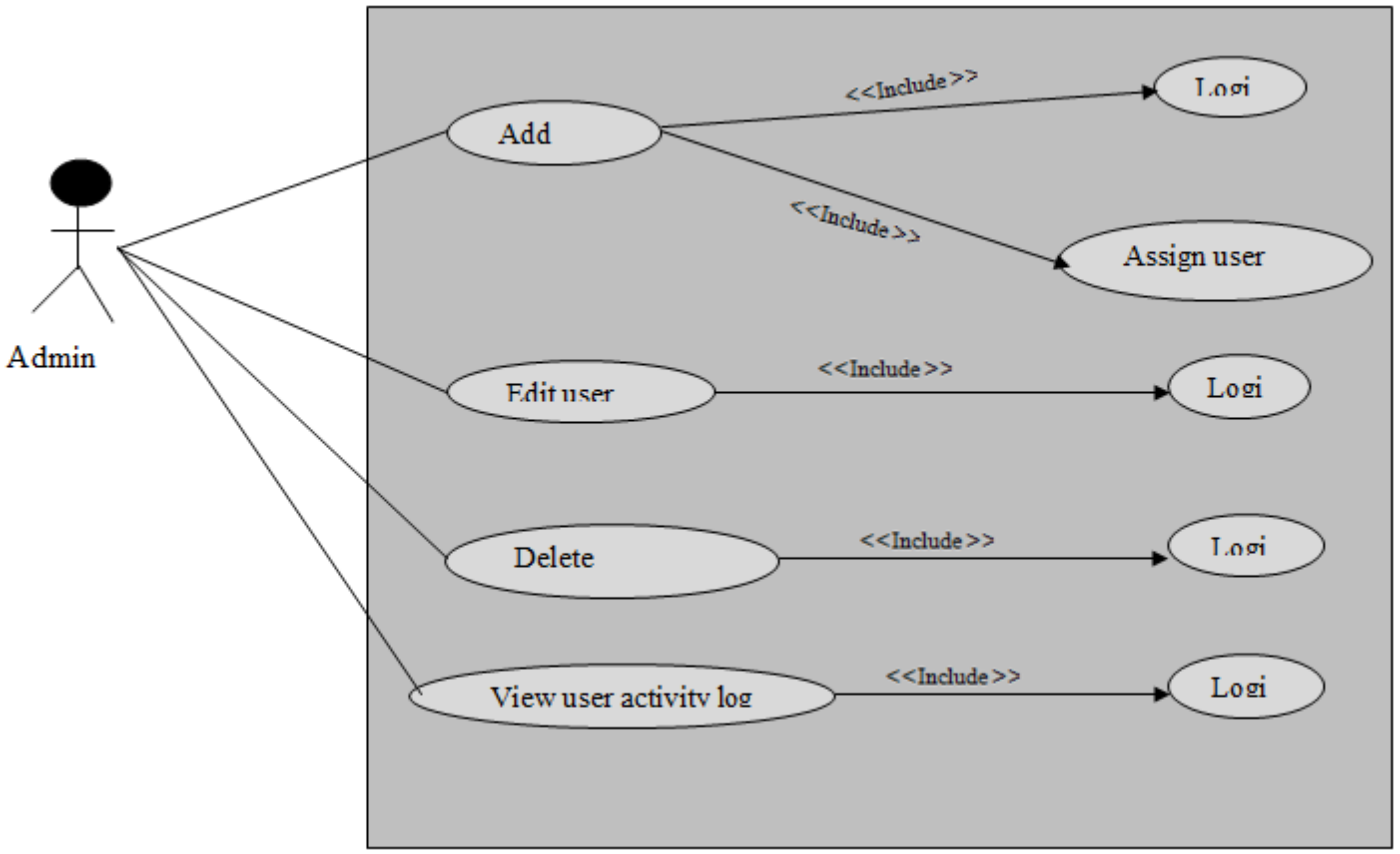


Figure 3.6: Showing admin Use case diagram of the proposed new system

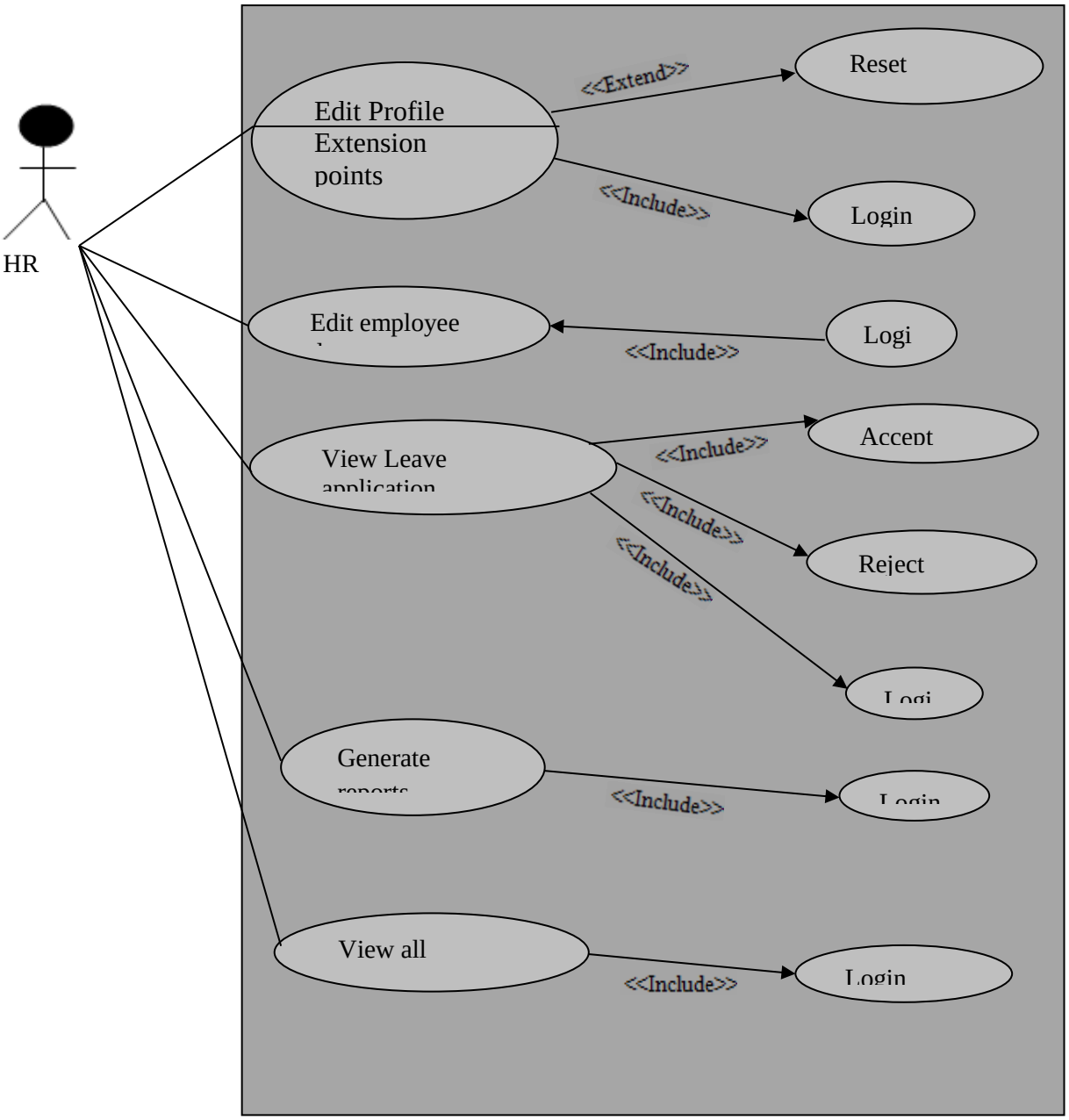


Figure 3.7: Showing HR Use case diagram of the proposed new system

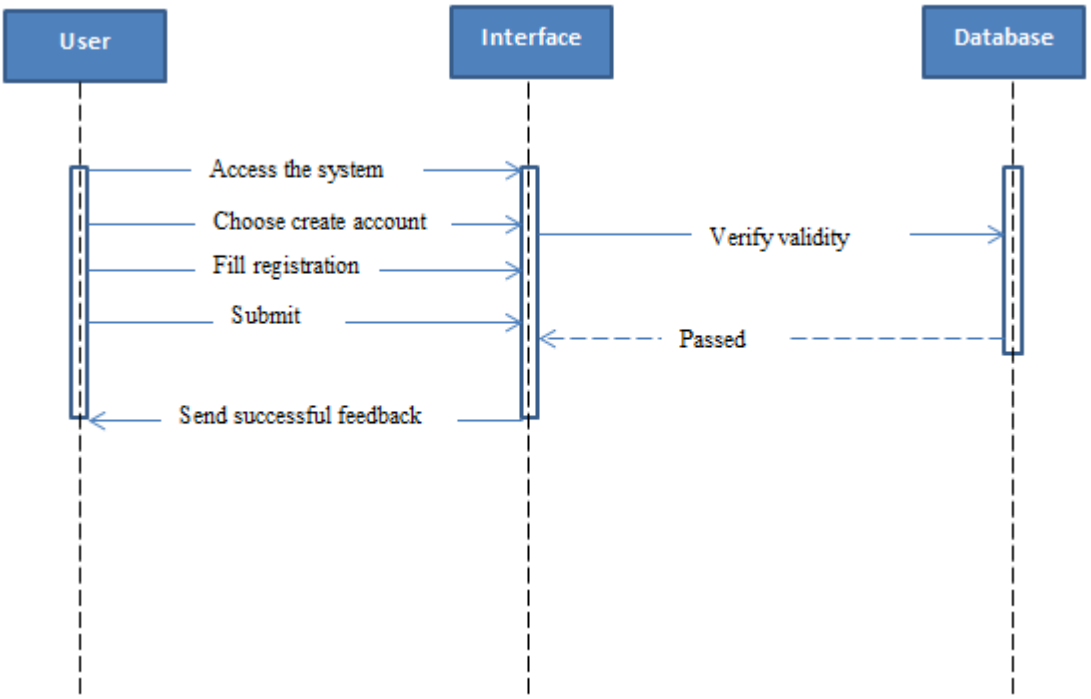


Figure 3.8 showing account sequence diagram

Brief description

This function allows user to create a user account and register with the system.

Basic flow

1. The user accesses the system and chooses the create account function to create a user account.

2. The system displays a registration form, including username, password, , phone number, address, title etc.

3. The user fills out the registration form, and submits it.

4. The system verifies the submitted information. If the data is valid, the system returns the confirming information to the user, shows the user a welcome message, the user account, and the password.

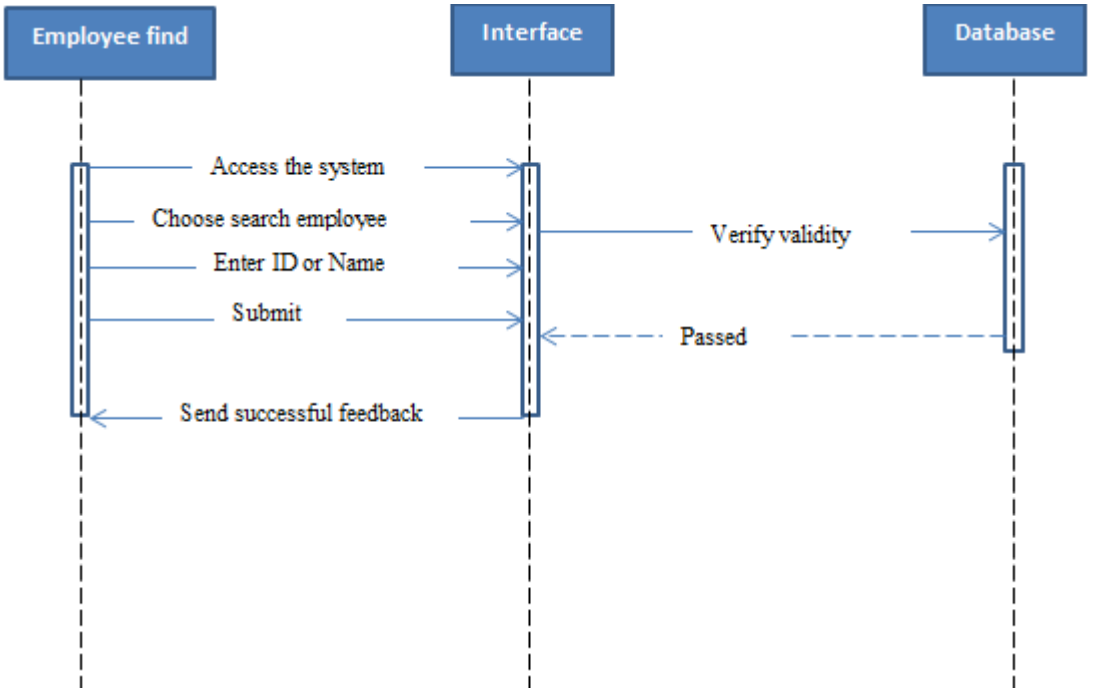


Figure 3.9 Find employees sequence diagram

Brief description

This function allows the Admin to find specific employee in order to review the information of that employee.

Basic flow

1. The admin accesses the system and then moves to the find employee form to search the detail.

2. The system displays the search form, to allow admin to search.

3. The admin enter the ID or name of the employee, and submits it.

4. The system checks the information from the database. The system displays the information of the employee if tis correct or it displays message error.

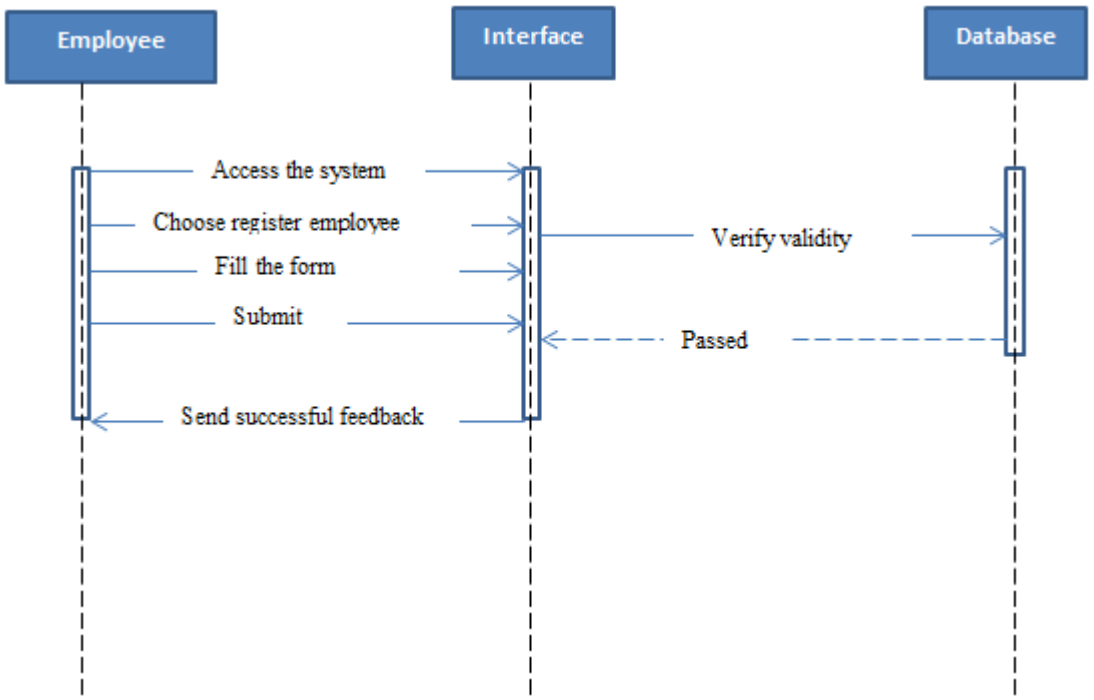


Figure 3.10 Employee registration sequence diagram

Brief description

This function allows the Admin to register an employee in order to keep the information of that employee.

Basic flow

1. The admin accesses the system and then moves to the employee registration form to register the new employee.

2. The system displays the registration form.

3. The admin enter the information of the employee, and submits it.

4. The system checks the information for validation. If there is an error the system displays message error or displays successful message.

CHAPTER FOUR

DESIGN AND IMPLEMENTATION

4.0 INTRODUCTION

This chapter discusses the series of design for various parts of the proposed system and how these designs are implemented. The design phase primary concern is to ensure the design of software that is valid, reliable, and high-fidelity to the next phase. Designing is the most important phase of software development. It requires a careful planning and thinking on the part of the system designer. Designing software means to plan how the various parts of the software are going to achieve the desired goal.

It should be done with utmost care because if the phase contains any error, it will definitely affect the performance of the system, as a result it may take more processing time, more response time, extra coding workload etc.

Implementation is mainly about the coding of the entire software; in this study the coding was done using Visual basic.net (ASP.net) and Microsoft SQL server 2014 serves as backend for the new system. Excerpt of the codes that was used for development is available in appendix III.

4.1 DESIGN OF THE PROPOSED SYSTEM

4.1.1 User interface design

Before implementing the actual design of the project, a few user interface designs were constructed to visualize the user interaction with the system as they browse the website and interact with the system.

Figure 4.1 The index page of the proposed system

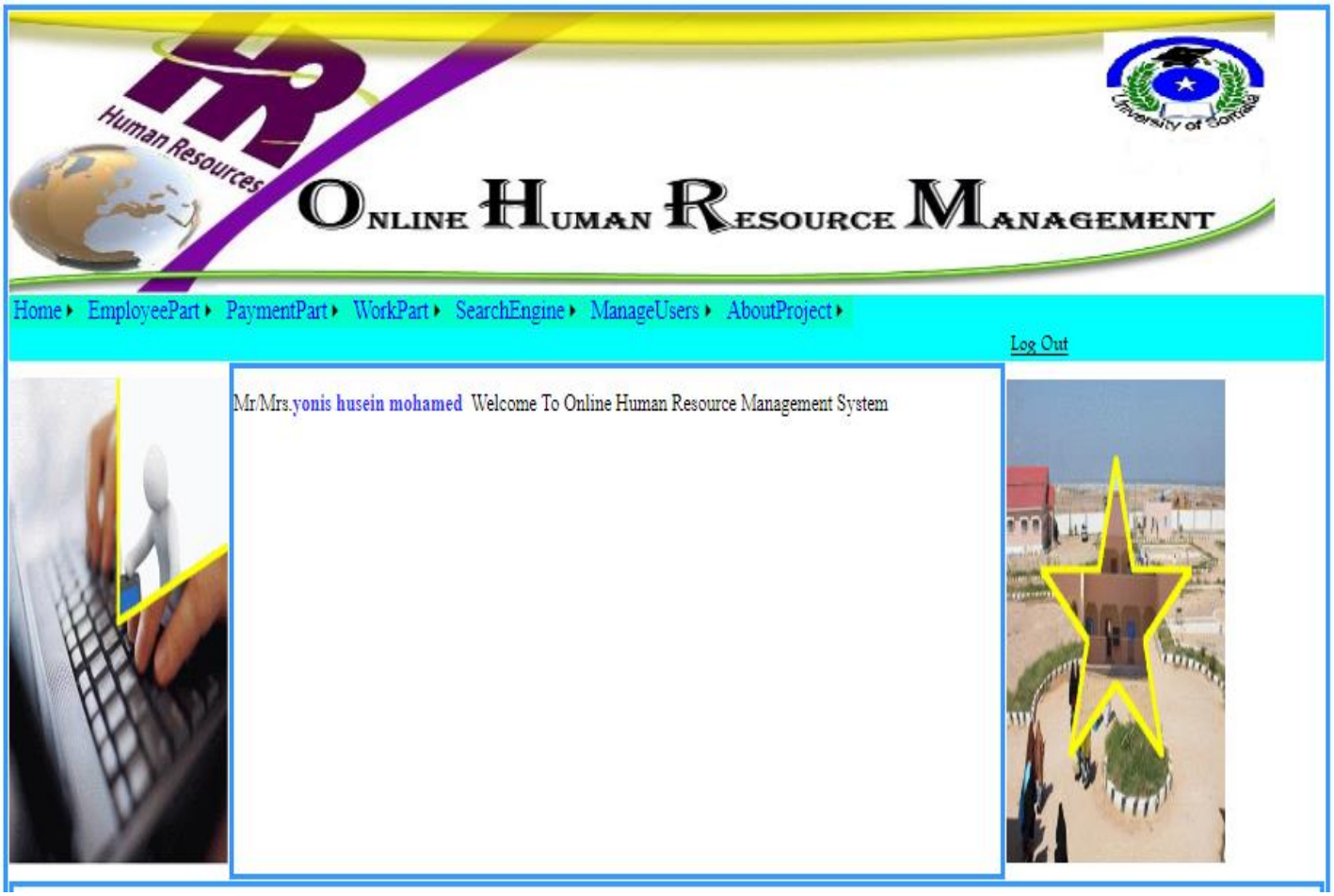


Figure 4.2 The administrator home page of the proposed system

4.1.2 Database design

The database diagram was used to illustrate several tables and their relationships. A database may contain multiple diagrams, and each diagram does not need to display all the tables. This makes it easy to organize large databases into modular diagrams.

Eventually, we would like to represent all the relationships in the database to the following figure;

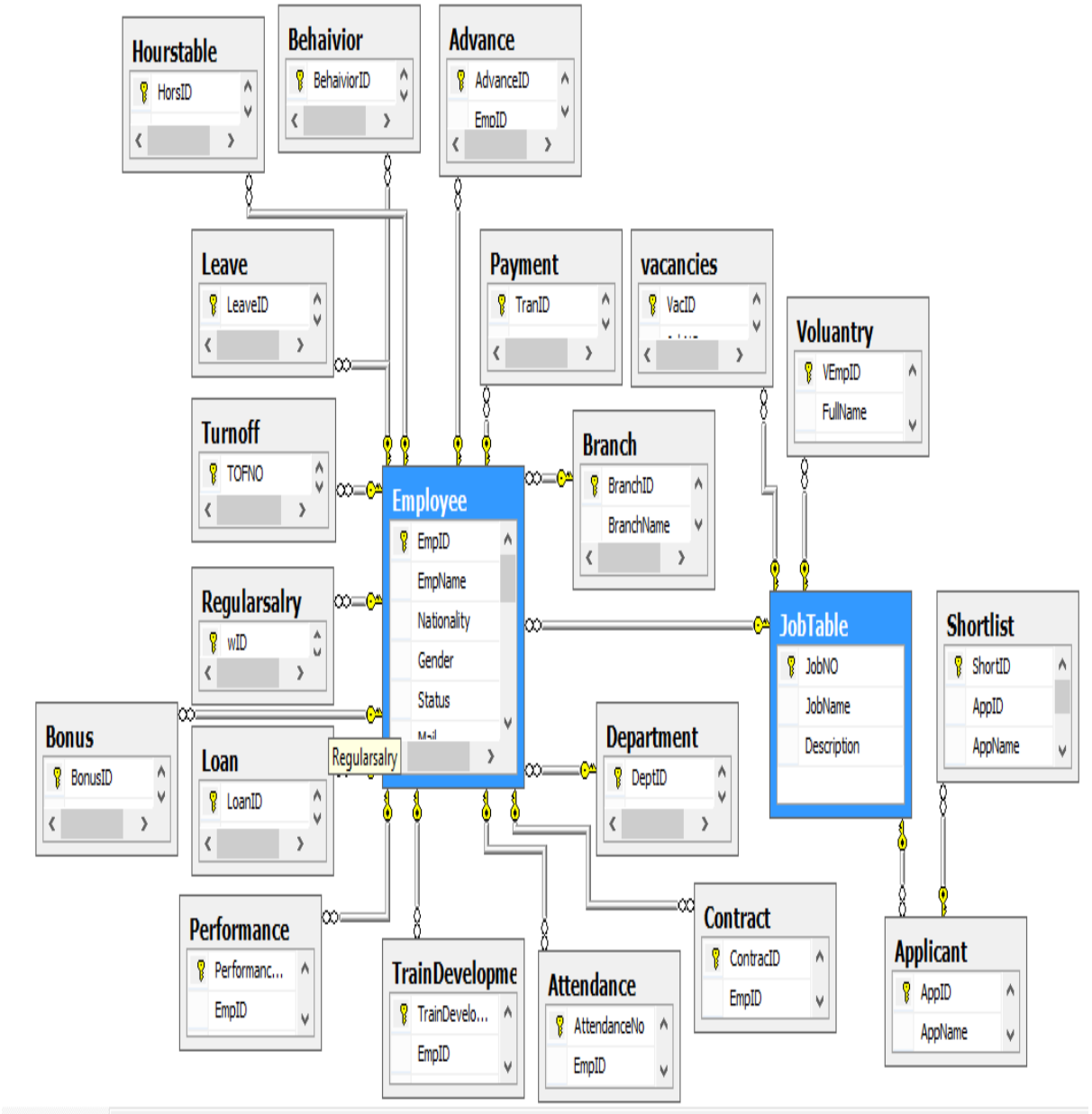


Figure 4.3 The database structure of the proposed new system

4.1.2.1 Entity Relationship Diagram

ERD is a detailed, logical representation of the entities, associations and data elements for an organization or business. **ERD** is a graphical modelling tool to standardize ER modelling; the

modelling can be carried out with the help of pictorial representation of entities, attributes and relationships.

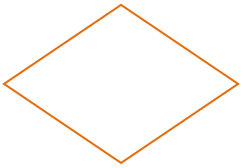
The basic building blocks of ERD are Entity, Attributes, Relationship and lines entity is an object that exists and is distinguishable from other object in other words.

ERD Symbols

The ER diagram was used to represent database schema.

- A rectangle represents an entity set

- A Diamond represents Relationship



- Lines represent linking of attributes to entity sets & of entity sets to relationship sets

- An Ellipse represents attributes

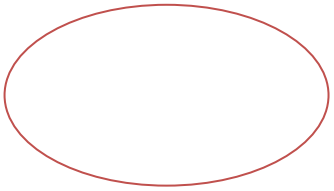


Figure 4.4 Showing ERD Symbols

Relationship classification

Relationship is an association among one or more entities. This relationship was used and broadly classified into one-to-one relation, one-to-many relation, many-to-many relation and recursive relation as follows;

Relation Type	Representation
One-to-One	
One-to-Many	
Many-to-Many	
Many-to-One	

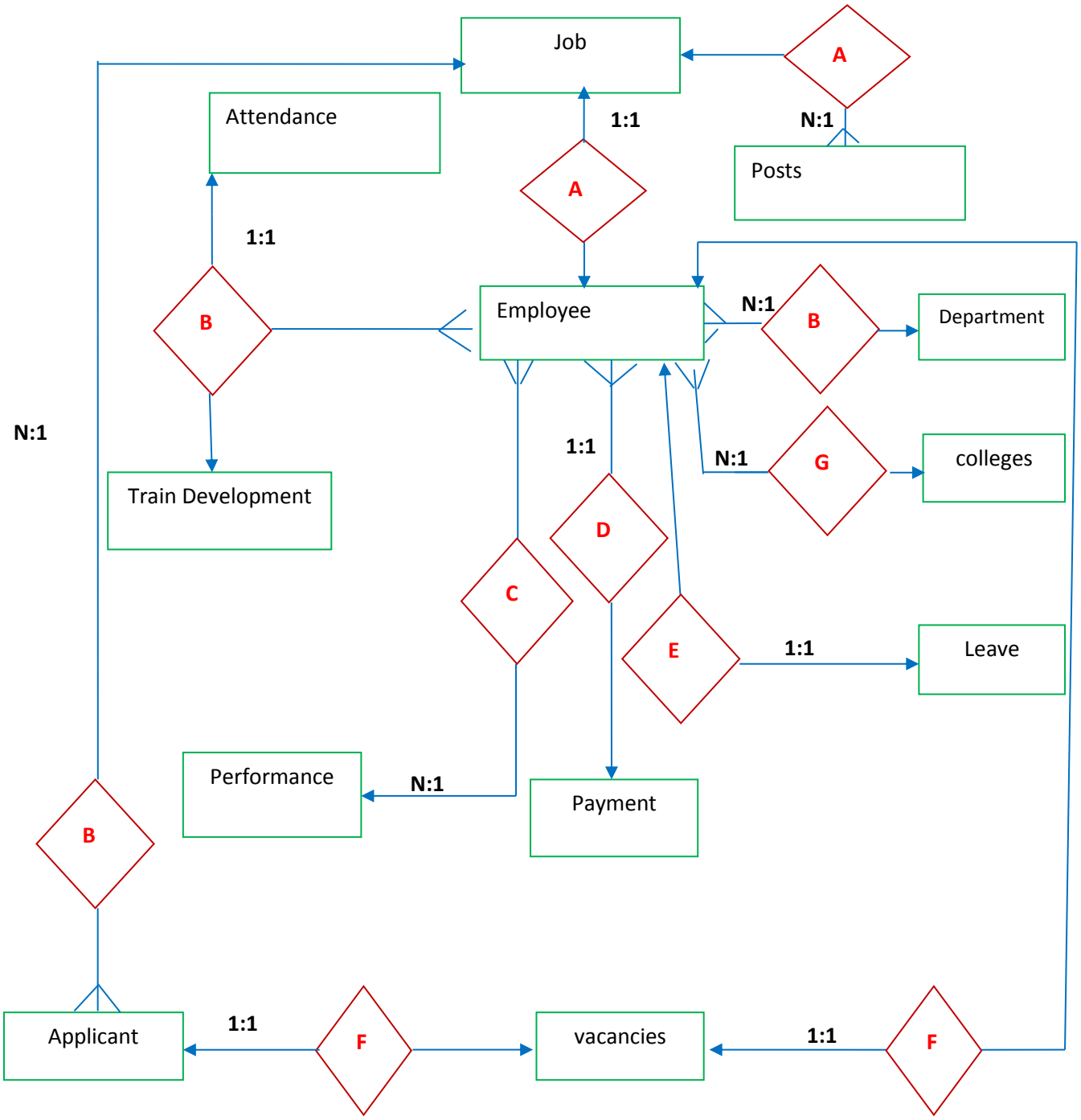


Figure 4.5 The entity relationship diagram

4.2 IMPLEMENTATION OF THE PROPOSED SYSTEM

This phase is focussed on providing access to most the computer programs that we used to prepare the data and apply the programming techniques Instructions on how to construct this application project using the software is available on the attached compact disk (CD). The project implementation part was discussed the details process of system component.

4.3 TESTING OF THE PROPOSED SYSTEM

This system has been tested during the development process. All the functions have been tested individually (Unit testing) and collectively (System testing). We also have been tested with other functions to check its functionality to correct both logical errors and syntax errors. Errors identified during the coding processes were corrected during the early phases of the development life cycle. However, after the completion of the system, all functions were tested and they work as a complete system to make sure that it meets its requirements and the objectives.

Software testing and debugging are tasking elements of the eventual review of specification design and coding, testing of software leads to the uncovering of errors in the software's useful and performance requirements. Testing also provides a good indication of software consistency and software excellence as a whole. The effect of different phases of testing are evaluated and then compared with the expected consequences. If the errors are exposed they are debugged and corrected.

Testing form is also where the impression about the main pages in Somali University's web based Human Resources Management System, including how to register new user and grant privileges are entered and processed.

The developed system, as an online human resources managements system contains many forms which serves all departments of Somali University. It technically solves all identified challenges as an active complete system; it gives different privileges to user type. For example, if you create user called Yonis and user type is admin and also create Yonis as user type, user, the previous Yonis and current Yonis have not same privilege.

After coding, a programmer must test each program to make sure it functions correctly. Later, programs are tested in groups, and lastly the growth must test the entire system.

4.3.1 Software testing

A) Component Testing

The testing of individual program or module is called Component testing. The objective is to identify and eliminate execution errors that could cause the program to terminate abnormally, and errors that could have been missed during the checking. Testing is more than just debugging. The purpose of testing can be quality assurance, verification and validation, or reliability estimation. Correctness testing and reliability testing are two major areas of testing.

B) Integration Testing

Integration testing is the phase in software testing in which individual software modules are combined and tested as a group. It occurs after unit testing and before testing. Testing more than one program that depends on each other is called integration testing, or link testing.

C) Acceptance Testing

After completing integration testing, acceptance testing was performed, which involves the entire information. An acceptance test includes all typical processing situations and is intended to assure users, developers. During acceptance testing, user enters data including samples of actual, or live, data, perform queries, and employee report to simulate actual operating condition.

4.4 Developing Documentation

Documentation describes an information system and helps the users who must interact with it. Accurate documentation can reduce system downtime, cut cost, and speed up maintenance task. Documentation is essential for successful system operation and maintenance. In addition to supporting a system's users, accurate documentation is essential for developers who must modify the system, add new features or perform maintenance. Documentation includes program documentation, user documentation and technical documentation.

4.4.1 User Documentation

User documentation consists of instructions and information to users who will interact with the system and includes user manuals help screen. It includes:

i. A system overview that clearly describes all major system features, capabilities, and limitations.

ii. The user documentation describes each feature of the program, and assists the user in realizing these features.

iii. Explanation of how to get help and procedures for updating user manual.

iv. Overview of menu and data entry screen options, contents, and processing.

CHAPTER FIVE

RESULTS, EVALUATION AND DISCUSSION

5.0 THE RESULTS

i. The Login Screen

The login screen is a user authorization screen that authenticates and gives privilege to the user of the software. The user is required to enter the username and the password to gain access to the system. This can be shown in appendix II;

And if the login requirement is not correct, the system rejects the entries and denies access to the system as it is shown below:

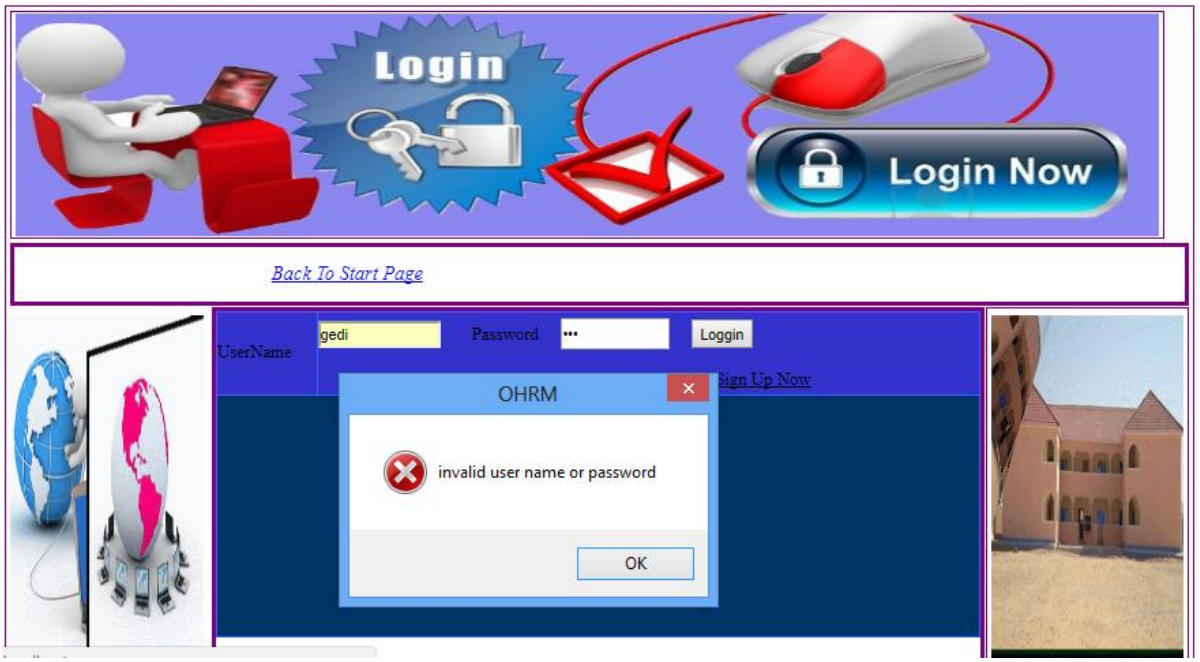


Figure 5.2: The Validation page

The Login button is a name of a command button. The Login is use to validate the entries made to Username and Password entry field. When correct entries are made and the user clicks the Validate button, it gives access to the use of the system; otherwise an error message was displayed. The user can use the cancel button at the top right hand corner of the window to exit the program.

ii. **Employee Registration Form**

This window is where the administrator can register an employee with the specified details provided by the employee.

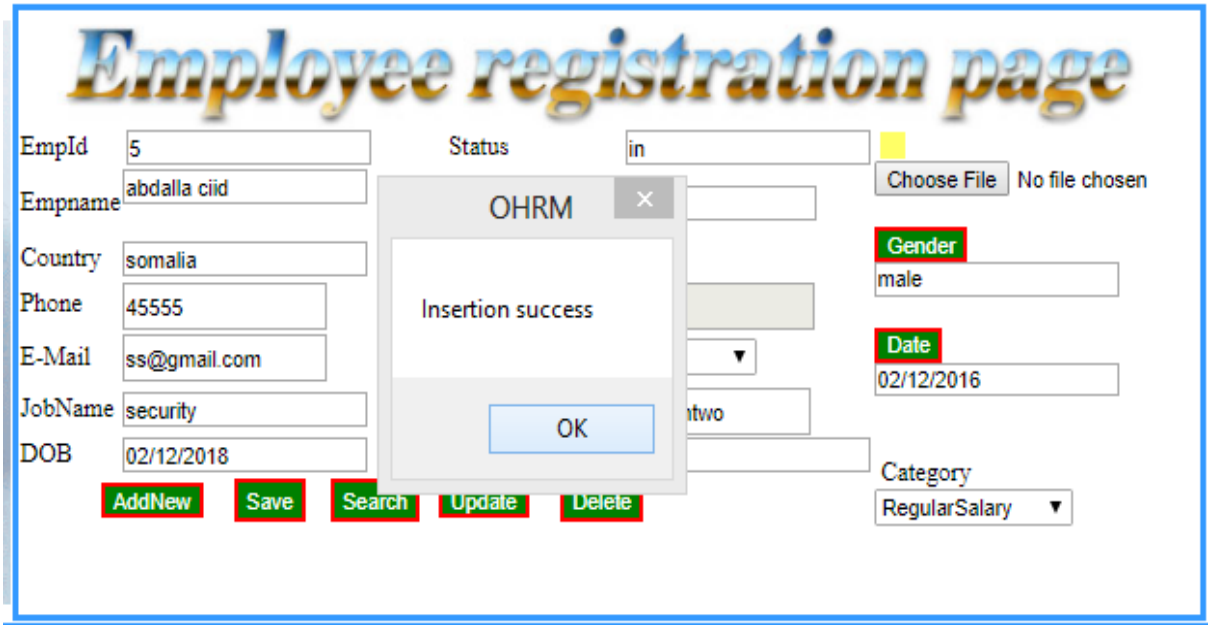


Figure 5.4: Showing Employee registration successful validation

iii. **Update of Employee Record**

This is where the staff record could be updated should any change is required. When the changes have been made, the user have to click the submit button to effect the changes else the record will not be updated in the database.

iv. **Leave Application Portal**

The employee have access to this portal where he/she can apply for a leave specifying the type of leave, duration and the purpose for the leave then wait for approval by the admin based on the policy of the university.

Figure 5.6: Showing Leave Application Portal

v. **Manage Leave Application**

The admin is the one authorize to approve or reject leave application, from here, the admin can see the date the application have been applied and other details as shown in the caption below:

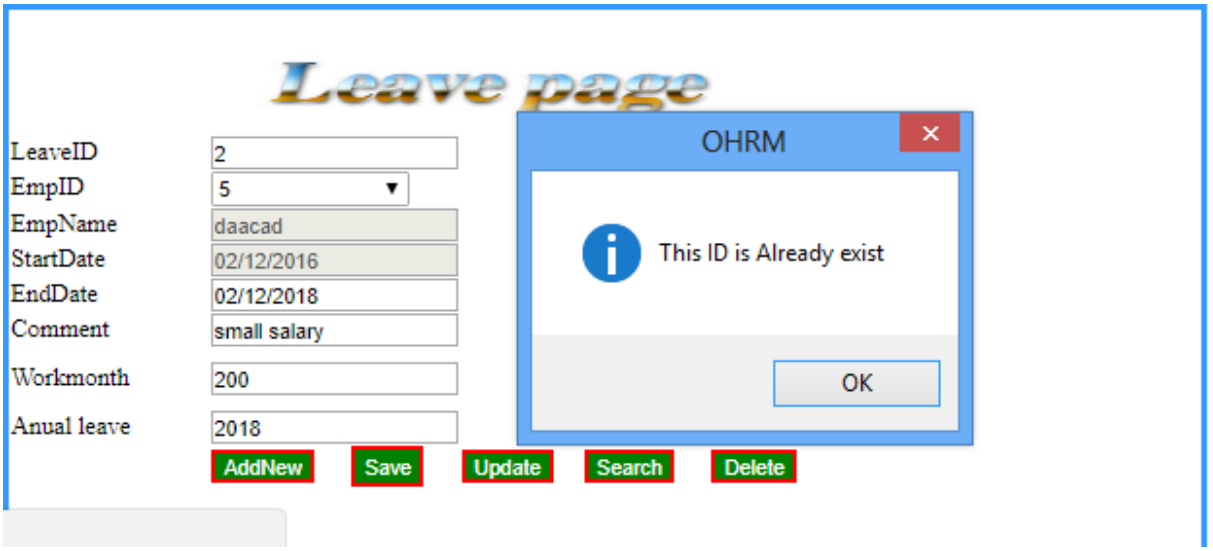


Figure 5.7: Showing Leave Application Management

vi. User satisfaction

The researcher presented the working prototype of a web based Human Resource Management System to the users so that they could use it and provide feedback about its performance.

5.1 EVALUATION AND VALIDATION

The result of this study was evaluated by some computer users that a familiar with web browsing to determine the usability of developed web based system. In order to achieve this, one of the approaches that can be used as reported in the literature is by administering System Usability Scale (SUS).

The System Usability Scale (SUS) is in form of questionnaire as shown in the Figure 5.8.The questionnaire inquired questions relating to user friendliness, security, how the system integrated, the content of the system etc.

The procedures for computing user responses are also illustrated

		Strongly disagree → Strongly agree (1 2 3 4 5)	
1.	The system captured basic content of what a typical human resource unit should showcase.	✓ at 5	4
2.	The system is found to be unnecessarily complex	✓ at 4	1
3.	The various functions in the system are well integrated	✓ at 5	4
4.	It appears there are several inconsistencies in this system?	✓ at 3	2
5.	The number of colour provided in the system and the font size of the text are very adequate.	✓ at 5	4
6.	There is need for further enhancement of the system.	✓ at 3	2
7.	I found the system very cumbersome but content rich.	✓ at 5	4
8.	I found navigation through the system very easy	✓ at 4	1
9.	This system meets the global institutional standard of web site domiciled at HR unit.	✓ at 5	4
10	I found the system to be of acceptable security level.	✓ at 5	4

Figure 5.8: Showing System Usability scale

Total items =30

Total scores =30

System usability scale (SUS) = total score * 2.5

30*2.5=75

The computation shown above is for respondent by a user. The same computer was carried out for other 49 respondents and the entire scores is represented in Table 5.1. The mean values is computed to give the usability scores.

Table 5.1 Computation of user response to usability testing of the respondents

No. of respondent	Total score	SUS score	No. of respondent	Total score	SUS score	No. of respondent	Total score	SUS score	No. of respondent	Total score	SUS score
1	37	92.5	16	34	85	31	30	75	46	27	67.5
2	36	90	17	32	80	32	29	72.5	47	26	65
3	36	90	18	32	80	33	29	72.5	48	26	65
4	36	90	19	32	80	34	29	72.5	49	26	65
5	36	90	20	32	80	35	29	72.5	50	22	55
6	30	75	21	32	80	36	29	72.5			
7	30	75	22	32	80	37	29	72.5			
8	30	75	23	32	80	38	28	70			

9	**32**	**80**	**24**	**32**	**80**	**39**	**25**	**62.5**			
10	**32**	**80**	**25**	**22**	**55**	**40**	**25**	**62.5**			
11	**33**	**82.5**	**26**	**36**	**90**	**41**	**25**	**62.5**			
12	**33**	**82.5**	**27**	**30**	**75**	**42**	**25**	**62.5**			
13	**33**	**82.5**	**28**	**30**	**75**	**43**	**25**	**62.5**			
14	**33**	**82.5**	**29**	**30**	**75**	**44**	**25**	**62.5**			
15	**34**	**85**	**30**	**30**	**75**	**45**	**25**	**62.5**			

The SUS score general total is 3757.5

To get general average this value is divided by the number of respondents:

Thus,

3757.5/50 = **75.15**

Acceptance rate

For a system to be usable "according john brooke who in 1986 created this ' quick and easy' usability scale to evaluate practically any kind of system", such a system should have an average acceptability of 65%. Therefore, the computed SUS for the proposed system shows it is usable since it falls within the acceptable range.

Validation

In order to validate the developed system and before the developed system was presented for evaluation, some experts were invited to validate the system. The essence of the validation was to establish the enhanced features proposed for the old system. The system was found to meet the expected standard as each of the component system was found to interact satisfactorily.

5.3 DISCUSSION OF RESULTS

The results that emanate from this study are discussed based on the specific objectives listed in chapter one.

These objectives were: to analyse the strengths and weaknesses of the existing system, designing an improved web based HR system, implement the HR system and to test and validate the improved system developed.

Explanation for results of objective 1

5.3.1 To Analyse the Strengths and Weaknesses of the Old System

Weaknesses

1. A lot of time is wasted in the whole process of recording, maintaining, managing leave sector, loan requests and retrieving data and sorting of the employee details.
2. The current system does not allow the HR manager to sort, generate a report and update employee details automatically because everything is more of manual based.

Strengths

1. It groups Employees into departments
2. It is compatible to many platforms

Comparison

The proposed system and the old system are compared based on a number of metrics as shown in Table 5.2:

Table 5.2 comparing old and new system

Metrics	Old system	Proposed system
Report generation	Filtering: By applying direct query to the DB.	Provision for report generation through dialogue box
Design styles	Obsolete styles	CSS is used for menu design and menus carefully arranged
Information dissemination	Not adequate	Captured dissemination of key information
Usability	Abandoned due to low usability rating	User friendly and usability computation shows 75%
Security	A single approach method using username and password	Roles are assigned as obtainable in a standard system.

Explanation for results of objective 2

5.3.2 To Design an Improved Web Based HR System

The developed System has four main access levels which are: Employee, Head of Department (HOD), Human Resource Manager (HR) and Administrator.

All users are presented with the same login interface. User must login the system by means of valid username/password combination. After access is granted to the system, the admin can add a new user to the system by entering the basic information which are the full names and email address.

The admin also assigns the new user a role which will determine the access level. During the process of user registration, the all users are issued with a unique username and password combination. Seeing that the system holds private employee information, the admin has the ability to monitor all activity logs into the system by date and time. The newly added user logs into the system with a default password which can later be changed to a more secure password. All employees can edit basic information such as newly acquired technical skills and emergency contacts. Employees can apply for leave by filling in a form as well as submitting an attachment to support their leave request.

Upon logging in to the system, the HR manager gets notifications on the leave applications submitted and has the ability to approve or reject leave requests as they are submitted. The HR carries out all employee tasks which include the ability to view and edit basic details, view pending tasks, projects and trainings. The HR also has to the ability to generate employee reports in PDF format.

Explanation for results of objective 3

5.3.3 To Implement The HR System

When the system was designed, the implementation phase started. An important phase in the system development life cycle is successful implementation of new system design. Implementations simply mean converting new system design into operation. This is the moment of fact the first question that strikes in every one's mind that whether the system was being able to give all the desires results as expected from system.

The implementation phase is concerned with user training and file conversion. The goal of the implementation phase is to implement a system correctly, efficiently, and quickly on a particular set or range of computers, using particular tools and programming languages in university of Somalia online human resource Management System, no person can log in without any user account.
This software has different users and different privileges.

Explanation for results of objective 4

5.3.4 To Test the acceptance of new HR website using System Usability Scale (SUS) approach.

The researcher distributed questionnaires to the actors of the proposed system who took time and responded to all the questions in the questionnaire. They were analysed using System Usability Scale (SUS) approach.

The usability of the proposed system was determined using questionnaire as an instrument for data collection. The respondents pick values from 1 to 5 after navigating through the system. The data from the completed questionnaires was coded and subsequently analysed using the SUS.

The system was developed and tested on a laptop computer running Windows 8, and the ASP.net in order for the Web application to be accessible via the Internet, SQL server. The suitable operating system for the web server was Linux as it is more stable and less prone to virus but a windows based platform will equally do the job as well.

A suitable domain name will have to be chosen and registered in order for the web application to be accessed via a URL and hosting and administration fees paid to the web hosting company of choice either annually or monthly depending on the package and terms agreed upon. The web application was accessible via most of the popular web browsers on the market. A suitable web browser e.g. Mozilla Firefox will have to be installed on the client machine wishing to access the web application. The researcher administered questionnaires for the purpose of establishing the usability of the system developed. The concept of SUS was followed to determine the percentage of the overall System's usability.

The researchers collected the feedback from the users by respondent questionnaires method with the help of questionnaires guide whereby 75.15% feedback from the respondents showed that the system prototype satisfied all the system and user requirements based on the objectives. It is believed that these categories of students can evaluate the proposed system because they have good knowledge of navigating through website.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.0 CONCLUSION

This study presents the reports of an improved web based system for HRM unit of Somali University. The review of existing system shows some weaknesses, this is why the proposed system is developed to address the inadequacies. Some of the weaknesses identified in the course of reviewing the existing system includes: The existing HR Website being used at Somali University lacks some basic useful features required for better management in its current form, as it is found not to meet the global institutional standard. The current system also does not address content relating to staff recruitment, retrenchment, retirement, etc. which are regarded as key functions of HR department. The platform also does not address staff deployment to various department and units within the university system.

The proposed system has addressed these challenges through the introduction of enhanced features. The improved system is designed based on waterfall model and in order to implement the design, it was coded in ASP.Net environment using vb.net syntax and other supporting scripting language. The backend used was sql server 2014.

|The system is evaluated and validated in accordance with an established state-of-the-art method, System Usability Scale (SUS). The system developed is found to be usable, user friendly, secured, content rich, etc.

6.1 Recommendations

The following are recommended and should be adhered to, in order to maximize the use of the new improved web-based system:

1. It is recommended that all the features provided in the developed system are fully utilized.
2. Also privileged should be assigned by the administrator in order not to compromise the security of the developed system.
3. The direct users of this system should undergo basic training in order to use the developed system maximally.

4. Although the system is developed to cover several areas of management, however, there is room for further improvement of the system which will always be necessary as situation demands.

6.2 CONTRIBUTIONS TO KNOWLEDGE

1. This study has explored the use of .NET framework to design an improved web-based system for the management of HR unit of Somali University. The excerpts of the codes are in the appendix.

2. The design of the new system explores the use of CSS and other useful features for better display and enhancement of menus and links which results in overall user-friendliness of the system.

3. The new system introduced a robust security that uses privileges for effective operation of the system administrator, and overall security of the new system.

6.3 FUTURE WORK

6.3.1 Leave Management

The leave management module can be improved upon by having all leave requests approved by the head of department before submission rather than going straight to the HR manager. This feature is important because the HOD /Supervisor should know which of his/her employees is due to go on leave.

6.3.2 Integration with payroll system

In order for the system to be more effective, I would to suggest an integration of the system to a payroll system that will enable employees view and download their pay slips on demand.

6.3.3 Information archiving

A system holding all the employee information should have some form of archiving system so that retired, suspended or fired employees are archived rather than been completely deleted from the system. This is so because cases may occur where details of an ex-employee may be

required especially in cases where an employee did several projects and there details are required for future reference.

As mentioned earlier, this study is developed to the latest technologies and the improved system can easily be extended for future reuse. To use the code of the system, there is need to know ASP .NET VB 4.0 2013 and MS SQL Server 2014 or at least know the syntax of VB, little experience in ASP .NET and some knowledge about the SQL language.

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APPENDICES

APPENDIX I: QUESTIONNAIRE

(An improved web based Human Resource Management System)

Dear respondent,

I am a student of Kampala International University. I have developed an improved web based human resource management system. This system is designed to bring about some major improvement on the human resource information disseminations. Kindly respond to the statements/questions asked as listed below by choosing from the system usability scale provided. Please spare a few minutes from your valuable schedule and share your true feelings as you navigate through the system. The information provided was used for research purposes only.

The System Usability Scale

1.	The system captured basic content of what a typical human resource unit should showcase.	Strongly disagree Strongly agree 1 2 3 4 5
2.	The system is found to be unnecessarily complex	1 2 3 4 5
3.	The various functions in the system are well integrated	1 2 3 4 5
4.	It appears there are several inconsistencies in this system?	1 2 3 4 5
5.	The number of colour provided in the system and the font size of the text are very adequate.	1 2 3 4 5
6.	There is need for further enhancement of the system.	1 2 3 4 5
7.	I found the system very cumbersome but content rich.	1 2 3 4 5
8.	I found navigation through the system very easy	1 2 3 4 5
9.	This system meets the global institutional standard of web site domiciled at HR unit.	1 2 3 4 5
10. `	I found the system to be of acceptable security level.	1 2 3 4 5

APPENDIX II: FIGURES

The Login Screen

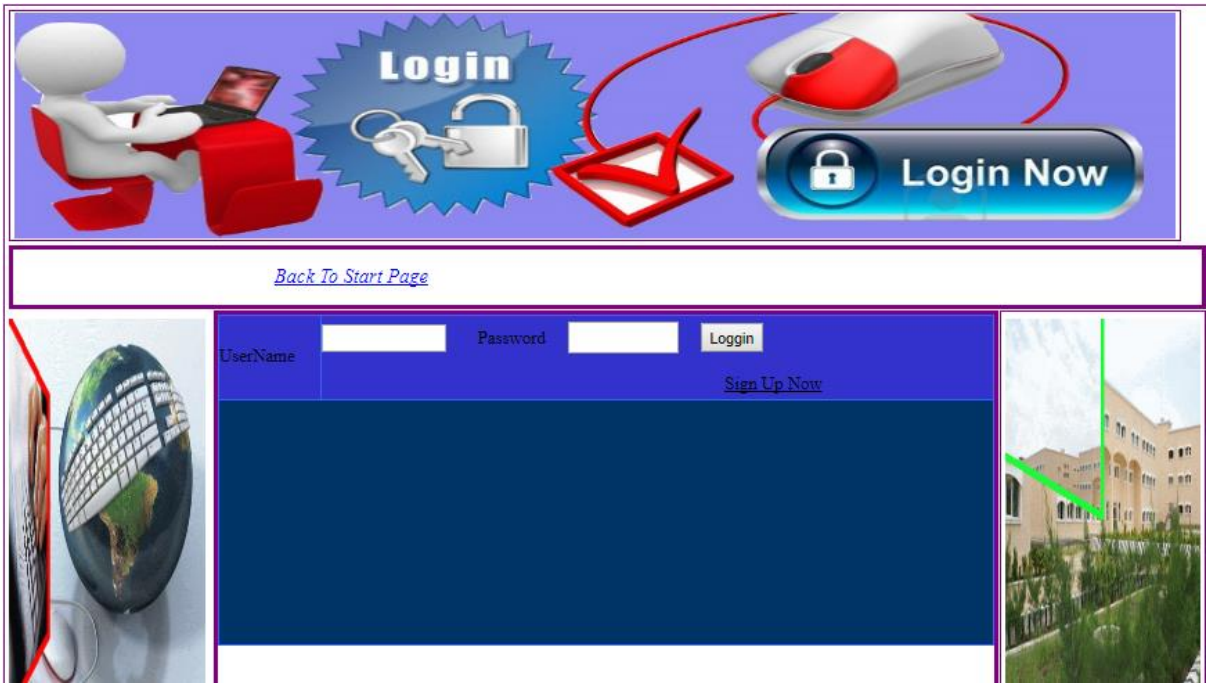

Figure 5.1: The interface showing the Login Screen

Employee Registration Form

Figure 5.3: Showing Employee registration page

Update of Employee Record

Figure 5.5: Showing Employee Record Update

APPENDIX III: SOURCE CODE

```
//Behind codeEmployee form
Imports System.Data
Imports System.Data.SqlClient
Imports System.Configuration
Partial Class Employee
    Inherits System.Web.UI.Page
    Dim dr As SqlDataReader
    Protected Sub btnadd_Click(ByVal sender As Object, ByVal e As System.EventArgs) Handles btnadd.Click
        Try
            Txtnationlty.Text = ""
            txtEmail.Text = ""
            dpcategory.Text = "-- Select One ---"
            txtgender.Text = "-- Select Gender --"
            txtstatus.Text = "Status"
            txtbranchName.Text = ""
            Txtphone.Text = ""
            Txtadress.Text = ""

            txtdeptNmae.Text = ""
            txtdegree.Text = "-- Select degree --"
            txtDOB.Text = ""
            txtstatus.Text = "-- Select Status --"
            txtdate.Text = ""
            Image1.AlternateText = ""
            txtjobname.Text = ""
Dim conn As New SqlConnection(ConfigurationManager.ConnectionStrings("myconncetionString").ConnectionString)
            conn.Open()
            Using (conn)
                Dim cmd As New SqlCommand("select isnull(max(EmpID),0)+1 from Employee ", conn)
                cmd.CommandType = CommandType.Text
                Txtempid.Text = cmd.ExecuteScalar()
```

```
            cmd = New SqlCommand("select AppName from Shortlist where Acceptence ='Yes'", conn)
dr = cmd.ExecuteReader
            dpEMPname.Text = ""
            While dr.Read
               ' dpEMPname.Items.Add(dr.Item("AppName").ToString)
            End While
         End Using
      Catch ex As Exception
         MsgBox(ex.Message)
      End Try
   End Sub
   Protected Sub btnsave_Click(ByVal sender As Object, ByVal e As System.EventArgs) Handles btnsave.Click
      Try
         If Txtempid.Text = "" Then
            MsgBox(" Insert emplooyee ID ", MsgBoxStyle.Information, "OHRM")
            Txtempid.Focus()
            Exit Sub

         ElseIf dpEMPname.Text = "" Then
            MsgBox(" Insert employee Name ", MsgBoxStyle.Information, "OHRM")
          dpEMPname.Focus()
            Exit Sub
         ElseIf txtEmail.Text = "" Then
            MsgBox(" Insert employee E-mail ", MsgBoxStyle.Information, "OHRM")
            txtEmail.Focus()
            Exit Sub
         ElseIf Txtnationlty.Text = "" Then
            MsgBox(" Insert Country ", MsgBoxStyle.Information, "OHRM")
                     Txtnationlty.Focus()
            Exit Sub
                  ElseIf txtjobname.Text = "" Then
            MsgBox(" Insert Job number ", MsgBoxStyle.Information, "OHRM")
                      txtjobname.Focus()
            Exit Sub
         ElseIf Txtphone.Text = "" Then
```

```
            MsgBox(" Insert phone number ", MsgBoxStyle.Information, "OHRM")
                    Txtphone.Focus()
            Exit Sub
        ElseIf dpcategory.Text = "--Select One ---" Then
            MsgBox(" Choose Category ", MsgBoxStyle.Information, "OHRM")
            Txtphone.Focus()
            Exit Sub
        ElseIf Txtadress.Text = "" Then
            MsgBox(" Insert address ", MsgBoxStyle.Information, "OHRM")
                    Txtadress.Focus()
            Exit Sub
        ElseIf DpDeptID.Text = "" Then
            MsgBox(" Insert department ID ", MsgBoxStyle.Information, "OHRM")
                     DpDeptID.Focus()
            Exit Sub
        ElseIf DpBranchID.Text = "" Then
            MsgBox(" Insert branch ID ", MsgBoxStyle.Information, "OHRM")
                    DpBranchID.Focus()
            Exit Sub
        ElseIf txtdeptNmae.Text = "" Then
            MsgBox(" Insert Category ", MsgBoxStyle.Information, "OHRM")
                    txtdeptNmae.Focus()
            Exit Sub
        End If
If IsNumeric(DpBranchID.Text) = False Then
            MsgBox(" Insert Numeric at branch ID ", MsgBoxStyle.Information, "OHRM")
            DpBranchID.Focus()
            Exit Sub
        End If
If IsNumeric(txtEmail.Text) = True Then
            MsgBox(" Insert Numeric at Email ", MsgBoxStyle.Information, "OHRM")
            txtEmail.Focus()
            Exit Sub
        End If
        If txtEmail.Text <> "" Then
            Dim rex As Match = Regex.Match(Trim(txtEmail.Text), "^([0-9a-zA-Z]([-.\w]*[0-9a-zA-
Z])*@([0-9a-zA-Z][-\w]*[0-9a-zA-Z]\.)+[a-zA-Z]{2,3})$", RegexOptions.IgnoreCase)
```

```
            If rex.Success = False Then
                MsgBox("Please Enter correct Email-Address ", MsgBoxStyle.Information)
                Me.txtEmail.Focus()
                txtEmail.Text = ""
                Exit Sub
            End If
        End If
If IsNumeric(DpBranchID.Text) = False Then
            MsgBox(" Insert Numeric at branch ID ", MsgBoxStyle.Information, "OHRM")
            DpBranchID.Focus()
            Exit Sub
        End If
        If IsNumeric(Txtnationlty.Text) = True Then
            MsgBox(" Numeric not Allowed at the country ", MsgBoxStyle.Information, "OHRM")
            Txtnationlty.Focus()
            Exit Sub
        End If
        If IsNumeric(Txtphone.Text) = False Then
            MsgBox(" Insert Numeric at phone ", MsgBoxStyle.Information, "OHRM")
            Txtphone.Focus()
            Exit Sub
        End If
        If IsNumeric(DpBranchID.Text) = False Then
            MsgBox(" Insert Numeric at phone ", MsgBoxStyle.Information, "OHRM")
            DpBranchID.Focus()
            Exit Sub
        End If
        If IsNumeric(txtjobname.Text) = True Then
            MsgBox(" Numeric not allowed at the job name ", MsgBoxStyle.Information, "OHRM")
            txtjobname.Focus()
            Exit Sub
        End If
        If IsNumeric(txtstatus.Text) = True Then
            MsgBox(" Numeric is not allowed at status ", MsgBoxStyle.Information, "OHRM")
            txtstatus.Focus()
            Exit Sub
        End If
```

```
        If IsNumeric(Txtadress.Text) = True Then
            MsgBox(" Numeric is not allowed at addrress ", MsgBoxStyle.Information, "OHRM")
            Txtadress.Focus()
            Exit Sub
        End If
        If IsNumeric(txtdeptNmae.Text) = True Then
            MsgBox(" Numeric is not allowed dept name ", MsgBoxStyle.Information, "OHRM")
            txtdeptNmae.Focus()
            Exit Sub
        End If
        If IsNumeric(txtbranchName.Text) = True Then
            MsgBox(" Numeric is not allowed at branch name", MsgBoxStyle.Information, "OHRM")
            txtbranchName.Focus()
            Exit Sub
        End If
        If IsNumeric(txtdegree.Text) = True Then
            MsgBox(" Numeric is not allowed at degree ", MsgBoxStyle.Information, "OHRM")
            txtdegree.Focus()
            Exit Sub
        End If
        If IsNumeric(txtgender.Text) = True Then
            MsgBox(" Numeric is not allowed at gender ", MsgBoxStyle.Information, "OHRM")
            txtgender.Focus()
            Exit Sub
        End If
        Dim conn As New SqlConnection(ConfigurationManager.ConnectionStrings("myconncetionString").ConnectionString)
        conn.Open()
        Using conn
            Dim cmd As New SqlClient.SqlCommand("Select EmpID from Employee where EmpID = '" & Txtempid.Text & "'", conn)
            cmd.CommandType = CommandType.Text
            Dim dr As SqlDataReader
            dr = cmd.ExecuteReader()
            If dr.Read = True Then
                MsgBox("This ID is Already exist", MsgBoxStyle.Information)
                Exit Sub
```

```
        End If
        dr.Close()
        cmd = New SqlClient.SqlCommand("Select EmpName from Employee where EmpName =
''' & dpEMPname.Text & """, conn)
        cmd.CommandType = CommandType.Text
        dr = cmd.ExecuteReader()
        If dr.Read = True Then
           MsgBox("This employee is Already exist", MsgBoxStyle.Information, "OHRM")
           Exit Sub
        End If
        dr.Close()
        cmd = New SqlCommand("insert into Employee values('' & Txtempid.Text & "','" &
dpEMPname.Text & "','" & Txtnationlty.Text & "','" & txtgender.Text & "','" & txtstatus.Text & "', "
& txtjobname.Text & "', '" & Txtphone.Text & "','" & Txtadress.Text & "','" & DpDeptID.Text & "','"
& txtdeptNmae.Text & "','" & txtcollege.Text & "','" & DpBranchID.Text & "','" &
txtbranchName.Text & "','" & txtdegree.Text & "','" & FileUpload1.HasFile & "','" & txtdate.Text &
"','" & txtDOB.Text & "','" & dpcategory.Text & "','" & txtEmail.Text & "') ", conn)
        cmd.CommandType = CommandType.Text
        cmd.ExecuteNonQuery()
        MsgBox(" Insertion success ", MsgBoxStyle.DefaultButton1, "OHRM")
        Txtnationlty.Text = ""
        dpcategory.Text = "-- Select One ---"
        txtgender.Text = "-- Select Gender --"
        txtstatus.Text = "Status"
        txtbranchName.Text = ""
        Txtphone.Text = ""
        Txtadress.Text = ""
        txtEmail.Text = ""
        txtdeptNmae.Text = ""
        txtdegree.Text = "-- Select degree --"
        txtDOB.Text = ""
        txtstatus.Text = "-- Select Status --"
        txtdate.Text = ""
        Image1.AlternateText = ""
        txtjobname.Text = ""
        Txtempid.Text = ""
        Txtnationlty.Text = ""
```

```
            dpcategory.Text = "-- Select One ---"
            txtgender.Text = "-- Select Gender --"
            txtstatus.Text = "Status"
            txtbranchName.Text = ""
            Txtphone.Text = ""
            Txtadress.Text = ""
            txtdeptNmae.Text = ""
            txtdegree.Text = "-- Select degree --"
            txtDOB.Text = ""
            txtstatus.Text = "-- Select Status --"
            txtdate.Text = ""
            Image1.AlternateText = ""
            txtjobname.Text = ""
        End Using
    Catch ex As Exception
        MsgBox(ex.Message)
    End Try
End Sub
Protected Sub btnsearch_Click(ByVal sender As Object, ByVal e As System.EventArgs) Handles
btnsearch.Click
    Try
        Dim conn As New
SqlConnection(ConfigurationManager.ConnectionStrings("myconncetionString").ConnectionString)
        conn.Open()
        Using conn
            Dim cmd As New SqlCommand("select * from Employee where EmpID = '" &
Txtempid.Text & "' ", conn)
            cmd.CommandType = CommandType.Text
            Dim dr As SqlDataReader
            dr = cmd.ExecuteReader()
            If dr.Read = True Then
                Txtempid.Text = dr("EmpID")
                dpEMPname.Text = dr("EmpName")
                Txtnationlty.Text = dr("Nationality")
                txtgender.Text = dr("Gender")
                txtstatus.Text = dr("Status")
                txtjobname.Text = dr("JobName")
```

```
            Txtphone.Text = dr("PhoneNo")
            Txtadress.Text = dr("Address")
            txtcollege.Text = dr("college")
            DpDeptID.Text = dr("DeptID")
            DpBranchID.Text = dr("BranchID")
            txtbranchName.Text = dr("HireDate")
            txtDOB.Text = dr("DOB")
            dpcategory.Text = dr("Category")
            txtdegree.Text = dr("Degree")
            txtdeptNmae.Text = dr("DeptName")
            txtbranchName.Text = dr("BranchName")
            txtdate.Text = dr("HireDate")
            txtEmail.Text = dr("Email")
          Else
            MsgBox(" Record Not found ", MsgBoxStyle.Exclamation, "OHRM")
            Txtempid.Text = ""
            Txtnationlty.Text = ""
            Txtnationlty.Text = ""
            txtstatus.Text = ""
            Txtphone.Text = ""
            Txtphone.Text = ""
            Txtadress.Text = ""
                    txtDOB.Text = ""
            dpcategory.Text = ""
            txtbranchName.Text = ""
            txtdeptNmae.Text = ""
            txtEmail.Text = ""
            Txtempid.Focus()
          End If
        End Using
      Catch ex As Exception
        MsgBox(ex.Message)
      End Try
    End Sub
    Protected Sub btndelete_Click(ByVal sender As Object, ByVal e As System.EventArgs) Handles
btndelete.Click
      Try
```

```
        Dim conn As New SqlConnection(ConfigurationManager.ConnectionStrings("myconncetionString").ConnectionString)
        conn.Open()
        Using conn
          Dim cmd As New SqlCommand("delete from Employee where EmpID= " & Txtempid.Text & " ", conn)
          cmd.CommandType = CommandType.Text
          Dim dr As SqlDataReader
          dr = cmd.ExecuteReader()
          If dr.Read = True Then
            Txtempid.Text = dr("EmpID")
            dpEMPname.Text = dr("EmpName")
            Txtnationlty.Text = dr("Nationality")
            txtgender.Text = dr("Gender")
            txtstatus.Text = dr("Status")
            txtjobname.Text = dr("JobNo")
            Txtphone.Text = dr("PhoneNo")
            Txtadress.Text = dr("Address")
            Image1.ImageUrl = dr("picture")
            txtDOB.Text = dr("DOB")
            dpcategory.Text = ("Category")
            txtdate.Text = dr("HireDate")
            txtEmail.Text = dr("Email")
          Else
            MsgBox(" deletion success ", MsgBoxStyle.DefaultButton1, "OHRM")
            Txtempid.Text = ""
            txtEmail.Text = ""
            Txtnationlty.Text = ""
            txtgender.Text = "Select Gender"
            txtstatus.Text = "Select Status"
            Txtphone.Text = ""
            Txtadress.Text = ""
                    txtdeptNmae.Text = ""
            Image1.AlternateText = ""
            txtDOB.Text = ""
            txtdate.Text = ""
            dpcategory.Text = ""
```

```
            Txtempid.Focus()
        End If
      End Using
    Catch ex As Exception
      MsgBox(ex.Message)
    End Try
  End Sub
  Protected Sub btnupdate_Click(ByVal sender As Object, ByVal e As System.EventArgs) Handles
btnupdate.Click
    Try
      If Txtempid.Text = "" Then
        MsgBox(" Insert emplooyee ID ", MsgBoxStyle.Information, "OHRM")
        Txtempid.Focus()
        Exit Sub
      ElseIf dpEMPname.Text = "" Then
        MsgBox(" Insert employee Name ", MsgBoxStyle.Information, "OHRM")
        dpEMPname.Focus()
        Exit Sub
      ElseIf txtEmail.Text = "" Then
        MsgBox(" Insert employee E-mailka ", MsgBoxStyle.Information, "OHRM")
        txtEmail.Focus()
        Exit Sub
      ElseIf Txtnationlty.Text = "" Then
        MsgBox(" Insert Nationality ", MsgBoxStyle.Information, "OHRM")
        Txtnationlty.Focus()
        Exit Sub
            ElseIf txtjobname.Text = "" Then
        MsgBox(" Insert Job number ", MsgBoxStyle.Information, "OHRM")
        txtjobname.Focus()
        Exit Sub
      ElseIf Txtphone.Text = "" Then
        MsgBox(" Insert phone number ", MsgBoxStyle.Information, "OHRM")
        Txtphone.Focus()
        Exit Sub
      ElseIf Txtadress.Text = "" Then
        MsgBox(" Insert address ", MsgBoxStyle.Information, "OHRM")
        Txtadress.Focus()
```

```
    Exit Sub
ElseIf DpDeptID.Text = "" Then
    MsgBox(" Insert department ID ", MsgBoxStyle.Information, "OHRM")
    DpDeptID.Focus()
    Exit Sub
ElseIf DpBranchID.Text = "" Then
    MsgBox(" Insert branch ID ", MsgBoxStyle.Information, "OHRM")
    DpBranchID.Focus()
    Exit Sub
ElseIf txtdeptNmae.Text = "" Then
    MsgBox(" Insert Category ", MsgBoxStyle.Information, "OHRM")
    txtdeptNmae.Focus()
    Exit Sub
End If
If IsNumeric(DpBranchID.Text) = False Then
    MsgBox(" Insert Numeric at branch ID ", MsgBoxStyle.Information, "OHRM")
    DpBranchID.Focus()
    Exit Sub
End If
If IsNumeric(Txtnationlty.Text) = True Then
    MsgBox(" Numeric not Allowed at the country ", MsgBoxStyle.Information, "OHRM")
    Txtnationlty.Focus()
    Exit Sub
End If
If IsNumeric(txtEmail.Text) = True Then
    MsgBox(" Numeric not Allowed at the email ", MsgBoxStyle.Information, "OHRM")
    txtEmail.Focus()
    Exit Sub
End If
If IsNumeric(Txtphone.Text) = False Then
    MsgBox(" Insert Numeric at phone  ", MsgBoxStyle.Information, "OHRM")
    Txtphone.Focus()
    Exit Sub
End If
If IsNumeric(txtjobname.Text) = True Then
    MsgBox(" Numeric not allowed at the job name ", MsgBoxStyle.Information, "OHRM")
    txtjobname.Focus()
```

```
            Exit Sub
        End If
        If IsNumeric(txtstatus.Text) = True Then
            MsgBox(" Numeric is not allowed at status ", MsgBoxStyle.Information, "OHRM")
            txtstatus.Focus()
            Exit Sub
        End If
        If IsNumeric(Txtadress.Text) = True Then
            MsgBox(" Numeric is not allowed at addrress ", MsgBoxStyle.Information, "OHRM")
            Txtadress.Focus()
            Exit Sub
        End If
        If IsNumeric(txtdeptNmae.Text) = True Then
            MsgBox(" Numeric is not allowed dept name ", MsgBoxStyle.Information, "OHRM")
            txtdeptNmae.Focus()
            Exit Sub
        End If
        If IsNumeric(txtbranchName.Text) = True Then
            MsgBox(" Numeric is not allowed at branch name", MsgBoxStyle.Information, "OHRM")
            txtbranchName.Focus()
            Exit Sub
        End If
        If IsNumeric(txtdegree.Text) = True Then
            MsgBox(" Numeric is not allowed at degree ", MsgBoxStyle.Information, "OHRM")
            txtdegree.Focus()
            Exit Sub
        End If
        If IsNumeric(txtgender.Text) = True Then
            MsgBox(" Numeric is not allowed at gender ", MsgBoxStyle.Information, "OHRM")
            txtgender.Focus()
            Exit Sub
        End If
        Dim conn As New
SqlConnection(ConfigurationManager.ConnectionStrings("myconncetionString").ConnectionString)
        conn.Open()
        Using conn
```

```
        Dim cmd As New SqlCommand(" update Employee set EmpName= ''' & dpEMPname.Text & ''',Nationality= ''' & Txtnationlty.Text & ''', Gender= ''' & txtgender.Text & ''', Status=''' & txtstatus.Text & ''', JobName= ''' & txtjobname.Text & ''', PhoneNo= ''' & Txtphone.Text & ''', Address= ''' & Txtadress.Text & ''', DeptID= ''' & DpDeptID.Text & ''', DeptName= ''' & txtdeptNmae.Text & ''', college= ''' & txtcollege.Text & ''', BranchID= ''' & DpBranchID.Text & ''', BranchName= ''' & txtbranchName.Text & ''', Degree= ''' & txtdegree.Text & ''', picture= ''' & FileUpload1.HasFile & ''', HireDate= ''' & txtdate.Text & ''' , DOB = ''' & txtDOB.Text & ''',Category=''' & dpcategory.Text & ''',Email=''' & txtEmail.Text & ''' where EmpID = " & Txtempid.Text & """, conn)
            cmd.CommandType = CommandType.Text
            cmd.ExecuteNonQuery()
            MsgBox(" Updating Success ", MsgBoxStyle.DefaultButton1, "OHRM")
        End Using
    Catch ex As Exception
        MsgBox(ex.Message)
    End Try
  End Sub
  Protected Sub DpDeptID_SelectedIndexChanged(ByVal sender As Object, ByVal e As System.EventArgs) Handles DpDeptID.SelectedIndexChanged
    Try

        Dim conn As New SqlConnection(ConfigurationManager.ConnectionStrings("myconncetionString").ConnectionString)
        conn.Open()
        Using conn
            Dim cmd As New SqlCommand("select DeptName,college  from Department where DeptID =''' & DpDeptID.Text & """, conn)
            dr = cmd.ExecuteReader
            While dr.Read
                txtdeptNmae.Text = dr(0)
                txtcollege.Text = dr(1)
            End While
        End Using
        dr.Close()
        conn.Close()
    Catch ex As Exception
        MsgBox(ex.Message)
```

```
        End Try
    End Sub
    Protected Sub DpBranchID_SelectedIndexChanged(ByVal sender As Object, ByVal e As System.EventArgs) Handles DpBranchID.SelectedIndexChanged
        Try
            Dim conn As New SqlConnection(ConfigurationManager.ConnectionStrings("myconncetionString").ConnectionString)
            conn.Open()
            Using conn
                Dim cmd As New SqlCommand("select BranchName  from Branch where BranchID ='" & DpBranchID.Text & "'", conn)
                dr = cmd.ExecuteReader
                While dr.Read
                    txtbranchName.Text = (dr.Item("BranchName").ToString)
                End While
            End Using
            dr.Close()
            conn.Close()
        Catch ex As Exception
            MsgBox(ex.Message)
        End Try
    End Sub
    Protected Sub Page_Load(ByVal sender As Object, ByVal e As System.EventArgs) Handles Me.Load
        If Session("LockOut") = Nothing Then
            Response.Redirect("LoginPage.aspx")
        End If
        Exit Sub
    End Sub
End Class
```

//source code admin master

```
<%@ Master Language="VB" CodeFile="AddmiMasterPage.master.vb" Inherits="AddmiMasterPage" %>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title></title>
    <asp:ContentPlaceHolder id="head" runat="server">
    </asp:ContentPlaceHolder>
    <style type="text/css">
        .style1
        {
            height: 30px;
            border-style: solid;
            border-color: #0000FF;
        }
        .style2
        {
            width: 1000px;
            height: 220px;
        }
        .style3
        {
            height: 304px;
            width: 275px;
        }
        .style13
        {
            height: 304px;
            width: 763px;
            border-style: solid;
            border-color: #0000FF;
        }
        .style14
        {
            width: 1320px;
            height: 220px;
        }
        .style15
        {
            height: 10px;
```

```
        }
        .style16
        {
            height: 304px;
            width: 1081px;
        }
        </style>
</head>
<body>
    <form id="form1" runat="server">
    <div>
        <table style="border-style: solid; border-color: #0000FF; width: 100%;"
            width="850px">
            <tr>
                <td class="style2" colspan="4" valign="baseline"
                    style=" width: 500px;">
                    <img alt="" class="style14" src="Images/bigpanel.jpg" /></td>
            </tr>
            <tr>
                <td colspan="2" style="border-style: solid; border-color: #0000FF"
                    bgcolor="#3399FF" class="style15">
                    <asp:Menu ID="Menu1" runat="server" BackColor="#3399FF"
                        DynamicHorizontalOffset="2" Font-Names="Times New Roman" Font-Size="Large"
                        ForeColor="Black" Orientation="Horizontal" StaticSubMenuIndent="10px"
                        Font-Bold="False" Width="900px">
                        <DynamicHoverStyle BackColor="#990000" ForeColor="White" />
                        <DynamicMenuItemStyle HorizontalPadding="5px" VerticalPadding="2px" />
                        <DynamicMenuStyle BackColor="#FFFBD6" />
                        <DynamicSelectedStyle BackColor="#FFCC66" />
                        <Items>
                            <asp:MenuItem NavigateUrl="~/AddminHome.aspx" Text="Home"
Value="Home"></asp:MenuItem>
                            <asp:MenuItem Text="  EmployeePart  " Value="Employee Part">
                                <asp:MenuItem NavigateUrl="~/Employee.aspx" Text="Employee Registeration"
                                    Value="Employee Registeration"></asp:MenuItem>
                                <asp:MenuItem NavigateUrl="~/Behevioraspx.aspx" Text="Behavior"
                                    Value="Behavior"></asp:MenuItem>
```

```
                <asp:MenuItem NavigateUrl="~/Perfomance.aspx" Text="Performance"
                  Value="Performance"></asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/Voluantry.aspx" Text="voluantry"
Value="voluantry">
                </asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/TrianDevlpmect .aspx" Text="Training
Development"
                  Value="New Item"></asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/Branch.aspx" Text="Branch" Value="Branch">
                </asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/Department.aspx" Text="Department"
                  Value="Department"></asp:MenuItem>
              </asp:MenuItem>
              <asp:MenuItem Text="PaymentPart" Value="Payment Part">
                <asp:MenuItem NavigateUrl="~/RegularSalry.aspx" Text="RegularSalary"
                  Value="RegularSalary"></asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/Advance.aspx" Text="Advance"
Value="Advance">
                </asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/loan.aspx" Text="Loan"
Value="Loan"></asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/Payment.aspx" Text="Payment"
Value="Payment">
                </asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/Bonus.aspx" Text="Bonus" Value="Bonus">
                </asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/Attandance.aspx" Text="Attendance"
                  Value="Attendance"></asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/WorkHours.aspx" Text="WorkHours"
Value="WorkHours">
                </asp:MenuItem>
              </asp:MenuItem>
              <asp:MenuItem Text=" WorkPart " Value="Work Part">
                <asp:MenuItem NavigateUrl="~/Job.aspx"
                  Text="Job " Value="New Item">
                </asp:MenuItem>
```

```
                <asp:MenuItem NavigateUrl="~/Shortlist.aspx" Text="ShortList " Value="New
Item">
                </asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/Vacancy.aspx" Text="vacancy" Value="New
Item">
                </asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/Leave.aspx" Text="leave" Value="New Item">
                </asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/TurnOf.aspx" Text="TurnOff" Value="New
Item">
                </asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/Conterect.aspx" Text="Contract" Value="New
Item">
                </asp:MenuItem>
              </asp:MenuItem>
              <asp:MenuItem Text="Reports" Value="Reports">
                <asp:MenuItem NavigateUrl="~/LoanReport.aspx" Text="Loan"
                  Value="Loan"></asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/AdvanceReport.aspx" Text="Advance"
Value="Advance">
                </asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/BounseReport.aspx" Text="Bounes"
Value="Bounes">
                </asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/ApplicationReport.aspx" Text="Applicant"
                  Value="Applicant"></asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/PaymentRepot.aspx" Text="Payment"
Value="Payment">
                </asp:MenuItem>
                <asp:MenuItem NavigateUrl="~/RegularSalryReport.aspx" Text="RegularSalary"
                  Value="RegularSalary"></asp:MenuItem>
              </asp:MenuItem>
              <asp:MenuItem NavigateUrl="~/Users.aspx" Text="User accounts"
                Value="User accounts"></asp:MenuItem>
              <asp:MenuItem Text="SearchEngine" Value="SearchEngine">
                <asp:MenuItem NavigateUrl="~/search users.aspx" Text="searchUsers"
                  Value="searchUsers"></asp:MenuItem>
```

```
                    <asp:MenuItem NavigateUrl="~/search Attendance.aspx" Text="Search
Attendance"
                      Value="Search Attendance"></asp:MenuItem>
                    <asp:MenuItem NavigateUrl="~/Search Applicant.aspx" Text="Applicant"
                      Value="Applicant"></asp:MenuItem>
                    <asp:MenuItem NavigateUrl="~/SearchLeave.aspx" Text="Leave"
Value="Leave">
                    </asp:MenuItem>
                    <asp:MenuItem NavigateUrl="~/Search Payment.aspx" Text="Payment"
                      Value="Payment"></asp:MenuItem>
                    <asp:MenuItem NavigateUrl="~/Search Employee.aspx" Text="Employee"
                      Value="Employee"></asp:MenuItem>
                    <asp:MenuItem NavigateUrl="~/Search Bonus.aspx" Text="Bonus"
Value="Bonus">
                    </asp:MenuItem>
                    <asp:MenuItem NavigateUrl="~/Search Vacancy.aspx" Text="Vacancies"
                      Value="Vacancies"></asp:MenuItem>
                  </asp:MenuItem>
                  <asp:MenuItem NavigateUrl="~/Backup.aspx" Text="BackUp" Value="BackUp">
                  </asp:MenuItem>
                </Items>
                <StaticHoverStyle BackColor="#990000" ForeColor="White" />
                <StaticMenuItemStyle HorizontalPadding="5px" VerticalPadding="2px" />
                <StaticSelectedStyle BackColor="#FFCC66" />
              </asp:Menu>
            </td>
            <td colspan="2" style="border-style: solid; border-color: #0000FF"
              bgcolor="#3399FF" class="style15" align="center">
              <asp:LinkButton ID="LinkButton1" runat="server" ForeColor="Black">Log
Out</asp:LinkButton>
            </td>
          </tr>
          <tr>
            <td class="style16">
              <img alt="" class="style3" src="Images/last.gif" /></td>
            <td class="style13" valign="top" bgcolor="#FFCC99" colspan="2"
              style="width: 800px;">
```

```
<div>
   <asp:ContentPlaceHolder id="ContentPlaceHolder1" runat="server">
            <p style="40">
   </asp:ContentPlaceHolder>
</div>
         </td>
         <td class="style3" style="background-color: #FFFFFF; color: #C0C0C0;">
            <img alt="" class="style3" src="Images/left.gif" /></td>
      </tr>
      <tr>
         <td align="center" class="style1" colspan="4">
            Copy right :  Contacg Us : <a href="mailto:Usteb_best@hotmail.com">
                  </tr>
   </table>
</div>
</form
```