Employee Training Registration System

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Internship report

Employee Training Registration System

By

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"A Research Project Presented in Partial Fulfillment
Of the Requirements for the Bachelor Degree in Information Technology
AL KHAWARIZMI INTERNATIONAL COLLEGE
Semester: Fall 2016/2017"

"Academic Supervisor:" Dr. Muneer Naveed

ACKNOWLEDGEMENT

"First of all, I would like to thank God, the Almighty, for giving me the strength and perseverance to accomplish this work.

Sincere thanks for my great parents and Husband for their support and encouragement throughout my project and pushing me always to do my best.

My deepest gratitude to my supervisor, Dr. Muneer for his encouragement, patience, and continuous guidance he demonstrated during the project and my study. Many thanks for all faculty members in KIC for their support throughout my years of study.

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Last but not the least, many thanks to my classmates, my friends and all of the people I have met in the college for their contribution in my success and completing my bachelor degree in IT".

ABSTRACT

"Having computer based record keeping and employee training registration system is very necessary for any organization.

Using the unreliable method of record keeping such manual handling will lead to huge gaps and problems.

Masdar Abu Dhabi is a company that is facing problems to register employees training courses.
It is hard for them to keep a manual record of a huge number of employees who needs training so in this regard they need a computer-based system in which employees who need to be trained gets registered there and then specific courses can be assigned to them based on which they can excel in their respective field.

The project aims to solve this problem in different phases starting from defining the problem and planning ending with the designing of the system, testing and then its implementation. The new solution is a new application for Employee registration. SDLC methodology will be used to ensure development process is in a proper path. I believed that the new application will be a great contribution for HR department at Masdar Company, it will improve the work environment and make it more accurate and efficient".

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CHAPTER ONE

INTRODUCTION OF ORGANIZATIONAL RESEARCH

1.1 Organization Description

Masdar Abu Dhabi is a company that is facing problems to train their employees. It is hard for them to keep a manual record of a huge number of employees that need training so in this regard, they need a computer-based system in which employees who need to be trained gets registered there and then specific courses can be assigned to them based on which they can excel in their respective field.

1.1.1 Strategy

- Vision:

"To make Abu Dhabi the greatest source of renewable energy knowledge, development, implementation and the world's standard for sustainable development".

- Mission:

"To provide advance renewable energy and sustainable technologies through education, research, and development, investment, commercialization, and adoption".

- Goal:

"Strengthen the role of clean energy entire the world over the next 10 year".

- Objectives:

Masdar aims and objectives include:

- » To be profitable.
- » To establish the status of Abu Dhabi and Masdar to be as an international player in sustainable and renewable energy.
- » Promote the development of an expanded knowledge-based economy in Abu Dhabi
- » To reduce the carbon footprint of Abu Dhabi

- Top management's/leadership's role:

    "The management of Masdar has set corporate value that helps to inspire all of its organizational activities. These values are expressed by management within the company's Code of Conduct, which aids the employees to do business".

- Board of Directors:

Figure 1: Masdar Board of directors
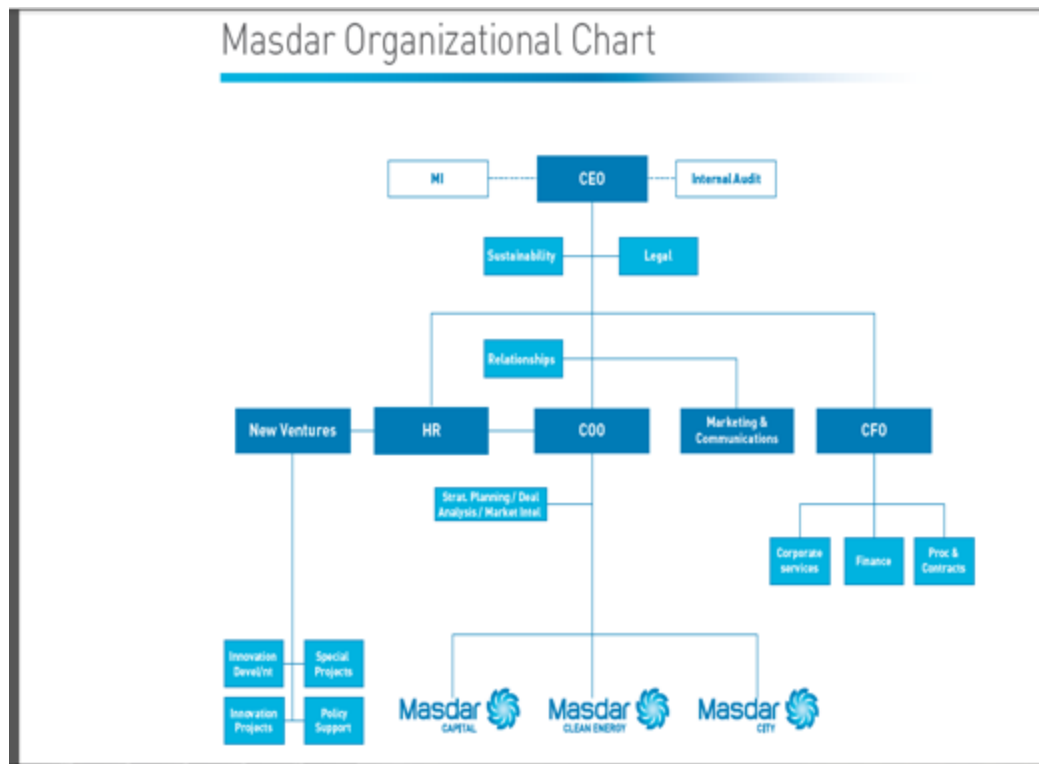
Organizational chart:

Figure 2: Organizational chart

1.1.2 Activities

"Masdar aims to advance renewable energy and sustainable technologies via:

   » Education and research
   » Clean energy deployment
   » Commercialization
   » Investment
   » Power generation
   » Identifying small policies
   » Partnership with public and private sectors".

1.1.3 Nature of the business

"Masdar is a completely owned subsidiary of Abu Dhabi government-owned By Mubadala Development Company. It is the first company of UAE which aims to advance clean energy industry and it has also adopted ground-up approaches ranging from education and research to investment and commercialization. It has also created a platform to create a technology, make partnership and identify smart policies.

1.2 Investigation and Problem Definition

The company is currently using manual record system for keeping the record of those employees who needs to enroll and engaged in training courses and programs in order for learning and increasing their work efficiency. The difficult is that it is very hard for company's management to keep a record of such a huge number of those employees who need various training courses and programs. Using the manual system for keeping such records proves to be very difficult because it needs a lot of time and effort. Keeping manual record wastes a lot of employee's time and efforts. Moreover with Manual record keeping there is also more chances of human errors as well as much time is required for retrieving data from such records.

Therefore in order to solve this problem in Masdar an interview was conducted with the Management of the company to discuss this issue and to find out what could be the alternative to solve this problem. Based on the interview, I came out to a conclusion that using a manual system for keeping a record of those employees who needs training has a high risk of human errors, and is complete wastage of time and effort."

1.3 Statement of the Problem/Project

After investigation process and interview, we have observed that using a manual system for registering and keeping a record of employees who needs training for anything in the organization is very difficult, consuming time and effort and has a high risk of human errors as everything is done manually.

1.4 Objectives of the project are the following;
- Identify the problem, impact and gathering requirements.
- Propose the best solution and design it to fit employee training registration purpose.
- Create a prototype of the proposed system.

1.5 Contribution

The purpose of this project is to design a computer-based employee training registration system for a company in which employees who need to be trained gets registered their easily and quickly and then specific courses can be assigned to them based on which they can excel in their respective field.

Having computer-based employee training registration system provide following benefits:

- Time efficient
- Getting rid of manual work
- Fast monitoring
- How much training time is left of a specific employee?

Without using this system it is very difficult to manage the information that which employee needs which training course and program when the program or course begin, and what is the training time duration of specific employees.

In short, this computer-based system will simplify and speed up the process of employee training registration, record keeping of employees regarding training and provide benefits for both employee and management.

1.6 Project Plan and Approach of Study

The mission will begin by researching and interviewing to identify the problem and to understand the current organization situation. Then a solution is proposed to solve this problem very effectively.

An SDLC methodology will be followed for this study. It includes a collection of functional and non-functional requirements via conducting interviews with company's management and employees affected by the problem for introducing the new computer-based system.

Then the system design will be done on the basis of collected functional and nonfunctional requirements.
System design comprises of the following:

- ER diagram
- Use case diagram
- Class diagram
- Sequence diagrams

Project's complete timelines are presented in a MS Project.

Implementation will then take place after finishing system design. "The system will be implemented and developed in Visual Studio 2010 using an APS.Net framework, C# language, and a local DB using SQL server".

CHAPTER TWO

2.0 BACKGROUND

Company background

Masdar is the advanced company of developing, commercial and deploying of renewable energy and clean technologies. It's a connection of fossil fuel and energy economy for the future. It's owned by Mubadala Development Company which mean that under Abu Dhabi government. It's established on 2006.

2.1 Literature reviews

Record keeping is one of the important requirements in every organization and especially for human resource dept. Also, human resource is cared about develop their employees by providing them the required training to provide the best service to the company.

Keeping a record for each employee is kind of evidence and proof for various business activities in organizations as well as transactions occurring within it.

And it enables the organization to operate in an efficient and accountable manner and also make sure that these records contain all necessary information regarding the organization and its employees and is easily accessible to everyone.

Thus the best practice of recordkeeping benefits not only the organization but also its staff members. Now day's electronic record keeping is the most preferred recordkeeping procedure (UTAS, 2014).

In this era of technology, most of the organizations all around the world are still using manual record keeping procedure in which all important information regarding the organization and employees is kept and entered manually in paper and file forms (Aljumah *et al*., 2013).

However keeping manual record keeping cause more problems than providing few benefits. First manual records are entered manually which cause muscular injuries in data entry

employees due to increasing workload of keeping manual records, as well as the manual records, include stacks of files covering some large space in organization due to which staff can suffer a lot of problems locating records, sorting documents and identifying the required piece of information out of it. This cause a lot of wastage of time and effort of the staff. Moreover keeping a manual record and then retrieving it is very difficult which then leads to a reduction in organization productivity. There are also many security issues related to manual record keeping procedures. Paper records have a chance to lost; moreover, the paper record can also be used in wrong way by easily copying the data from it (Gautam, 2007).

Beside wastage of time and efforts, some other problem associated with manual record keeping includes different types of damage that affect paper documents. These include old documents that become weak as a result of which it gets broken into pieces, color alteration in papers with passage of time, dust and dirt also affect paper's surface, some insects may damage the document the document may not be complete and some part may be missing, and if the paper is kept folded, it may become weak or may break from the places of folds (Abdulazeez *et al.,* 2015).

2.2 Review of Similar System

"Employee training registration system is considered as an important part of the organization where all employees can easily register for training as well as all the information regarding training program is available there. Having a good and reliable employee training registration system is essential for any organization".

Figure 3: Conductor

The features of this software are the following:

- User-friendly

- Manage and track training information easily

- Manage training and scheduling

- Manage employee tracking

- Provide reporting

Functional Details:

- Staff education, training programs and courses and professional development are accessible.
- Able to enter such information Training curricula and programs, employee profiles.
- Able to schedule training courses, registering employees.
- Able to track the following status:
    - Training programs
    - Durations
    - Licensures
    - Certifications
    - Qualifications
- Customized reports based on your needs.

For more details, you can check link into reference section.

CHAPTER THREE

Researching Methodology:

3.1 Techniques of Data Collection

Interviews

First Interviews was conducted with Human Resource employees to understand their pain points, also to study the current system that they have used for manual data handling, also we to understand the weaknesses and to know if they need addition requirements to be added in new computer-based employee registration system as they are the end users.

Literature Review

Literature reviews of the different journal, articles, and books related to the above subject to get a better understanding of the problem and finding a better solution for it.

3.2 Software Development Life Cycle (SDLC)

Behind the search study, we will be following The SDLC a methodology. Software development lifecycle is describing the following:

- Planning
- Defining
- Designing
- Building
- Testing

- Deploying

The main aim is to produce high-quality software such as employee training registration system for Masdar that meets the organization and employees expectations.
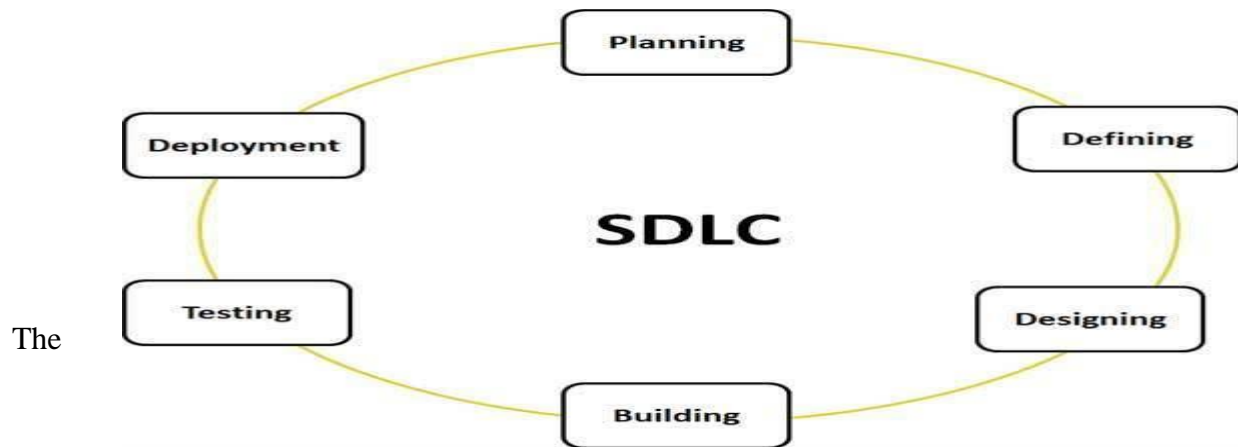
Steps of SDLC are given below:

The

Figure 4: SDLC phases

benefit of using the SDLC are the following:

- Best project management which reviews each stage to ensure the efficiency
- Tracing requirements if it's on track or there are any delay
- Better understanding of project stages.

Phase 1: Planning and Requirement Analysis

"The first stage in SDLC is the most important phase in SDLC. This analysis is performed by the senior members of the team. This analysis collects the information which is then used to plan the basic project approach and to conduct its feasibility analysis".

Phase 2: Defining Requirements

"After the analysis of requirements, the next step is to clearly define and document the product requirements and get them accepted from the organization that requires the product. This stage will cover functional and none function requirement for agreed solution".

Phase 3: Designing the product architecture

"SRS document is a reference for product architects to come out with the best architecture for the product to be developed.

This includes the ER diagram, use case diagrams, and sequence diagrams".

Phase 4: Building or Developing the Product

"It is the phase of SDLC in which the actual development starts and the product are built. The programming code is produced. Developers follow the coding guidelines and different high-level programming languages such as C and C++".

Phase 5: Testing the Product

"This phase involves the final testing of the product where products defects are reported, tracked, fixed and retested until the product reaches the quality standards".

Phase 6: Deployment in the Market and Maintenance

"After testing the product is ready to be deployed and released in the target market. The product may first be released in a limited segment and tested in the real business environment".
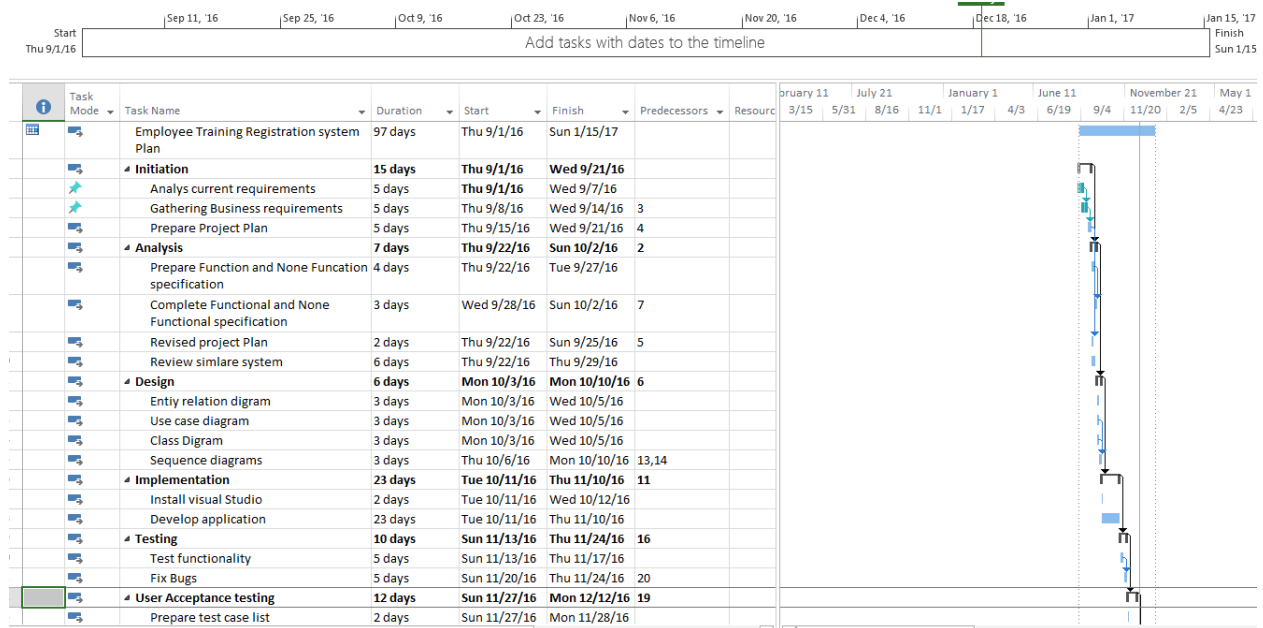
Project plan details

Figure 5: MS Project

CHAPTER FOUR

4.0 ANALYSIS ANS DESIGN

User analysis

There are three main users of the system

Employees: Employees are the main entity whom courses will be assigned by checking their lacking and productivity.

HR: HR (human resource department) will look into details and will assign the courses as per the requirements and lacking of the employees.

Admin: Admin is the one who will monitor all activities of the system and will sign up/sign in employees and other users.

4.1 System analysis

The functional and nonfunctional requirements of the new system evaluated based on an interview with Human resource comprises of:

4.1.1Functional requirements:
Functional requirements are comprise of Authentication and Authorization.

Functional requirements are comprise of Authentication and Authorization.

The Authentication will have the following functions:

- User Login
- User Logout
- Change password

The Authorization will have the following:

- Checking the user permission/role(Once the user will login , the interface will shows screen based on his role)

- **Requirements for user type Admin**

  - Create employee account
  - Adding Courses
  - Adding Consultant details
  - Adding Schedule of the courses
  - Reset password
  - Course Registration Approval: The admin can view old and pending training forms. He/she can select a pending form to view its details and then approve or reject it.

- **Requirements for user type employees**
  - Apply for course
  - Able to view list of Courses and Scheduling.

4.1.2 Non-functional requirements:

- Usability

The system should be user-friendly which mean it's should be easy to the end user to understand how to use it without any training or explanation.

- Reliability

The system should be reliable which mean that the data should be consistent.

- Security

System will let the authorized people to access the system based on their role and privilege.

- Performance

System should be able to work on high performance and the ability to response for required tasks.

- Maintainability

"The system should be flexible, adaptable and easy to meet future needs".
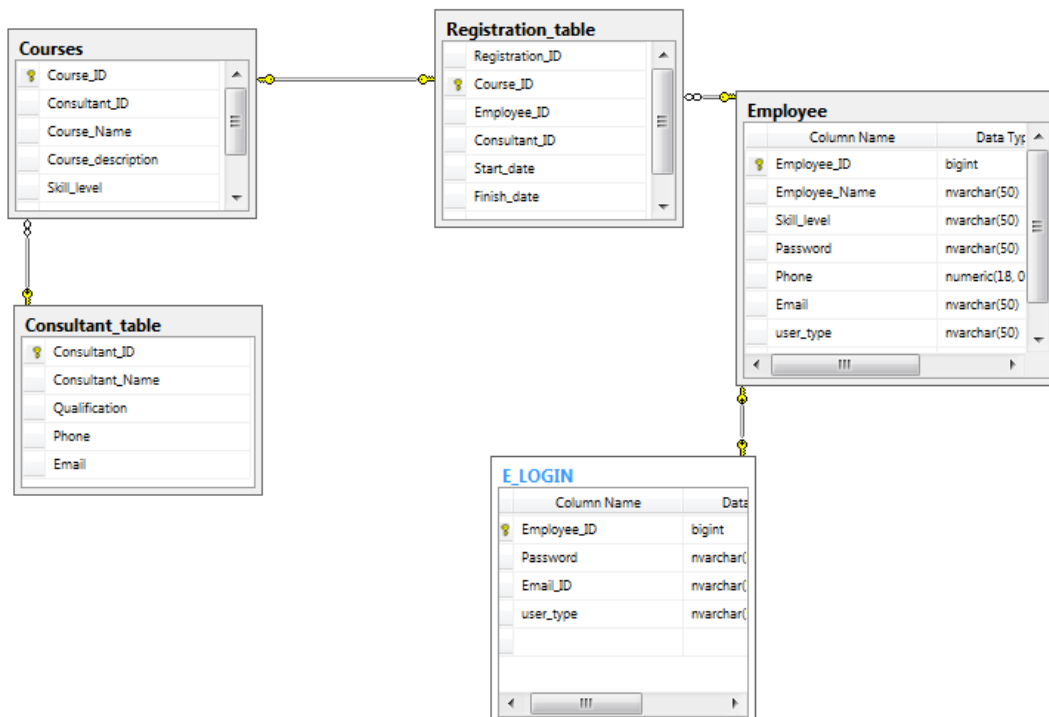
4.2.3 System design

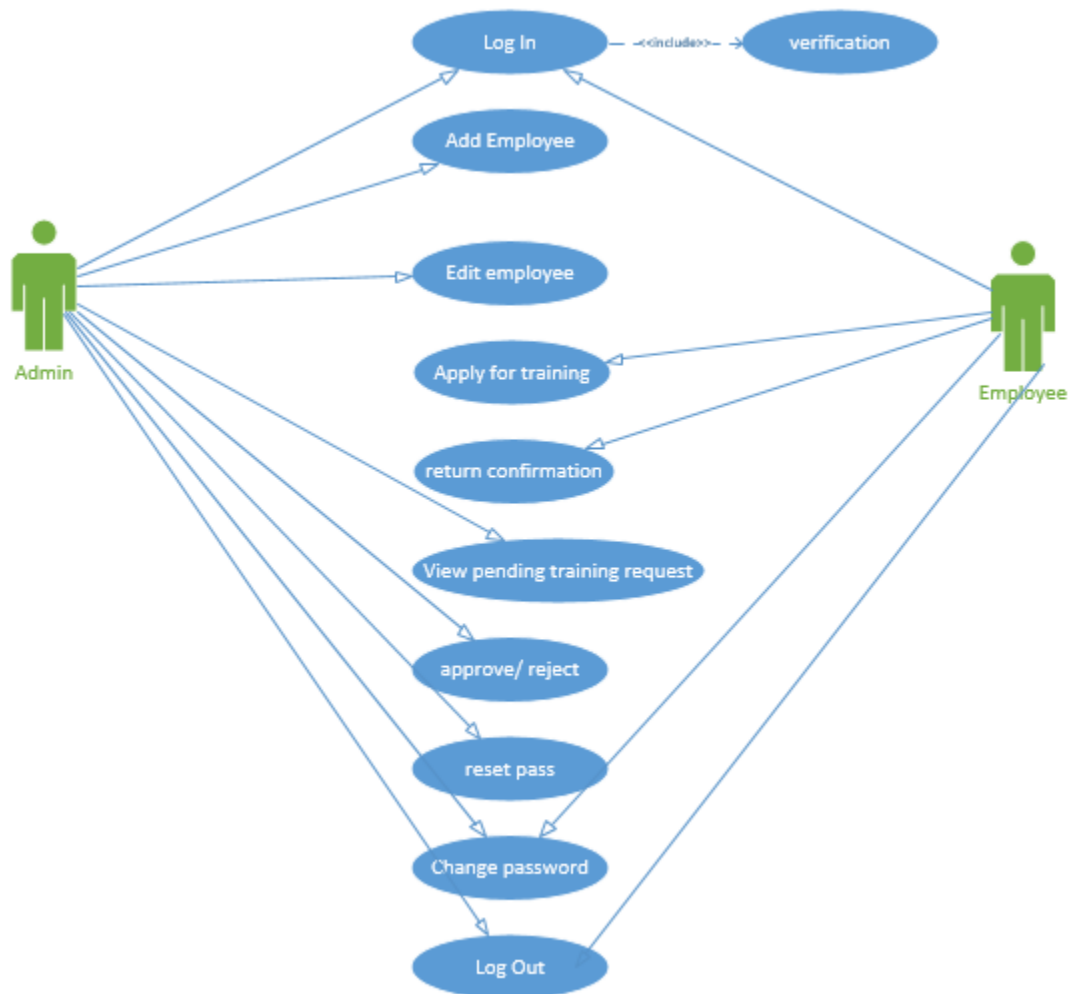## Schema Relation Diagram

Figure 6: ER Diagram

Use case diagram

Figure 7: Use case diagram

Use case diagram descriptions:

Login

Actor Admin	System response
1.Entering username and password	2. system will verify the username and password
	3.Open main screen successfully Or 3. send an failure/ invalid username and password
4. Admin re-enter username and password	

Add Employee

Actor Admin	System response
1.Admin Enter new employee ID	2.Display Employee details
3.Enter Login ID for new employee	3. system check if there is any conflict 3.Display a message of a valid ID
4. Enter password	5.System save login ID & Password in database

Edit Employee records

Actor Admin	System response
1.Admin open employees page	2.Display Employees details
3.Select specific Employee ID	4. Open Employee record
4. Update Employee information	5.System save changes in database

Class Diagram

The static structure that showing system classes that contains three section as the following:
- Name of the class
- Attributes
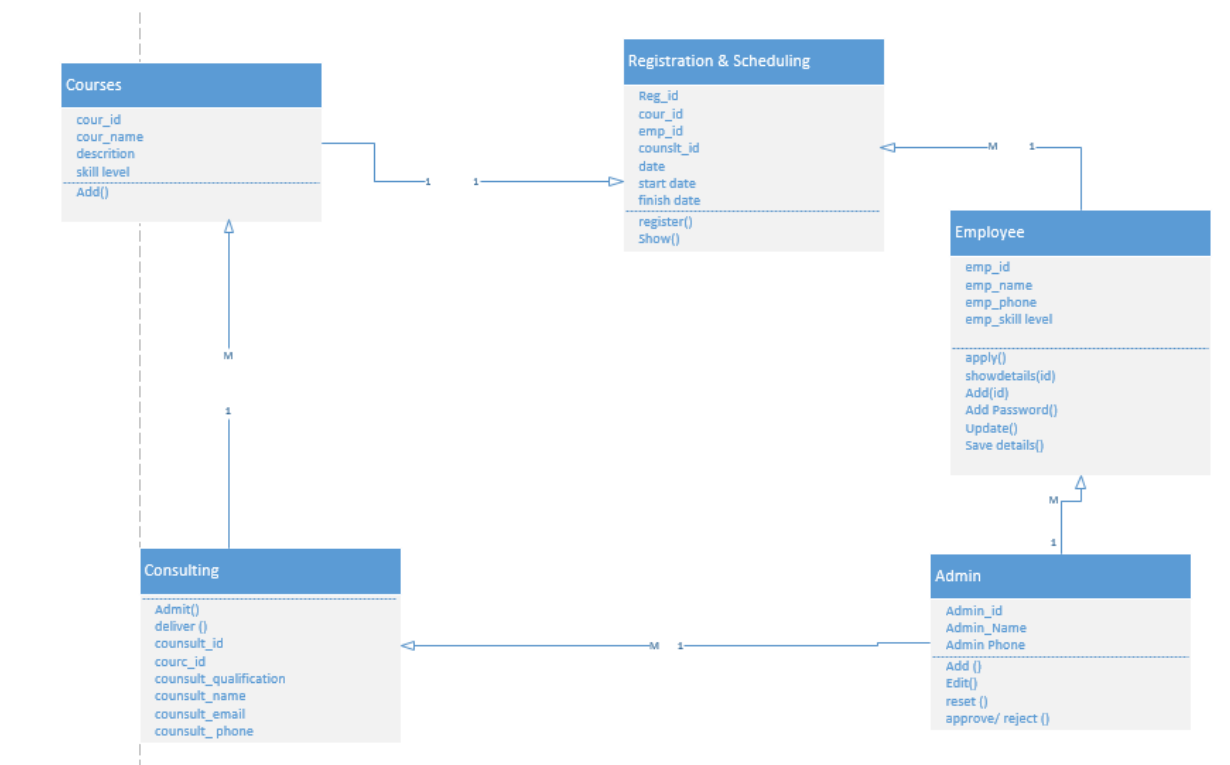- Operation of each attributes

Figure 8: class diagram

- One course will have one schedule
- One Employee will register for many schedule
- One Admin will add many employee
- One Admin will add many consulting
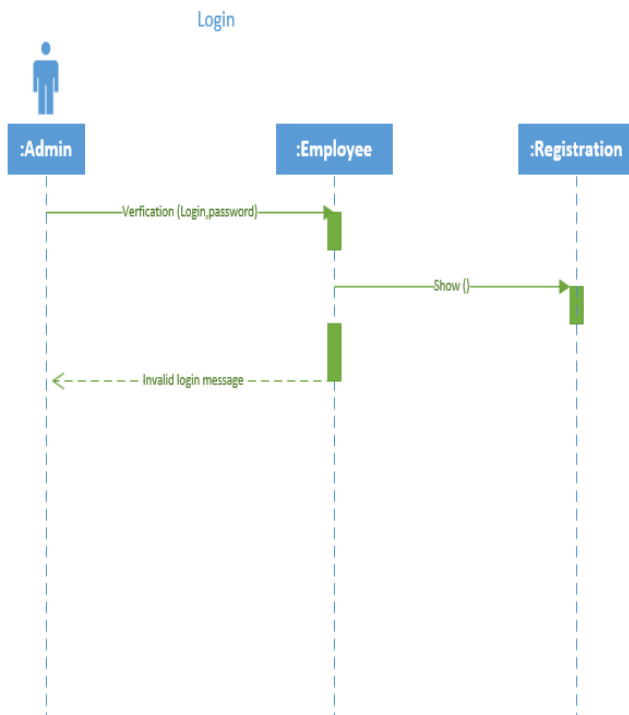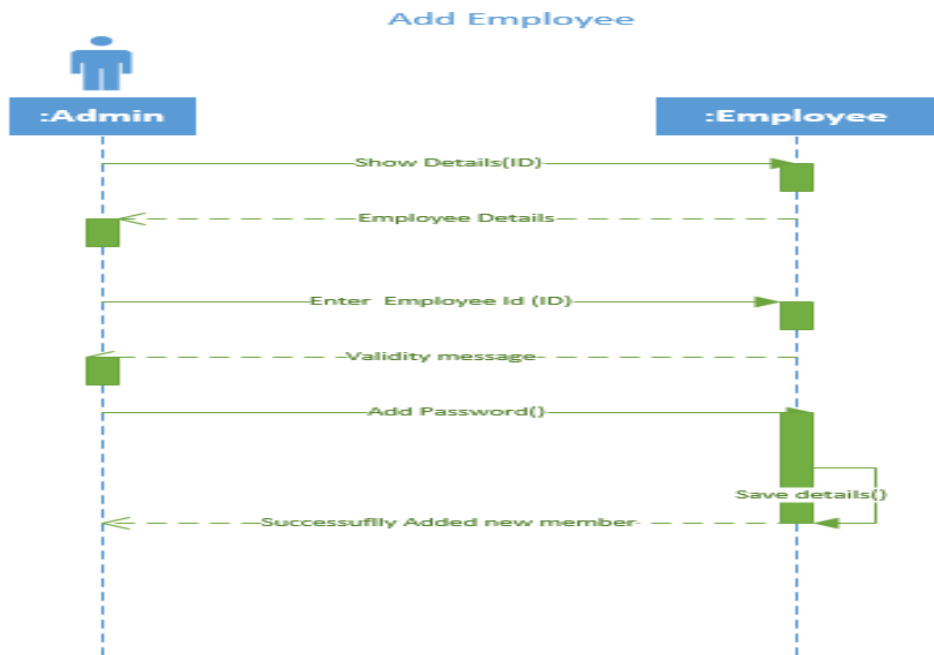- One consulting will offer many courses

Sequence Diagram

Login

:Admin   :Employee   :Registration

Verfication (Login,password)

Show ()

Invalid login message

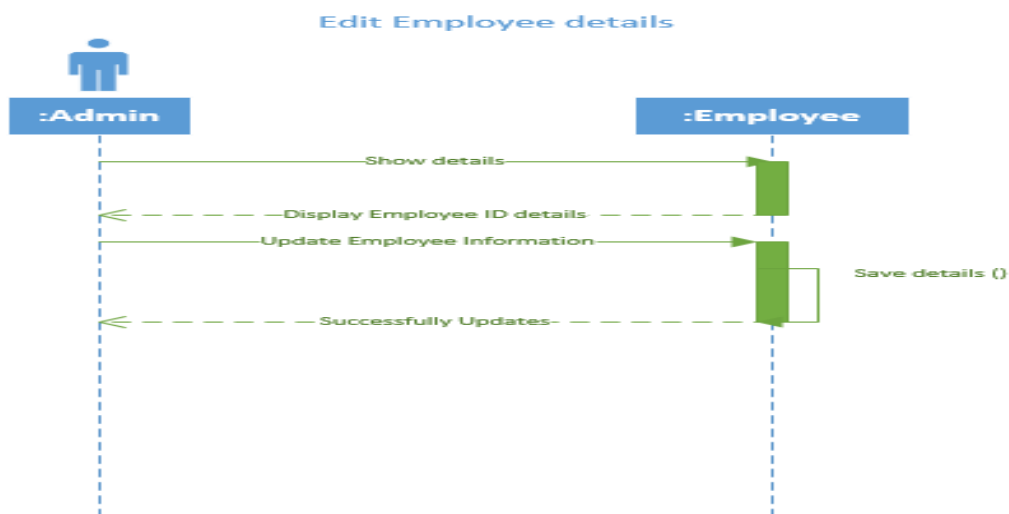Figure 9: Login

Figure 10: Add Employee

Figure 11: Add Employee

CHAPTER FIVE

5.1. Implementation

Visual studio2010 will be used to establish training system.

Programing languages are the following:

ASP.NET: "Stand for Active Server Pages".

.NET Framework to create server-side scripts for create HTML for using any language that works with .Net.
I have used this language to get the following benefits:
- Using less of codes while develop the application
- Framework that supported different languages, which mean that you are able to select the best applies to your application.
- Simple and easy to perform required tasks, deployment and configuration.

C# Programming Language:

I have used C# which the simplest, type-safe and object-oriented language to build a scope of

the application.

C# Features are the following:

- Supporting of extensible metadata concepts
- Provide security based on intrinsic code trust mechanisms
- Robustness through garbage collection and type safety.

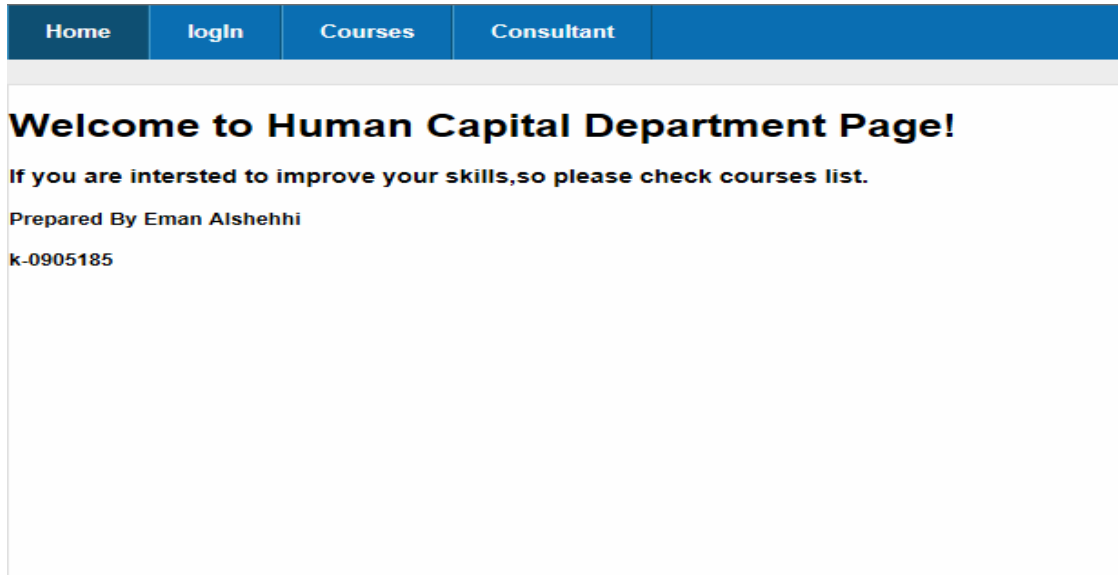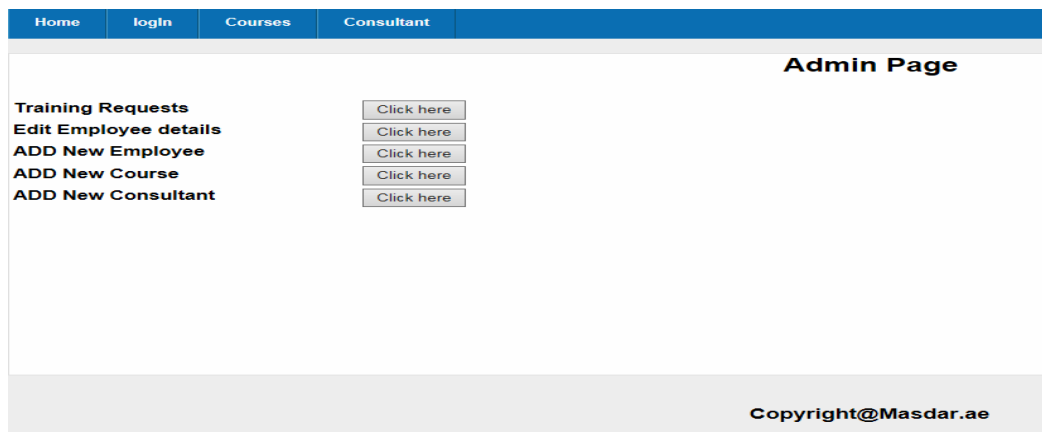## 5.2 Interface Development

- **Home Page**

Figure 12: Home Page

Figure 13: Admin Page

- **Log In Page**

Figure 14: Log in page

- **Add New Employee**

Figure 15: Add New Employee

5.3 Black Box testing

"Black box testing is used to ensure that system meet the business unit requirements and expectation. Black box testing is done to ensure that all functions are working based on their needs. The black box testing is a kind of testing that doesn't need internal structures. It is a testing about input, actual output and expected output.

Following are the test cases:

Test case	Description	Input	Expected result	Actual result
Login	Checking log In details	Insert wrong username or password	Show an error message	Error message shown: incorrect username and/or password
Apply course	Check course skill level	Apply for a specific course	Accept and appear a message that your request has been sent for approval	When click apply the message pop up: your request has been sent for approval.

Change password	Check the process of changing password	Write different passwords in the new password textbox and the textbox with confirming the new password	System will notify end-user that password and reconfirmed password should be the same	When click save an error message appears to the user saying that the new password and confirm password should be the same.

6.0 CHAPTER SIX- CONCLUSION AND FUTURE WORK

6.1 Summary

The project of Employee training registration system was done to solve the manual employee training data handling and record keeping the problem of Masdar Abu Dhabi. The project is completed in different phases based on SDLC Methods which starting from defining the problem and planning ending with the designing of the system, testing and then its implementation.

From the project, it has been realized that manual handling and record keeping process is a very difficult task in any organization because it causes a lot of burden and wastage of employee's time and efforts and also includes the risk of human errors while dealing with all records manually. In short Employee training registration system will help the organization and employees to use the computer-based system for dealing with employee training procedures in the best way without any wastage of time, effort and with more security and reliability.

6.2 Contribution of the project

In general, the project meet the goal and expectation. The problem was investigated and requirements were collected through observation and interviews and at the end the solution was also given to solve the problem.

The produced system allows an admin to register employee account with full information with editing their information, also allow him to approve or reject applied requests, and an employee will be able to apply for training and to get information about various training courses.

Having computer-based employee training registration system provide following benefits:

- Time efficient
- Getting rid of manual work
- Fast monitoring
- How much training time is left of a specific employee?

6.3 Limitations

While working on this project I have faced some of limitations and difficulties such as the following:

- **User Availability**

  I found a lot of challenges to sitting and discuss with the key person to understand their problems.

- **Gathered the information from literature review**

  Gathering the information from literature reviews of the journal, books, and articles were so hard and took lots of time.

- **System implementation.**

  The developing and implementation of employee training registration system was hard for me especially is the first time to develop such of the system, so it took lots of efforts, search and reading to start and provide the best system.

6.4 Recommendations for further development

The project can be adapt and enhanced in future as the following;

- Integrate with a mobile application so admin can approve or reject anytime.
- A Notification will be sent to Admin (i.e. every 4 hours) to inform about requests status.
- By integrating this system database with the HR database instead of having a separate database.

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Appendix A

<u>Interview Questions</u>

1. **What is the system that you used for training registration?**
   Answer: were using Excel sheet document.

2. **How are you managing the record of employees?**
   Answer: Adding employee training information in Excel sheet based on department.

3. **What are the problems you facing?**
   Answer: not accurate and up to date information.

4. **What are your pains points?**
   Answer: we are not sure if the documents is an accurate, up to date and free of mistakes and we are not aware who has the updated version and not centralized location.

5. **What are your requirements?**
   Answer: a system that can provide the following features:
   - Enter employee information
   - Register training and assign employee
   - Approve or reject

6. **What type of employee training registration system do you want to see?**
   Answer: easy to user interface.

7. **Do you prefer web based or windows based employee training registration system?**
   Answer: Web based will make our life easier.

Appendix B

MS project Plan for application;

			Duration	Start	Finish	Pred
		Employee Training Registration system Plan	97 days	Thu 9/1/16	Sun 1/15/17	
		◢ **Initiation**	**15 days**	**Thu 9/1/16**	**Wed 9/21/16**	
		Analys current requirements	5 days	**Thu 9/1/16**	Wed 9/7/16	
		Gathering Business requirements	5 days	Thu 9/8/16	Wed 9/14/16	3
		Prepare Project Plan	5 days	Thu 9/15/16	Wed 9/21/16	4
		◢ **Analysis**	**7 days**	**Thu 9/22/16**	**Sun 10/2/16**	**2**
		Prepare Function and None Funcation specification	4 days	Thu 9/22/16	Tue 9/27/16	
		Complete Functional and None Functional specification	3 days	Wed 9/28/16	Sun 10/2/16	7
		Revised project Plan	2 days	Thu 9/22/16	Sun 9/25/16	5
		Review simlare system	6 days	Thu 9/22/16	Thu 9/29/16	
		◢ **Design**	**6 days**	**Mon 10/3/16**	**Mon 10/10/16**	**6**
		Entiy relation digram	3 days	Mon 10/3/16	Wed 10/5/16	
		Use case diagram	3 days	Mon 10/3/16	Wed 10/5/16	
		Class Digram	3 days	Mon 10/3/16	Wed 10/5/16	
		Sequence diagrams	3 days	Thu 10/6/16	Mon 10/10/16	13,14
		◢ **Implementation**	**23 days**	**Tue 10/11/16**	**Thu 11/10/16**	**11**
		Install visual Studio	2 days	Tue 10/11/16	Wed 10/12/16	
		Develop application	23 days	Tue 10/11/16	Thu 11/10/16	
		◢ **Testing**	**10 days**	**Sun 11/13/16**	**Thu 11/24/16**	**16**
		Test functionality	5 days	Sun 11/13/16	Thu 11/17/16	
		Fix Bugs	5 days	Sun 11/20/16	Thu 11/24/16	20
		◢ **User Acceptance testing**	**12 days**	**Sun 11/27/16**	**Mon 12/12/16**	**19**
		Prepare test case list	2 days	Sun 11/27/16	Mon 11/28/16	
		UAT session	5 days	Sun 11/27/16	Thu 12/1/16	

			Duration	Start	Finish	Pred
		◢ **Testing**	**10 days**	**Sun 11/13/16**	**Thu 11/24/16**	**16**
		Test functionality	5 days	Sun 11/13/16	Thu 11/17/16	
		Fix Bugs	5 days	Sun 11/20/16	Thu 11/24/16	20
		◢ **User Acceptance testing**	**12 days**	**Sun 11/27/16**	**Mon 12/12/16**	**19**
		Prepare test case list	2 days	Sun 11/27/16	Mon 11/28/16	
		UAT session	5 days	Sun 11/27/16	Thu 12/1/16	
		Fix issues	7 days	Sun 12/4/16	Mon 12/12/16	24
		Business unit sign off	1 day	Sun 11/27/16	Sun 11/27/16	
		Documentation	**81 days**	**Thu 9/22/16**	**Thu 1/12/17**	**2**
		Go live	**1 day**	Thu 1/12/17	**Thu 1/12/17**	**26**

Appendix C

Entity Relation diagram;

Employee Training Registration System