Web based application for Exam Design

Under supervision of:

Dr. Soaad Mohamed Naguib.

4th Year

Graduation project

7/2/2017

Project Team Member

Zeinab Ibrahim El Shahat Mohamed.

Samar Mohamed Hamed Sheta.

Fatma Hesham Ahmed Abo Zied.

Azza said Mohamed Ali.

Nora Hamza Ahmed Abd Elhafez.

Students in 4th year of information system department
Faculty of computers and informatics
Zagazig University

Acknowledgment

We would like to express our gratitude for everyone who helped us during the graduation project (Exam Design) starting with endless thanks for our supervisor Dr. Soaad Mohamed Naguib who didn't keep any effort in encouraging us to do a great job, providing our group with valuable information and advices to be better each time.

Her timely advice, meticulous scrutiny, scholarly advice and scientific approach have helped us to a very great extent to accomplish this project.

Thanks for the continuous support and kind communication which had a great effect regarding to feel interesting about what we are working on.

Special thanks and appreciation to Eng. /merna el fakhrany, teaching assistant, for providing us support and encouragement for the success of our project

Table of Contents

Chapter one

Introduction

1.1 Background and motivation

Exam Designing is a system that many educational institutions and professors can benefit from it.

Manual method of putting questions and design exam is a very hard process and need a lot of concentration .professors in the manual exam design method may missed some parts of important questions and questions cannot cover all levels of difficulty.

The disadvantage of manual exam designing it requires effort and a lot of time therefore the proposed project will develop a tool for designing exam all types of questions.

The proposed project will develop a tool for helping instructors to design exam and cover the previous problems,

1.2 Problem definition

Manual exam design have many problems

- Estimated time may be unsuitable for answers
- Level of difficult may be unsuitable for all students
- Instructor may missed some important parts in course
- Instructor cannot determine standard of student

1.3 Objective of the proposed System

- Developing a tool for exam design which will help instructor in
- putting exam effortlessly
- contain all parts of the course(all important questions)
- contain all levels of difficulty therefore instructor can determine the standard of student

1.4 methodologies

- **Web-Technology**

__PHP__ **(**Hypertext Preprocessor, is a widely used, general-purpose scripting language that was originally designed for web development, to produce dynamic web pages**)**

- **Front-End**

__HTML__ (is the predominant markup language for web pages. It provides a means to create structured documents by denoting structural semantics for text**)**

__CSS__ **(**CSS is used to define styles for web pages, including the design, layout and variations in display for different devices and screen sizes)

__JAVASCRIPT__ **(**JavaScript uses prototypes instead of classes for inheritance. It is possible to simulate many class-based features with prototypes in JavaScript**)** **.**

__jQuery__ :jQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers. With a combination of versatility and extensibility, jQuery has changed the way that millions of people write JavaScript.

- **Back-End**

__MySQL__ **(**database is composed of one or more tables.
These Tables, which structure data into rows and columns, impose organization on the data.
To make arranging records easy to identify a specific record, therefore, it becomes necessary standing Relationships and Foreign Keys (RDBMS))

Chapter two
Analysis and Requirement

Analysis Phase

- Understand the existing situation (the as-is system)
  The current system: the professors must create exam manually.
- Identify improvements
  The proposed system: establish a web application help professors to create exam automatically.
- Define the requirement for the new system (the to-be system).

2.1: overview

 Requirements determination: is performed to transform the system request's high-level statement of business requirements into a more detailed, precise list of what the new system must do to provide the needed value to the business. This detailed list of requirements is supported, confirmed, and clarified by the other activities of the analysis phase: creating use cases, building process models, and building a data model. We first explain what a requirement is and discuss the process of creating a requirements definition statement.

 System analysis: is the dissection of a system into its component pieces for purposes of studying how those component pieces interact and work. With respect to information system development, System analysis is the survey and planning of the system and project, the study and analysis of the existing business and information system, and the definition of business requirements and priorities for a new or improved system.

 The Purpose of this phase: is to draw a whole view for the activities of different administrations, and the tasks which were charged by these administrations. This makes us imagine the initial vision for the applications which are possible to be constructed in order to mimic the reality.

2.2 INFORMATION SYSTEM DEVELOPMENT

This section introduces a system development life cycle-based methodology as the process used to develop information systems.

2.2.1 SYSTEM DEVELOPMENT LIFE CYCLES AND METHODOLOGIES

– The process used to develop information systems is called a methodology.

- All methodologies are derived from a logical system problem-solving process that is sometimes called a system development life cycle
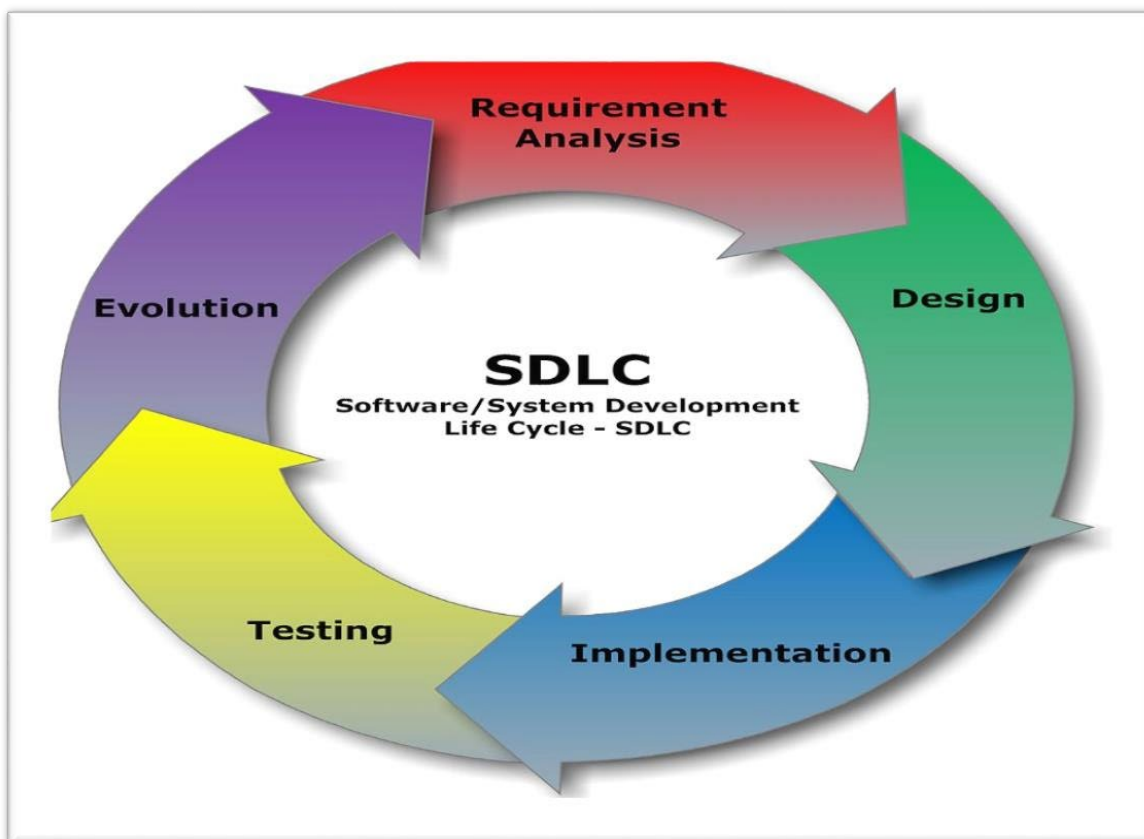
□ *A system development life cycle (SDLC*) is a logical process by which systems analysts, software engineers, programmers, and end-users build information systems and computer applications to solve business problems and needs. It is sometimes called an application development life cycle.

The SDLC usually incorporates the following general –purpose problem solving steps:

Planning: identify the scope and boundary of the problem, and plan the development strategy and goals.

Analysis: study and analyze the problems, causes and effects .Then, identify and analyze the requirements that must be fulfilled by any successful solution.

Design: if necessary, design the solution not all solutions require design

Implementation: implement the solution.

Support: Analyze the implemented solution, refine the design, and implement improvements to the solution. Different support situations can thread back into the previous steps.

□ **A methodology** is the physical implementation of the logical life cycle that incorporates

1. Step- by- step activities for each phase.

2. Individual and group roles to be played in each activity.

3. Deliverables and quality standards for each activity.

4. Tools and techniques to be used for each activity.

- A true methodology should encompass the entire systems development life cycle. - Most modern methodologies incorporate the use of several development tools and techniques.

-Methodologies ensure that a consistent, reproducible approach is applied to all projects.

- Methodologies reduce the risk associated with shortcuts and mistakes.

- Methodologies produce complete and consistent documentation from one project to the next.

2.3 REQUIREMENTS

- *There are types of requirement we will talk about it:-*

First

1- Functional requirement

2- *nonfunctional requirement*

3- *System requirement*

4- *Business requirement*

Second

(Requirements Elicitation)

2.3.1 REQUIREMENTS TYPES

* **Functional requirement**: it contain (process-oriented and information-oriented)

 Process-oriented *:*

A process the system must perform; a process the system must do

■ the system must allow professors to
 — Register and login the system
 — Add Chapter in each course
 — View Chapters
 — Add Question in each course
 — View Question Bank
 — Create Exam Automatically
 — Download exam.

.

 Information-oriented: *Information the system must contain*

■ The proposed system must contain

 — Report of all courses and their codes
 — All chapters of each course
 — Question bank of each course
 — Report about each exam that has been created

.

 ***nonfunctional requirement:** it contain

(Operational, performance, security and culture &political)

Operational:

The physical and technical environments in which the system will operate

■ the system must run with Existing hardware

13

- ■ the system should be easy to use by existing workers

- ■ the system should be able to work on any Web browser

Performance:

The speed, capacity, and reliability of the system

■**speed:** Any interaction between the user and the system should not exceed 3 seconds.

- ■ the system downloads reports within 2 minutes of a change.

- ■ the system should be available for use 24 hours per day, 365 days per

year.

Security:

Who has authorized access to the system under what circumstances?

All professors have different username and email and different password

1- Administrator Level

■Only direct managers can see Database.

2- User Level

■the professors who are capable of dealing with data entry in website.

Culture & political:

Cultural and political factors and legal requirements that affect the system.

- ■ Personal information is protected in compliance with the Data Protection Act.

- ■only the owner of the system who must edit or fix any error or update it.

*System requirement
Hardware
 Hard disk, printer, mouse, keyboard, screen
Software
Operating system, programming languages (html, css, MySQL, jQuery, php…)

 *Business requirement

It represented what business needs as following

14

Business Goals and Objectives : The main objective of this project is helping university professor design exam easily

Problem Statement: Manually design exam may be tired and fatigued and consumes lots of time and the professor cannot collect all the parts of course.

Project Description: this system will help professor design exams automatically

Scope: facilitate process of designing exams.

Stakeholder :   University professors considered the main stakeholders   of this system .

2.3.2- REQUIREMENTS ELICITATION

(Interviews, JAD sessions, questionnaires, document analysis, and observation.)

We will use some method in our project:-

2.3.2.1: interview

 The interview is the most commonly used requirements elicitation technique. It   is natural—usually, if you need to know something, you ask someone.

 In general, interviews are conducted one on one (one interviewer and one interviewee), but sometimes, due to time constraints, several people are interviewed at the same time.

*When we want make an interview we must do some basic:

- **Selecting Interviewees : user**
- *Selecting number of professors*
- **Designing Interview Questions: open-ended question /structured interview**
- **Explain idea of proposed system**
- **What are the difficulties faced by professor during creating exam?**
- **Preparing for the Interview**
- **Professors determine suitable time of meeting**
- **Conducting the Interview**
- **Record all information**
- **Post-Interview Follow-up**
- **Interview Report.**

Designing Interview Questions: There are three types of interview questions: closed-ended questions, open-*ended* questions, and probing questions.

→**Closed-ended questions** require a specific answer. You can think of them as being similar to multiple choice or arithmetic questions on an exam.it is used when the analyst is looking for specific, enable analysts to control the interview and obtain the information they need.

• *How many professors can use system per day?*

-it is not a fixed number. Every professor can use system for designing exam

• *How do professors do to use system?*

-professor must register and login then he can use system and enter data.

→**Open-ended questions** are those that leave room for elaboration on the part of the interviewee. Open-ended questions are designed to gather rich information and give the interviewee more control over the information that is revealed during the interview.

• *Explain idea of proposed system*

• What are the difficulties faced by professor during creating exam*?*

Test paper may contain:
  - o The name of the university.
  - o The name of the faculty.
  - o Time of exam.
  - o The date of the exam.

And the professor may enter the course name and the course ID.

  - o Any question may contain a collection of tags (the place of question in details).
  - o The paper will be in the form of report.
      - o Define the location of the question exactly.
      - o Make a keyword.

Difficult During Design:
  - o How to cover all parts of course without repetition.

→*Probing questions* follow up on what has just been discussed in order for the interviewer to learn more, and they often are used when the interviewer is unclear about an interviewee's answer.

• *Why professor don't design exam automatically?*

Because of the poor of software and experience of using software.

2.3.2.2: Joint Application Development (JAD)

Joint application development (or JAD as it is more commonly known) is an information gathering technique that allows the project team, users, and management to work together to identify requirements for the system.

2.3.2.3: Questionnaires

A questionnaire is a set of written questions for obtaining information from individuals. Questionnaires often are used when there is a large number of people from whom information and opinions are needed like professors who working in the university.

2.3.2.4: Document Analysis

Project teams often use document analysis to understand the as-is system. Under ideal circumstances, the project team that developed the existing system will have produced documentation, which was then updated by all subsequent projects. In this case, the project team can start by reviewing the documentation and examining the system itself.

2.3.2.5: Observation

Observation, the act of watching processes being performed, is a powerful tool to gain insight into the as-is system. Observation enables the analyst to see the reality of a situation, rather than listening to others describe it in interviews or JAD sessions.

Chapter three

System Design
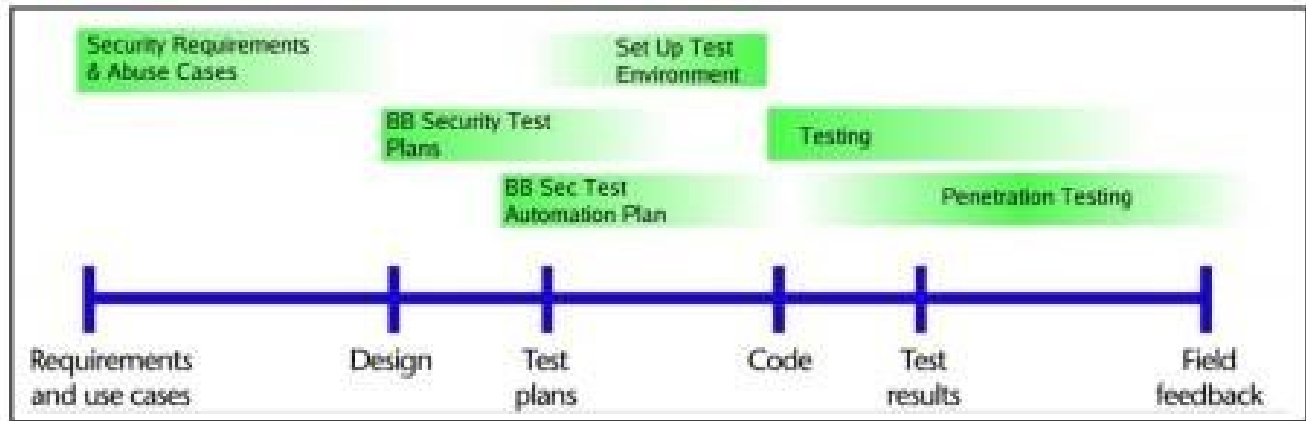
3.1: SYSTEM DESIGN

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements.

System design is the evaluation of alternative solutions and the specification of a detailed computer-based solution. The design stage is responsible for describing the functional requirement of the system (called Logical design). It specifies the characteristics of the system components necessary to put the logical design into action (called Physical design). In other words the design stage determines how the new system will work to
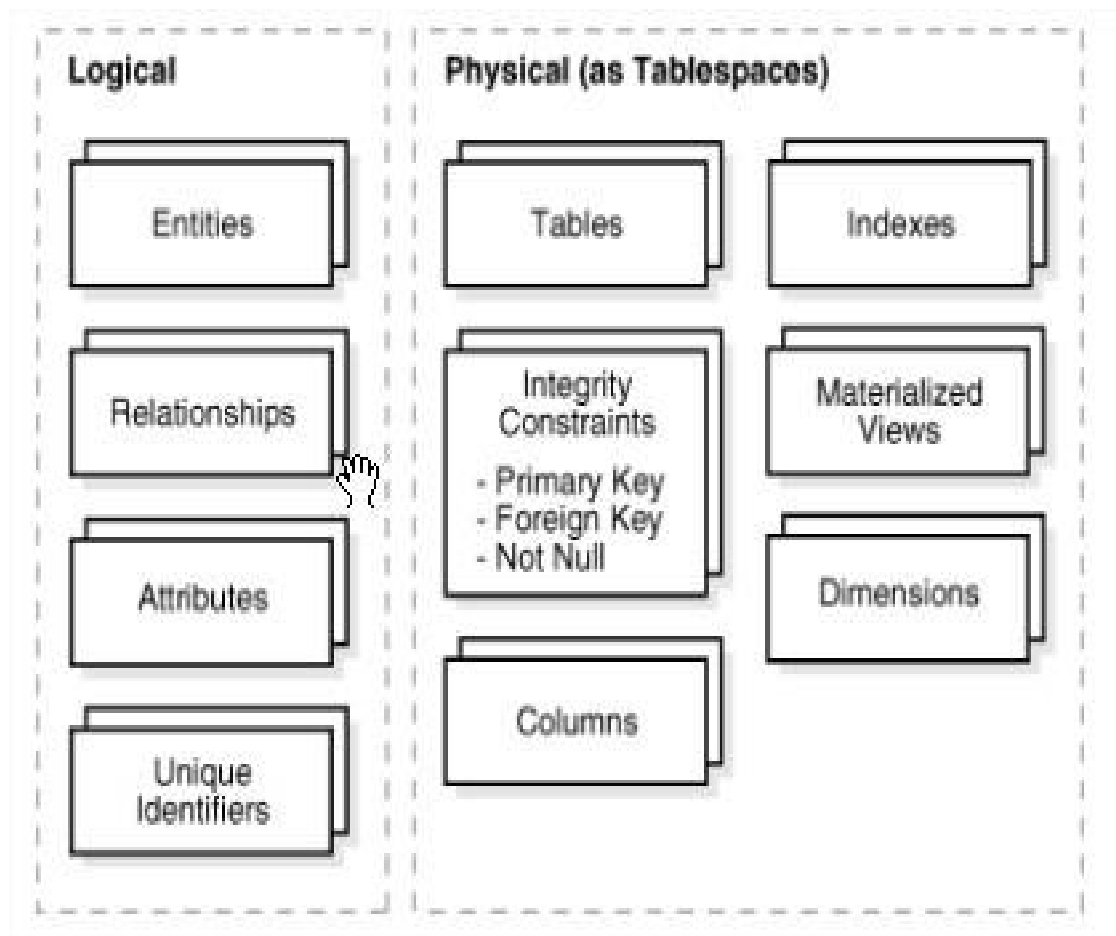
Systems Logical and Physical Design

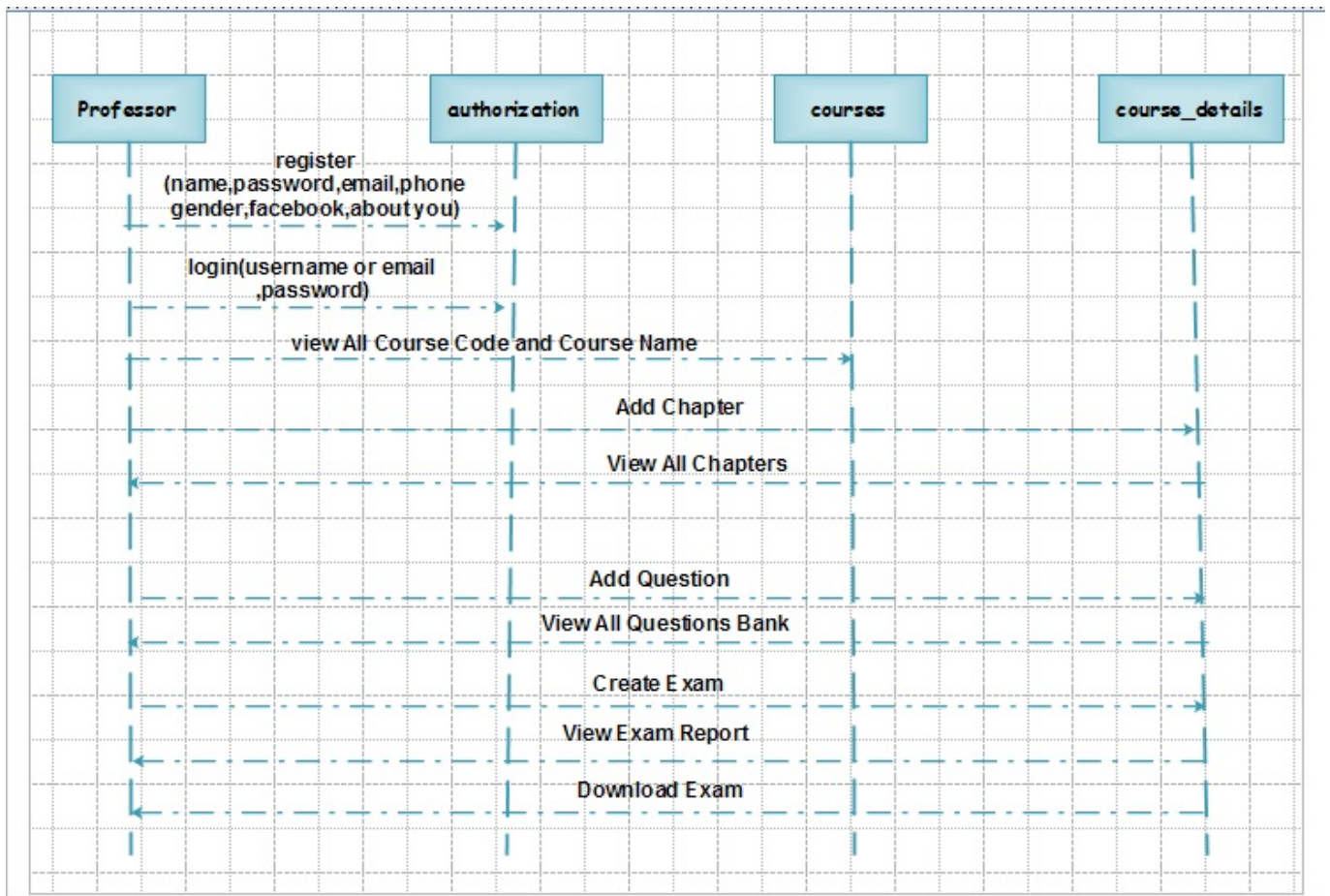meet the business needs defined during system analysis.

The Design Stage Phases

3.2 SYSTEM DESIGN CONTAINS

1- Sequence Diagram
2- Data Flow Diagram
3- Logical ER Diagram
4- Physical ER Diagram
5- Use case Diagram

3.2.1 Sequence Diagram

Basic Sequence Diagram Notations

Class Roles or Participants

Class roles describe the way an object will behave in context. Use the UML object symbol to illustrate class roles, but don't list object attributes.

Activation or Execution Occurrence

Activation boxes represent the time an object needs to complete a task. When an object is busy executing a process or waiting for a reply message, use a thin gray rectangle placed vertically on its lifeline.


Activation or Execution Occurrence

Messages

Messages are arrows that represent communication between objects. Use half-arrowed lines to represent asynchronous messages. Asynchronous messages are sent from an object that will not wait for a response from the receiver before continuing its tasks. For message types, see below.
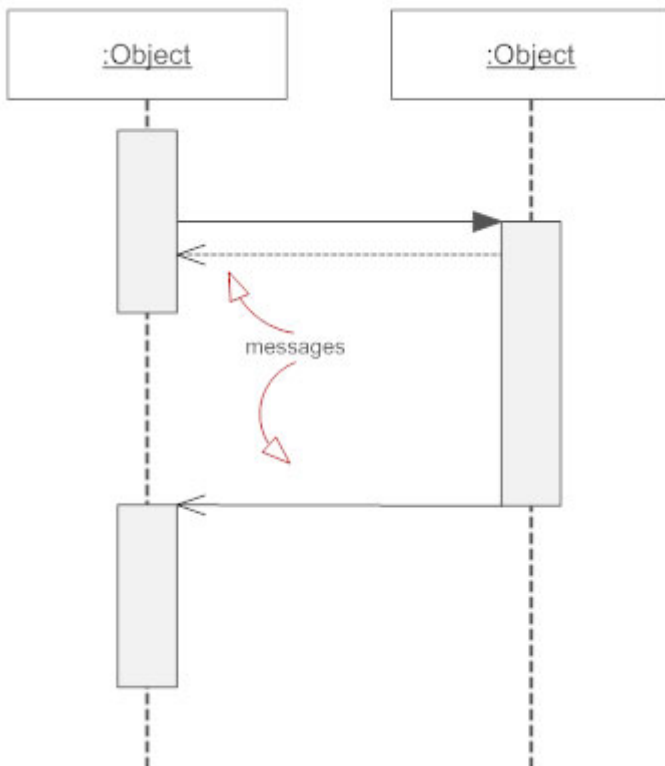
Lifelines

Lifelines are vertical dashed lines that indicate the object's presence over time.
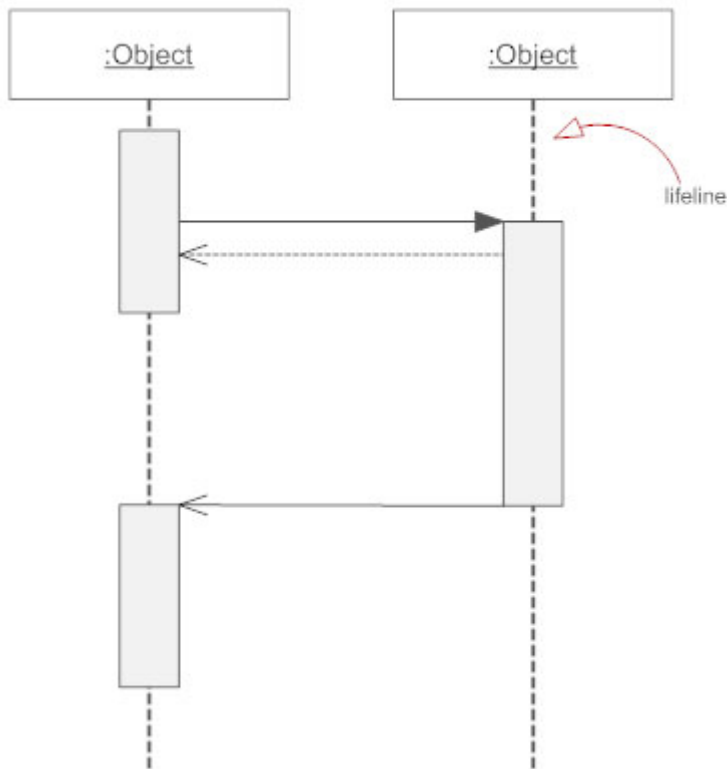

In our system:

<u>First</u>

Professor register in the system and his information store in database then professor can view all courses name and courses code after login system professor can use course details like add chapter, add question and create exam.

The system can present reports to professor about all chapters, all question bank and view exam.

3.2.2 Data Flow Diagram
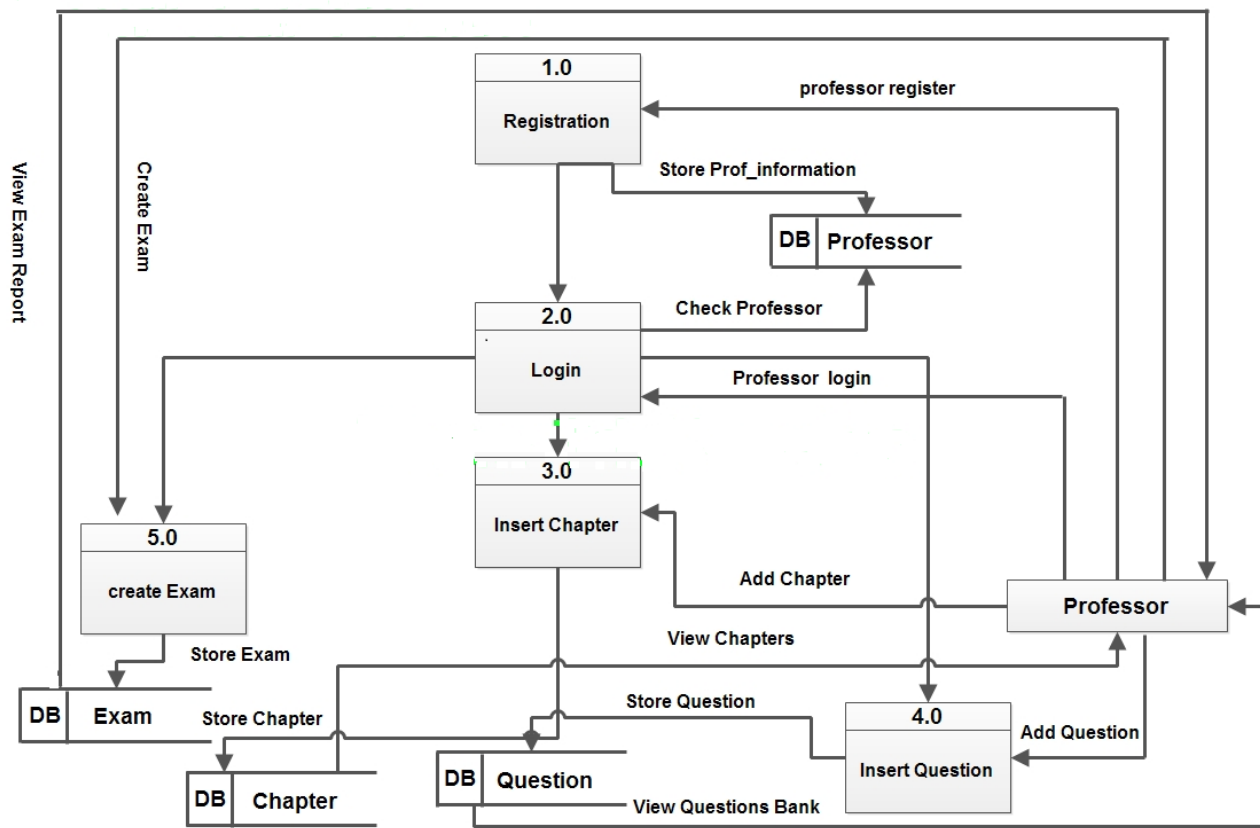
Data Flow Diagram

DFD: helps us in identifying existing business processes. It is a technique we benefit from particularly before we go through business process re-engineering.

At its simplest, a data flow diagram looks at how data flows through a system. It concerns things like where the data will come from and go to as well as where it will be stored. But you won't find information about the processing timing.

There are essentially two different types of notations for data flow diagrams (Yourdon & Coad or Gane & Sarson) Defining different visual representations for processes, data stores, data flow and external entities.

Process Notations. A process transforms incoming data flow into outgoing data flow.

level

Process

Gane & Sarson

Data store Notations. Data stores are repositories of data in the system. They are sometimes also referred to as files.

Datastore

Yourdon & Coad

C | Datastore
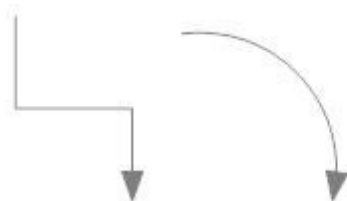
Gane & Sarson

Dataflow Notations. Dataflow are pipelines through which packets of information Flow. Label the Arrows with the name of the data that moves through it

Data flow

External Entity Notations. External entities are objects outside the system, with which the system communicates. External entities are sources and destinations of the system's inputs and outputs. the system's inputs and outputs.

External entity

External Entity

In our system :Professor is external entity can use register process in the system and his information store in database then professor can use login process then professor can use add chapter process and chapter store in data store, add question process and

question store in data store details and create exam process and exam store in data store. The system can present all exist in database in reports.

3.2.3 *Logical ER Diagram*
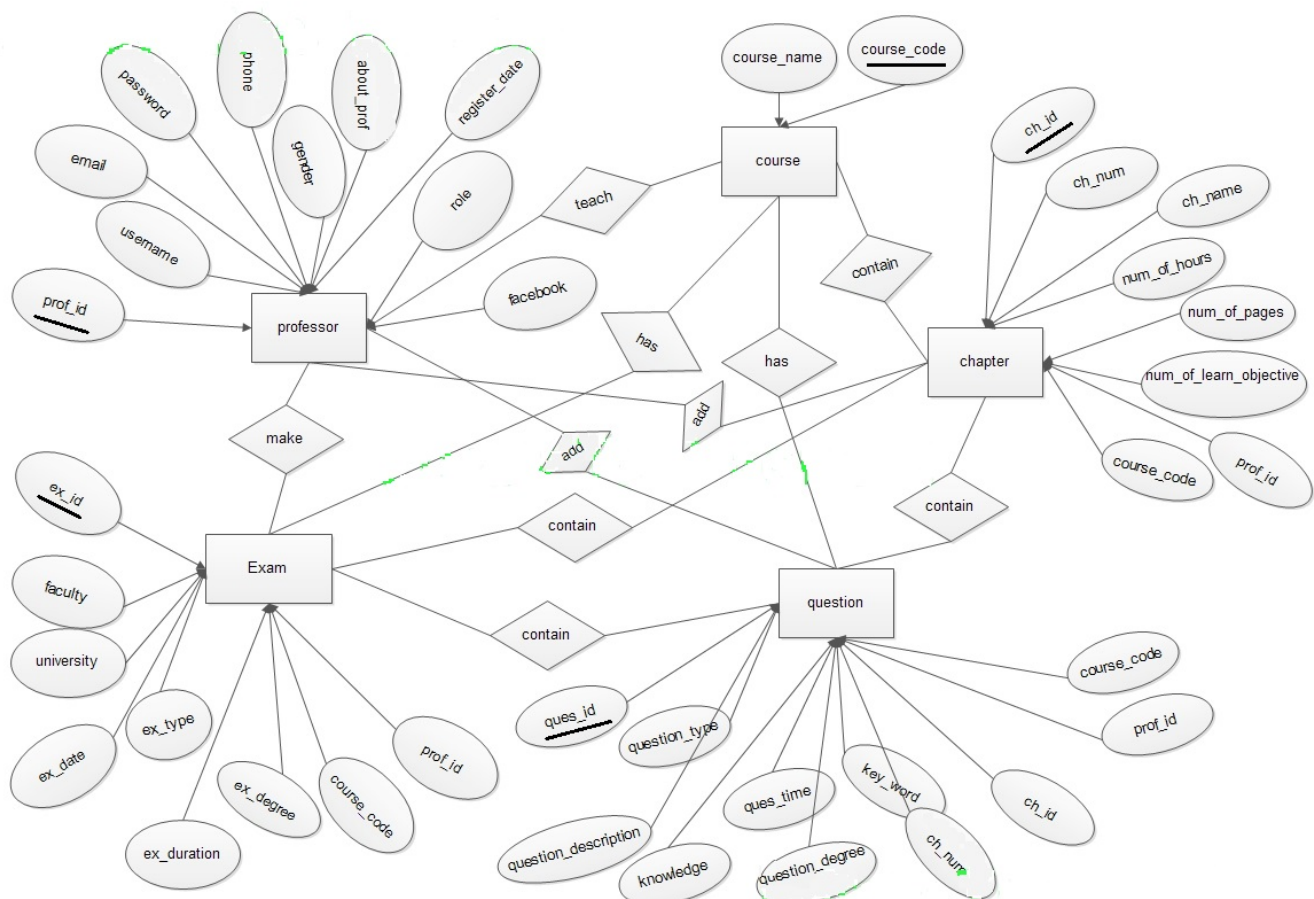
3.2.4 Physical ER Diagram
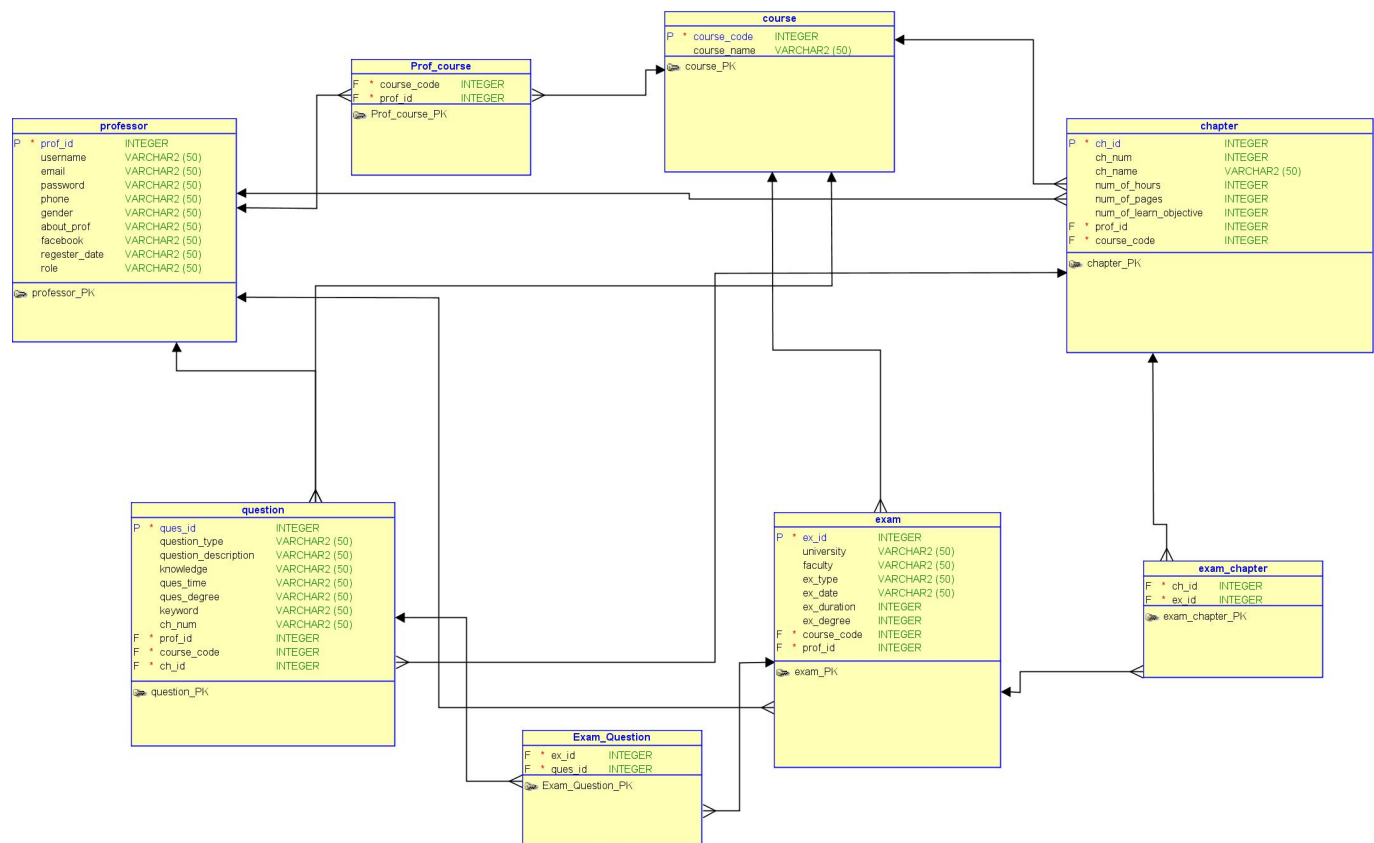
3.2.5 *Use case diagram*
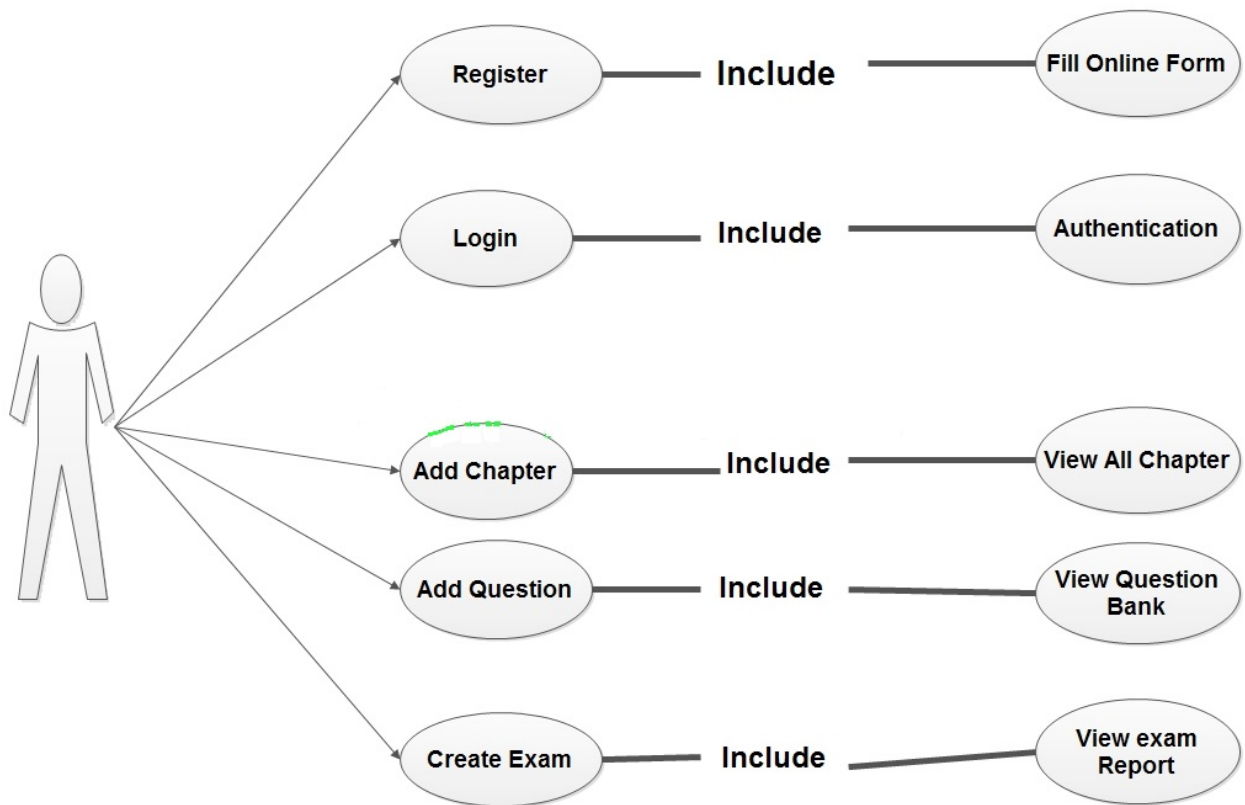
3.3 TABLES

3.3.1 Component of each table

Tables Name
Professor
Course
Chapter
Question
Exam
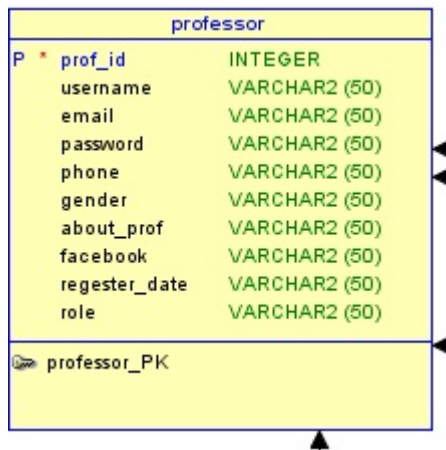
CREATE TABLE professor

```
(
prof_id INTEGER  NOT NULL ,
username VARCHAR2 (50) ,
email VARCHAR2 (50) ,
password VARCHAR2 (50) ,
phone VARCHAR2 (50) ,
gender VARCHAR2 (50) ,
about_prof VARCHAR2 (50) ,
facebook VARCHAR2 (50) ,
regester_date VARCHAR2 (50) ,
role VARCHAR2 (50)
)
;
```

CREATE TABLE course
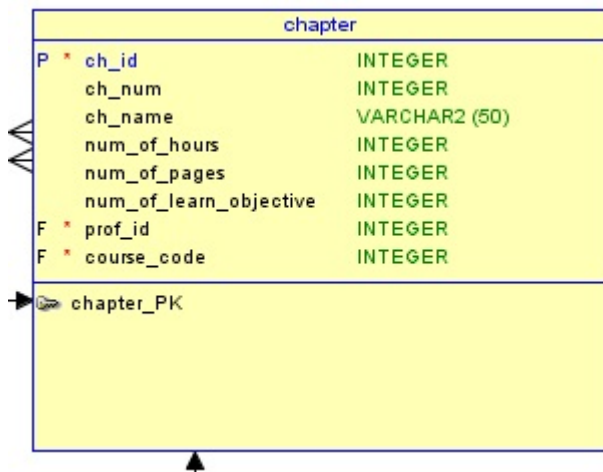
(

 course_code INTEGER NOT NULL ,

 course_name VARCHAR2 (50)

) ;

CREATE TABLE chapter

(ch_id INTEGER NOT NULL ,

 ch_num INTEGER ,

 ch_name VARCHAR2 (50) ,

 num_of_hours INTEGER ,

 num_of_pages INTEGER ,

 num_of_learn_objective INTEGER ,

 prof_id INTEGER NOT NULL ,

 course_code INTEGER NOT NULL   ) ;

CREATE TABLE question

```
(
ques_id INTEGER  NOT NULL ,

question_type VARCHAR2 (50) ,

question_description VARCHAR2 (50) ,

knowledge VARCHAR2 (50) ,

ques_time VARCHAR2 (50) ,

ques_degree VARCHAR2 (50) ,

keyword VARCHAR2 (50) ,

ch_num VARCHAR2 (50) ,

prof_id INTEGER  NOT NULL ,

course_code INTEGER  NOT NULL ,

ch_id INTEGER  NOT NULL
)
;
```
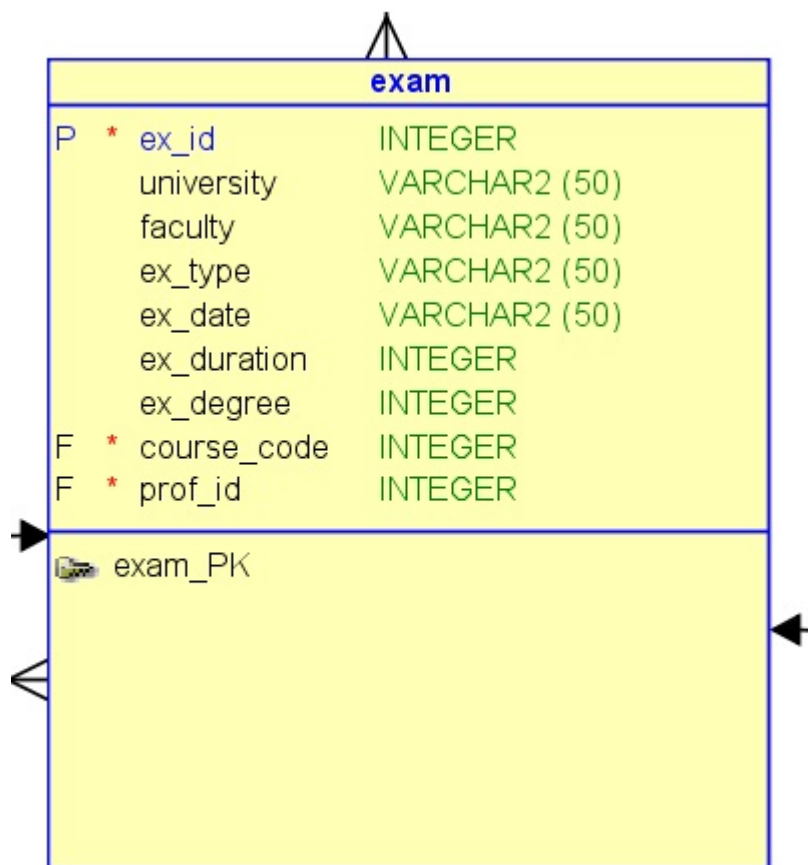
CREATE TABLE exam

```
(
ex_id INTEGER  NOT NULL ,

university VARCHAR2 (50) ,

faculty VARCHAR2 (50) ,

ex_type VARCHAR2 (50) ,

ex_date VARCHAR2 (50) ,

ex_duration INTEGER ,

ex_degree INTEGER ,

course_code INTEGER  NOT NULL ,

prof_id INTEGER  NOT NULL
)
;
```

3.3.2 The Code of Creation Tables

```
CREATE TABLE Exam_Question
  (
   ex_id INTEGER  NOT NULL ,
   ques_id INTEGER  NOT NULL
  ) ;


CREATE TABLE Prof_course
  (
   course_code INTEGER  NOT NULL ,
   prof_id INTEGER  NOT NULL
  ) ;


CREATE TABLE chapter
  (
   ch_id INTEGER  NOT NULL ,
   ch_num INTEGER ,
   ch_name VARCHAR2 (50) ,
   num_of_hours INTEGER ,
   num_of_pages INTEGER ,
   num_of_learn_objective INTEGER ,
   prof_id INTEGER  NOT NULL ,
   course_code INTEGER  NOT NULL
  ) ;


ALTER TABLE chapter
  ADD CONSTRAINT chapter_PK PRIMARY KEY ( ch_id ) ;


CREATE TABLE course
  (
```

```
    course_code INTEGER  NOT NULL ,
    course_name VARCHAR2 (50)
    ) ;


ALTER TABLE course
    ADD CONSTRAINT course_PK PRIMARY KEY ( course_code ) ;


CREATE TABLE exam
    (
    ex_id INTEGER  NOT NULL ,
    university VARCHAR2 (50) ,
    faculty VARCHAR2 (50) ,
    ex_type VARCHAR2 (50) ,
    ex_date VARCHAR2 (50) ,
    ex_duration INTEGER ,
    ex_degree INTEGER ,
    course_code INTEGER  NOT NULL ,
    prof_id INTEGER  NOT NULL
    ) ;


ALTER TABLE exam
    ADD CONSTRAINT exam_PK PRIMARY KEY ( ex_id ) ;


CREATE TABLE exam_chapter
    (
    ch_id INTEGER  NOT NULL ,
    ex_id INTEGER  NOT NULL
    ) ;


CREATE TABLE professor
    (
```

```sql
    prof_id INTEGER  NOT NULL ,
    username VARCHAR2 (50) ,
    email VARCHAR2 (50) ,
    password VARCHAR2 (50) ,
    phone VARCHAR2 (50) ,
    gender VARCHAR2 (50) ,
    about_prof VARCHAR2 (50) ,
    facebook VARCHAR2 (50) ,
    regester_date VARCHAR2 (50) ,
    role VARCHAR2 (50)
   ) ;
ALTER TABLE professor
   ADD CONSTRAINT professor_PK PRIMARY KEY ( prof_id ) ;
CREATE TABLE question
   (
    ques_id INTEGER  NOT NULL ,
    question_type VARCHAR2 (50) ,
    question_description VARCHAR2 (50) ,
    knowledge VARCHAR2 (50) ,
    ques_time VARCHAR2 (50) ,
    ques_degree VARCHAR2 (50) ,
    keyword VARCHAR2 (50) ,
    ch_num VARCHAR2 (50) ,
    prof_id INTEGER  NOT NULL ,
    course_code INTEGER  NOT NULL ,
    ch_id INTEGER  NOT NULL
   ) ;
ALTER TABLE question
   ADD CONSTRAINT question_PK PRIMARY KEY ( ques_id ) ;
ALTER TABLE Exam_Question
   ADD CONSTRAINT Exam_Question_exam_FK FOREIGN KEY
```

```
(
 ex_id
)
REFERENCES exam
(
 ex_id
) ;
ALTER TABLE Exam_Question
   ADD CONSTRAINT Exam_Question_question_FK FOREIGN KEY
   (
    ques_id
   )
   REFERENCES question
   (
    ques_id
   ) ;
ALTER TABLE Prof_course
   ADD CONSTRAINT Prof_course_course_FK FOREIGN KEY
   (
    course_code
   )
   REFERENCES course
   (
    course_code
   ) ;
ALTER TABLE Prof_course
   ADD CONSTRAINT Prof_course_professor_FK FOREIGN KEY
   (
    prof_id
   )
   REFERENCES professor
```

```
 (
  prof_id
 ) ;
ALTER TABLE chapter
  ADD CONSTRAINT chapter_course_FK FOREIGN KEY
  (
   course_code
  )
  REFERENCES course
  (
   course_code
  );
ALTER TABLE chapter
  ADD CONSTRAINT chapter_professor_FK FOREIGN KEY
  (
   prof_id
  )
  REFERENCES professor
  (
   prof_id
  ) ;
ALTER TABLE exam_chapter
  ADD CONSTRAINT exam_chapter_chapter_FK FOREIGN KEY
  (
   ch_id
  )
  REFERENCES chapter
  (
   ch_id
  ) ;
ALTER TABLE exam_chapter
```

```sql
ADD CONSTRAINT exam_chapter_exam_FK FOREIGN KEY
(
 ex_id
)
REFERENCES exam
(
 ex_id
) ;
ALTER TABLE exam
ADD CONSTRAINT exam_course_FK FOREIGN KEY
(
 course_code
)
REFERENCES course
(
 course_code
) ;
ALTER TABLE exam
ADD CONSTRAINT exam_professor_FK FOREIGN KEY
(
 prof_id
)
REFERENCES professor
(
 prof_id
) ;
ALTER TABLE question
ADD CONSTRAINT prof_id FOREIGN KEY
(
 prof_id
)
```

```
    REFERENCES professor

    (

     prof_id

    );
ALTER TABLE question

   ADD CONSTRAINT question_chapter_FK FOREIGN KEY

   (

    ch_id

   )

   REFERENCES chapter

   (

    ch_id

   ) ;
ALTER TABLE question

   ADD CONSTRAINT question_course_FK FOREIGN KEY

   (

    course_code

   )

   REFERENCES course

   (

    course_code

  ) ;
```

3.3.3 Normalization.

<u>Professor Table</u>

Prof_id →A

Username →B

email→C

Password→D

Phone→E

Gender→F

About_prof→G

Facebook→H

Register_date→I

Role→J

R=ABCDEFG

F= {A→ B, B→CDEFGHIJ}

Key=A

FD1 =A→B

- Is B ∈ A ?No
- Is A superKey?Yes

FD1 Satisfy BCNF and 3NF

FD2= B→CDEFGHIJ

- Is CDEFGHIJ ∈ B ?No
- Is B superKey?No
- Is CDEFGHI ⊆ Key?No

FD2 Not satisfy 3NF Or BCNF

To Convert The Relation into BCNF

R=ABCDEFGHIJ

FD2: B → CDEFGHIJ

R1 =R-CDEFGHIJ =AB

R2= BCDEFGHIJ

This satisfy dependency Preserving

This Relation Can be converted to BCNF

....

<u>Exam Table</u>

Ex_id →A

University →B

Faculty→C

Ex_type→D

Ex_Date→E

Ex_duration→F

Ex_degree→G

R=ABCDEFG

Key=ADFG

F={A→BC,D→EFG}

FD1= A→BC

- Is BC ∈ A? No
- Is A superkey?No
- Is BC ⊆ Key ? No
- FDq not satisfy BCNF or 3NF

FD2=D→EFG

- Is EFG ∈ D?No
- Is D superKey?No
- Is EFG ⊆ Key?No

FD2 not satisfy BCNF or 3NF

R not satisfy BCNF or 3NF

To Convert the Relation into BCNF

R=ABCDEFG

FD1= A➔BC

R1=R-BC=ADEFG

R2=ABC

FD2= D➔EFG

R1= R-EFG =ABCD

R2=DEFG

This Satisfy Dependency Preserving

This Relation Can be converted to BCNF

....

Course Table

Course_Code ➔ A

Course_Name ➔ B

R=AB

F={A➔B}

Key = A

FD1 = A➔B

- Is B Є A ?No
- Is A superKey?Yes
- FD1 satisfy BCNF and 3NF

....

Question table

Ques_id ➔ A

Ques_Type➔B

Question_Description➔C

Knowledge ➔D

Question_Time ➔E

Question_degree ➔ F

Keyword ➔ G

Ch_num ➔ H

R=ABCDEFGH

Key = ABC

F={A➔B , B➔C ,C➔DEFGH}

FD1= A➔B

- Is B ∈ A?No
- Is A superkey?No
- Is B ⊑ Key?yes

FD1 satisfy BCNF and 3NF

FD2= B➔C

- Is C ∈ B?No
- Is B superkey?No
- Is C ⊑ Key?yes

FD2 satisfy BCNF and 3NF

FD3= C➔DEFGH

- Is DEFGH ∈ B ? No
- Is C Superkey ? No
- Is DEFGH ⊑ Key? No

FD3 Not satisfy BCNF or 3NF

To Convert the Relation to BCNF

R= ABCDEFGH

FD3= C➔DEFGH

R1= R-DEFGH =ABC

R2=CDEFGH

This Satisfy Dependency Preserving

This Relation Can be converted to BCNF

••

Chapter Table

Ch_Id➔A

Ch_num➔B

Ch_Name→C

Num_of_hours →D

Num_of_Pages→E

Num_of_objective→F

R=ABCDEF

F={A→B ,B→CDEF}

Key=A

FD1= A→B

- Is B ∈ A ? No
- Is A Superkey ? Yes

FD1 satisfy BCNF and 3NF

FD2 = B→CDEF

- Is CDEF ∈ B ? No
- Is B Superkey ? No
- Is CDEF ⊑ Key? No

FD2 Not satisfy BCNF or 3NF

To Convert the Relation to BCNF

R=ABCDEF

FD2 = B→CDEF

R1=R - CDEF = AB

R2 =BCDEF

This Satisfy Dependency Preserving

This Relation Can be converted to BCNF

Chapter four

Forms of Exam design system

4.1 FORMS OF SYSTEM

1-This is home page professor must register before log in
 Note that the navigation bar contain home, course, login that mean must register to use the system.

2-register form at least professor must enter his name, email, password and retype password then he can use the system.
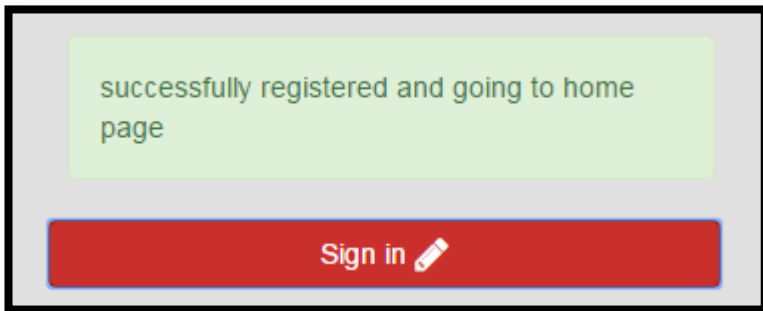
3-this message mean the register is done successfully and going to home page automatically after 3 second.
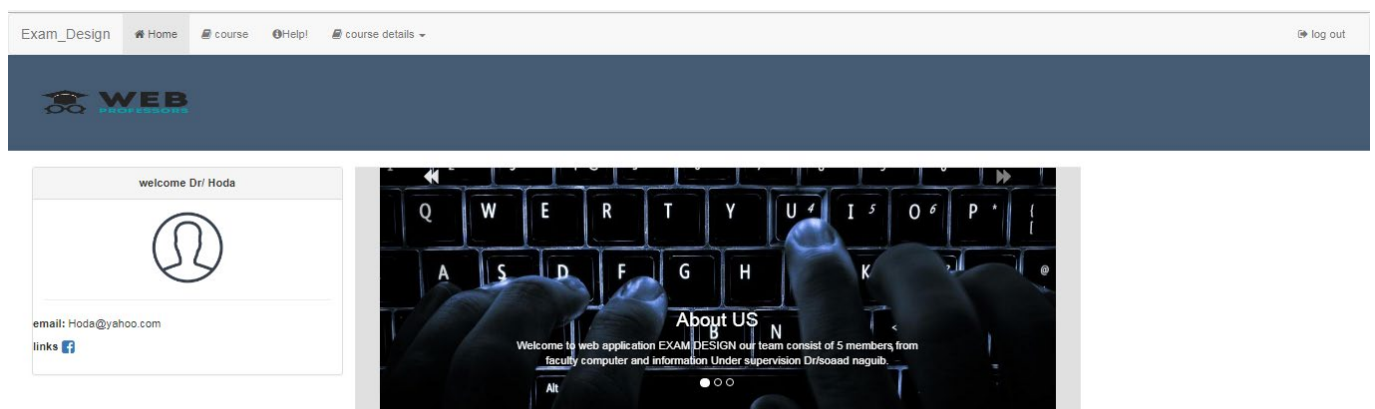
This home page after registeration .

Note the changes that has been happened
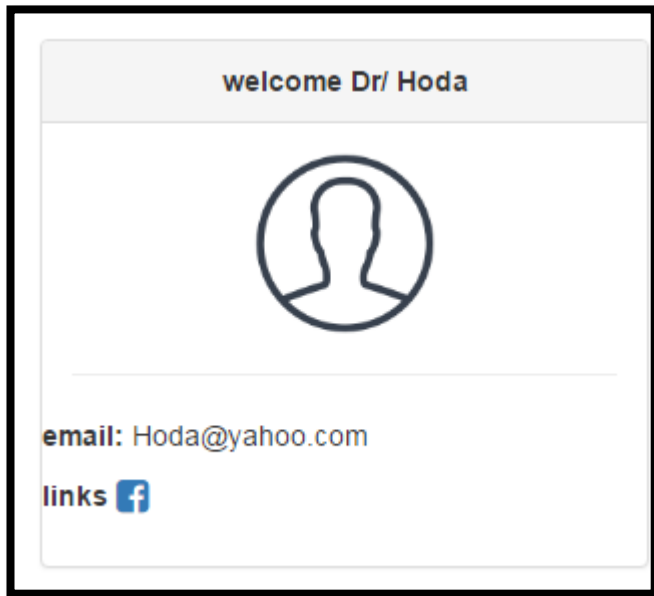
In login form we note in the header message welcome Dr/ and

Appear the email and the facebook .
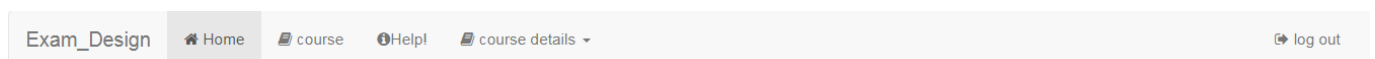
We note that in navigation bar appear the course details tab

And the login convert into logout that mean professor now inside the system

View Courses
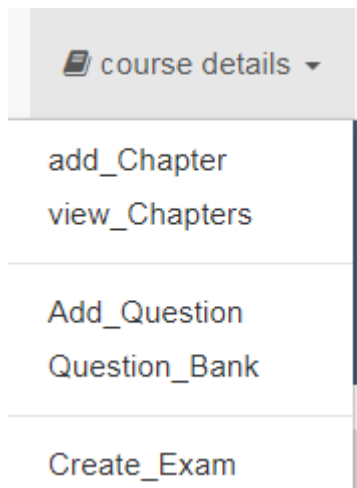
Course Name	Course Code
Operating system	CS230
Artificial intelligence	CS310
Big data	CS430
Modeling and Simulation	DS500
Multimedia database	IS 440
Computer skills	IS110
Data mining	IS410
Systems Analysis and Design	IS414
Expert Systems and Decision Support Systems	IS565
Internet programming	IT320
Network	IT420
Digital Logic Design	IT500

After opening course tab we see report that contain all course name and their code

Professor can know the code of course from this tab
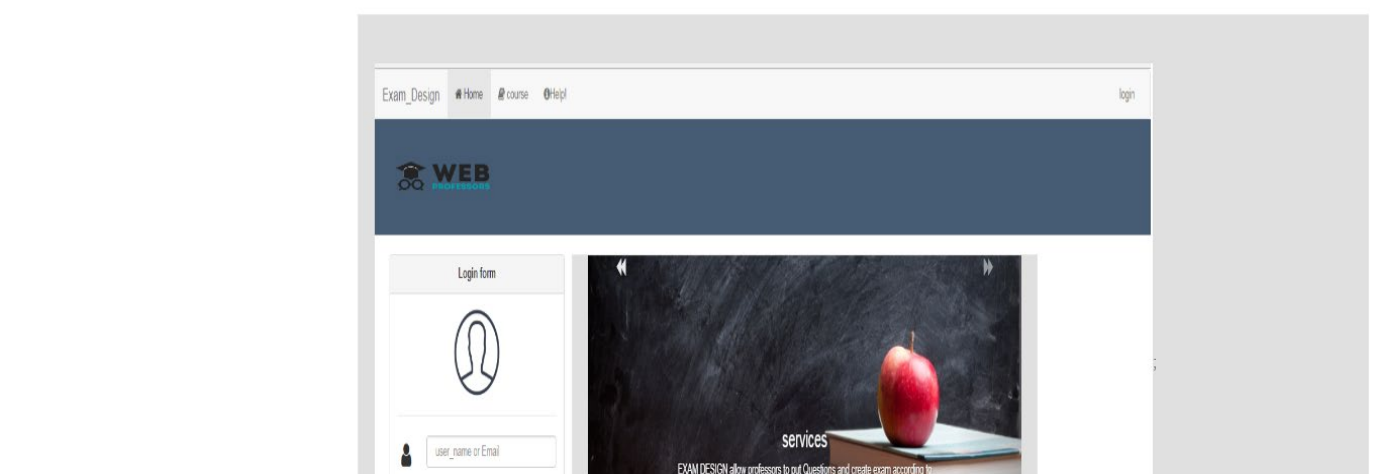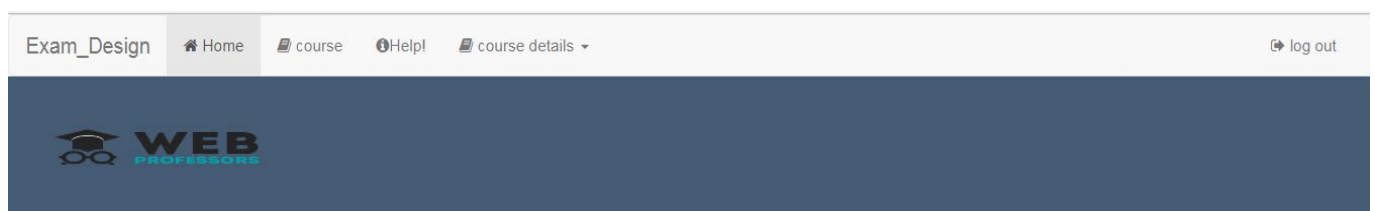
Help tab that explain how the system works.

In course details tab professor can add chapter,view all chapter that exist in each course , add question ,view question bank that exist in each course ,can create exam and view report of exam

Add chapter form professor add chapter num ,chapter name , course code , hours,pages,learn objective.

this message mean the insert is done successfully

The view all chapter form professor must enter the course cod first

To show all the chapter .

View All Chapters

	Course_code:	IT420			
		Select			

ch_num	ch_name	num _of_ hours	num _of_pages	num_of_learn_objective
1	introduction	2	30	3
3	Encryption Techniques	4	60	5
4	Block Ciphers	3	70	5
5	Public-Key Cryptography and RSA	4	80	6

The form after enter the code of course

Add new Question

Question_type:	explain
Description:	Give an explanation on the difference between strong AI and weak AI?
knowledge:	comprehension
Time:	1
Degree:	1
CH_Num:	2
Course code:	CS310
Keyword:	AI types

ADD +

Add question form professor can enter

question type(explain, complete,multichoice,true and false)

description of question ,level of knowledge

,time,degree,ch number, course code, Keyword .

Add new Question

Question_type:	explain ▼
Description:	Give an explanation on the difference between strong AI and weak AI?
knowledge:	comprehension ▼
Time:	1
Degree:	1
CH_Num:	2
Course code:	CS310
Keyword:	AI types

successfully insert

ADD ➕

This message mean the insert is done successfully.

View Question Bank

Course_code:	
	Select

Type	Description	knowledge	Time	Degree	Keyword

The view question bank form professor must enter the course cod first
To show all the Question .

❓ View Question Bank

Course_code:	[ ]
	Select

Type	Description	knowledge	Time	Degree	Keyword
explain	what is network?	recall	1	1	network definition
explain	What is the difference between a monoalphabetic cipher and a polyalphabetic cipher?	comprehension	1	2	encryption
true and false	Symmetric encryption remains by far the most widely used of the two types of encryption?	application	2	2	encryption
true and false	DES uses a 56-bit block and a 64-bit key?	analysis	1	1	Block Ciphers
multiple choice	The Nyberg approach that is more or less a manual approach with only simple mathematics to support it is _____ . ? A) human_made ? B) ?random C) ?math-made ? D) ?random with testing	advanced	1	1	Block Ciphers

The form after enter the code of course

Create Exam

university:	Zagazig university
faculty:	faculty of computer and information
Exam_type:	Quiz ▼
Course_code:	IT420
Date:	28-6-2017
Duration:	20
Degree:	10
Recall :	2
Comprehension:	2
Application:	1
Analysis :	2
Advanced :	1

Create

Create form professor must enter

the information that exist in the header

like (university, faculty, exam type, course code, date)

and the information that used to create exam

like (duration, degree, recall, comprehension, application, analysis, advanced).

Zagazig university
 faculty of computer and information
Course_Code:IT420
Time Allowed:20 min
Date:28-6-2017
Full Mark:10
Exam Type:Quiz

Question 1: explain	
1	what is network?
2	What is the difference between a monoalphabetic cipher and a polyalphabetic cipher?

The header of view exam.

Question 1: explain	
1	what is network?
2	What is the difference between a monoalphabetic cipher and a polyalphabetic cipher?

Question 2:multiple choice	
1	The Nyberg approach that is more or less a manual approach with only simple mathematics to support it is... . ? A) human_made ? B) ?random C) ?math-made ? D) ?random with testing
2	. A .... is a set in which you can do addition, subtraction, multiplication and division without leaving the set. A.) record B.) standard C.) filed D.) block

Question 3:complete	
1	advantages of network are ....
2	types of network ....

Question 4:true and false	
1	Symmetric encryption remains by far the most widely used of the two types of encryption?
2	DES uses a 56-bit block and a 64-bit key?

The questions of quiz exam.

4.2 PROGRAMS THAT USED

1- E_draw Max

2- Data modeler

3-sublime Text 3

4-xampp phpMyAdmin

5-xampp Apache

4.3 METHODOLOGIES THAT USED

4.3.1 Html

4.3.2 Css

4.3.3 JavaScript

4.3.4 JQuery

4.3.5 Bootstrap

4.3.6 Php

4.3.1 Html

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript it forms a triad of cornerstone technologies for the World Wide Web.[1] Web browsers receive HTML documents from a webserver or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects, such as interactive forms,may be embedded into the rendered page. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. HTML elements are delineated by *tags*, written using angle brackets. Tags such as `<img />` and `<input />` introduce content into the page directly. Others such as `<p>...</p>` surround and provide information about document text and may include other tags as sub-elements. Browsers do not display the HTML tags, but use them to interpret the content of the page.

HTML can embed programs written in a scripting language such as JavaScript which affect the behavior and content of web pages. Inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), maintainer of both the HTML and the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997

4.3.2 Css

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language. Although most often used to set the visual style of web pages and user interfaces written in HTML and XHTML, the language can be applied to any XML document, including plain XML, SVG and XUL, and is applicable to rendering in speech, or on other media. Along with HTML and JavaScript, CSS is a cornerstone technology used by most websites to create visually engaging webpages, user interfaces for web applications, and user interfaces for many mobile applications.

CSS is designed primarily to enable the separation of presentation and content, including aspects such as the layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple HTML pages to share formatting by specifying the relevant CSS in a separate .css file, and reduce complexity and repetition in the structural content.

Separation of formatting and content makes it possible to present the same markup page in different styles for different rendering methods, such as on-screen, in print, by voice (via speech-based browser or screen reader), and on Braille-based tactile devices. It can also display the web page differently depending on the screen size or viewing device. Readers can also specify a different style sheet, such as a CSS file stored on their own computer, to override the one the author specified.

Changes to the graphic design of a document (or hundreds of documents) can be applied quickly and easily, by editing a few lines in the CSS file they use, rather than by changing markup in the documents.

The CSS specification describes a priority scheme to determine which style rules apply if more than one rule matches against a particular element. In this so-called *cascade*, priorities (or *weights*) are calculated and assigned to rules, so that the results are predictable.

The CSS specifications are maintained by the World Wide Web Consortium (W3C). Internet media type (MIME type) `text/css` is registered for use with CSS by RFC 2318 (March 1998). The W3C operates a free CSS validation service for CSS documents.

4.3.3 JavaScript

JavaScript often abbreviated as JS, is a high-level, dynamic, untyped, object-based, multi-paradigm, and interpreted programming language.
Alongside HTML and CSS, JavaScript is one of the three core technologies of Web content. It is used to make webpages interactive and provide online programs, including video games. The majority of websites employ it, and all modern web browsers support it without the need for plug-ins by means of a built-in JavaScript engine. Each of the many JavaScript engines represent a different implementation of JavaScript, all based on the ECMAScript specification, with some engines not supporting the spec fully, and with many engines supporting additional features beyond ECMA.

As a multi-paradigm language, JavaScript supports event-driven, functional, and imperative (including object-oriented and prototype-based) programming styles. It has an API for working with text, arrays, dates, regular expressions, and basic manipulation of the DOM, but does not include any I/O, such as networking, storage, or graphics facilities, relying for these upon the host environment in which it is embedded.

Initially only implemented client-side in web browsers, JavaScript engines are now embedded in many other types of host software, including server-side in web servers and databases, and in non-web programs such as word processors and PDF software, and in runtime environments that make JavaScript available for writing mobile and desktop applications, including desktop widgets.

Although there are strong outward similarities between JavaScript and Java, including language name, syntax, and respective standard libraries, the two languages are distinct and differ greatly in design; JavaScript was influenced by programming languages such as Selfand Scheme

4.3.4 JQuery

jQuery is a cross-platform JavaScript library designed to simplify the client-side scripting of HTML. It is free, open-source software using the permissive MIT license. Web analysis indicates that it is the most widely deployed JavaScript library by a large margin.

jQuery's syntax is designed to make it easier to navigate a document, select DOM elements, create animations, handle events, and develop Ajax applications. jQuery also provides capabilities for developers to create plug-ins on top of the JavaScript library. This enables developers to create abstractions for low-level interaction and animation, advanced effects and high-level, themeable widgets. The modular approach to the jQuery library allows the creation of powerful dynamic web pages and Web applications.

The set of jQuery core features—DOM element selections, traversal and manipulation—enabled by its *selector engine* (named "Sizzle" from v1.3), created a new "programming style", fusing algorithms and DOM data structures. This style influenced the architecture of other JavaScript frameworks like YUI v3 and Dojo, later stimulating the creation of the standard *Selectors API*.

Microsoft and Nokia bundle jQuery on their platforms. Microsoft includes it with Visual Studio for use within Microsoft's ASP.NET AJAX and ASP.NET MVC frameworks while Nokia has integrated it into the Web Run-Time widget development platform.

4.3.5 Bootstrap

Bootstrapping usually refers to a self-starting process that is supposed to proceed without external input. In computer technology the term (usually shortened to booting) usually refers to the process of loading the basic software into the memory of a computer after power-on or general reset, especially the operating system which will then take care of loading other software as needed.

The term appears to have originated in the early 19th century United States (particularly in the phrase "pull oneself over a fence by one's bootstraps"), to mean an absurdly impossible action, and dynatron

4.3.6 Php

PHP is a server-side scripting language designed primarily for web development but also used as a general-purpose programming language. Originally created by Rasmus Lerdorf in 1994, the PHP reference implementation is now produced by The PHP Development Team.[5] PHP originally stood for *Personal Home Page*, but it now stands for the recursive acronym *PHP: Hypertext Preprocessor*

PHP code may be embedded into HTML or HTML5 markup, or it can be used in combination with various web template systems, web content management systems and web frameworks. PHP code is usually processed by a PHP interpreter implemented as a module in the web server or as a Common Gateway Interface (CGI) executable. The web server software combines the results of the interpreted and executed PHP code, which may be any type of data, including images, with the generated web page. PHP code may also be executed with a command-line interface (CLI) and can be used to implement standalone graphical applications.

The standard PHP interpreter, powered by the Zend Engine, is free software released under the PHP License. PHP has been widely ported and can be deployed on most web servers on almost every operating system and platform, free of charge.

The PHP language evolved without a written formal specification or standard until 2014, leaving the canonical PHP interpreter as a *de facto* standard. Since 2014 work has gone on to create a formal PHP specification

Chapter five

Evaluation future work
And Conclusion

5.1 EVALUATION PHASE

This our evaluation about the exam design system that we have finished this will contain:

- analysis and survey phase
- design phase
- implement phase

5.1.1 EVALUATION OF PROJECT MEMBER TEAM

There are some aspects that must be in our consideration is that how this team work. This team was very perfectly organized as the tasks have been divided about the team member during the all year .there are things that effect in our team and make success to accomplish the project .

For these things:

- ✓ Members of team understand each other's.
- ✓ team spirit encourages us to complete this project
- ✓ Although everyone of team lives in different places, but they cooperate to finish this project and they take the working on the project as challenge and there were feeling with the responsibility and duties about working On group.
- ✓ Patience and persistence

5.1.2 EVALUATION WHY FOR USING PHP

It is a free language with no licensing fees so the cost of using it is minimal.

A good benefit of using PHP is that it can interact with many different database languages including MySQL.

5.2 FUTURE WORK:

Our web based application can be deployment in our faculty by making professors register in the system then add chapter, add question, create exam and the system can represent the reports like report of all chapters ,report of question bank and report of viewing exam .

After implementing the system in the faculty, system will help professors to make exam according to suitable time and level of knowledge that is instead of level of difficulty.

In order to do that a Domain must be found to load the project on active online.

In future plan

We want expand the system to include students do exams online and the system show the results in the same time after doing the exam.

5.3 CONCLUSION

With increasing the parts of course and diversity of standard of students, making suitable exam for time and level of knowledge become Avery difficult problem for professors, they cannot make it easily.

We make a web based application exam design system that help professors to make easily exams. This system save their efforts and time.

in this system we offer some forms like add chapter add question and create exam.

Our system is very flexible and simple so any professor can deal with it easily.

The objectives of this system are about providing solutions for these problems by Providing a web based application exam design with forms such as (add chapter, add question and create exam),This system allows the professor to register in our system, professors can make quick report for (the chapters, question bank and exams) .The site saves a lot of efforts and time for professors.

Appendix A

Connect to database

```php
<meta charset="utf_8"/>
<?php
$host='localhost';
$username='root';
$password='';
$DB_name='design _exam';
$conn= mysqli_connect($host,$username,$password,$DB_name);
mysqli_set_charset($conn,"utf8");
if (!$conn) {
echo mysqli_connect_error("error in connecting").mysqli_connect_errno();
        }
function close_db(){
 global $conn;
 mysqli_close($conn);}    ?>
```

login code

```php
<?php
include("config.php");
session_start();
 if(isset($_POST['login'])){
 $user = stripcslashes(mysqli_real_escape_string($conn,$_POST['user']));
 $password = md5($_POST['password']);
 if(empty($user)) {

            echo '<div class="alert alert-danger" role="alert">please enter username or email</div>';


        }elseif(empty($_POST['password'])) {


            echo '<div class="alert alert-danger" role="alert">please enter password </div>';
          }else{
```

68

```php
        $sql = mysqli_query($conn,"SELECT * FROM professor WHERE (username ='$user' OR email = '$user')
AND password = '$password' ");

        if(mysqli_num_rows($sql) != 1 ){

                        echo '<div class="alert alert-danger" role="alert"> username or password is wrong </div>';


        }else{

                $user = mysqli_fetch_assoc($sql);

            $_SESSION['id'] = $user['prof_id'];

            $_SESSION['user'] = $user['username'];

            $_SESSION['email'] = $user['email'];

            $_SESSION['phone'] = $user['phone'];

            $_SESSION['gender'] = $user['gender'];

            $_SESSION['About_you'] = $user['about_prof'];

            $_SESSION['facebook'] = $user['facebook'];

           $_SESSION['date'] = $user['register_date'];

           $_SESSION['role'] = $user['role'];


           echo'<div class="alert alert-success" role="alert">successfully login and update</div>';

           echo "<meta http-equiv=\"refresh\" content=\"3,index.php\" />" ;   }  } }?>
```

Login function code

```php
function login_area(){
if(isset($_SESSION['id'])){
  echo'
<div class="panel panel-default"  >
<div class="panel-heading  text-center "><b>welcome Dr/ '.ucwords($_SESSION['user']).'</b></div>
<div class="panel-body">
<div class="text-center" style="margin-bottom: 20px;">
<img src=" images/avatar.png" width= 90 px>
<hr>
</div>
<div class="col_md_12">
```

69

```
  <div class="row">
  <p> <b>email:</b> '.$_SESSION['email'].'</p>
  <p><b>links</b>
   <a href="'. $_SESSION['facebook'].'" target="_blank" ><i class="fa fa-facebook-square fa-lg"></i> </a>
   </p>
 </div>
</div>
          </div>
          </div>';
 }else{
  echo'
 <div class="panel panel-default"  >
 <div class="panel-heading  text-center "><b>Login form</b></div>
 <div class="panel-body">
 <div class="text-center" style="margin-bottom: 20px;">
 <img src="images/avatar.png" width= 90 px>
<hr>
 </div>
 <form  action="include/login.php" method="post" class="form-horizontal" id="login">
 <div class="form-group">
   <label  for="username"  class="col-sm-2  control-label  text-center"><i  class="fa  fa-user  fa-2x"  aria-
hidden="true"></i></label>
   <div class="col-sm-10">
    <input type="text" class="form-control" id="username" name="user" placeholder=" user_name or Email">
   </div>
 </div>
 <div class="form-group">
   <label  for="password"   class="col-sm-2  control-label  text-center"><i  class="fa  fa-lock  fa-2x"  aria-
hidden="true"></i></label>
   <div class="col-sm-10">
    <input type="password" class="form-control" name="password" id="password" placeholder="Password">
   </div>
 </div>
```
70

```html
  <div id="log_result" style="text-align: center;"> </div>
 <div class="form-group">
  <div class=" col-xs-10 pull-right">
   <button type="submit" name="login"  class="btn btn-info">Login</button>
  </div>
 </div>
</form>
</div>
 <div class="panel-footer"><i class="fa fa-exclamation-triangle fa-lg" aria-hidden="true" style="color: red"> </i>
New user?<a href="register.php">Register </a></div>
           </div>';
 }
 }
?>
```

Registration code

```php
<?php
include_once('config.php');
session_start();
if (isset($_POST['submit'])) {
    $username = strip_tags($_POST['username']);
  $email = $_POST['email'];
  $phone = $_POST['phone'];
  $gender = $_POST['gender'];
  $About_you =strip_tags($_POST['About_you']);
  $facebook = htmlspecialchars($_POST['facebook']);
  $date = date("Y-m-d");
  if(empty($username))
    { echo '<div class="alert alert-danger" role="alert">please enter username</div>';
        }
 elseif(empty($email))
    {
     echo '<div class="alert alert-danger" role="alert">please enter email</div>';
```

```php
    }
elseif(!filter_var( $email , FILTER_VALIDATE_EMAIL) )
    {
     echo '<div class="alert alert-danger" role="alert">please enter correct email</div>';
    }
    elseif(empty($_POST['password']))
    {
     echo '<div class="alert alert-danger" role="alert">please enter password</div>';
    }
 elseif(empty($_POST['re_password']))
    {
     echo '<div class="alert alert-danger" role="alert">please enter re_password</div>';
        }
     elseif($_POST['password'] !=$_POST['re_password'])
    {
     echo '<div class="alert alert-danger" role="alert"> password does not match
</div>';
        }
     else{
     $sql_username = mysqli_query($conn,"SELECT `username` FROM `professor` WHERE `username`=
'$username' ");
     $sql_email = mysqli_query($conn,"SELECT `email` FROM `professor` WHERE `email`='$email'");
     if (mysqli_num_rows($sql_username) > 0 ) {
      echo '<div class="alert alert-danger" role="alert">error  username already exists</div>';
     }elseif (mysqli_num_rows($sql_email) > 0) {
     echo '<div class="alert alert-danger" role="alert"> error email already exists</div>';
       }else{
          $password = md5($_POST['password']);
          $insert="INSERT                      INTO                      `professor`                      (
`username`,`email`,`password`,`phone`,`gender`,`about_prof`,`facebook`,`register_date`,`role`)VALUES('$usernam
e','$email','$password','$phone','$gender','$About_you','$facebook','$date','user')";
           $insert_sql = mysqli_query($conn,$insert);
           if(isset($insert_sql)){
```
72

```php
            $user_info = mysqli_query($conn,"SELECT * FROM professor WHERE username ='$username'");

            $user = mysqli_fetch_assoc($user_info);

            $_SESSION['id'] = $user['prof_id'];

            $_SESSION['user'] = $user['username'];

            $_SESSION['email'] = $user['email'];

            $_SESSION['phone'] = $user['phone'];

            $_SESSION['gender'] = $user['gender'];

            $_SESSION['About_you'] = $user['about_prof'];

            $_SESSION['facebook'] = $user['facebook'];

            $_SESSION['date'] = $user['register_date'];

            $_SESSION['role'] = $user['role'];


            echo'<div class="alert alert-success" role="alert">successfully registered and going to home
page</div>';

            echo "<meta http-equiv=\"refresh\" content=\"3,index.php\" />" ;
    }
    }
    }
  }
 ?>
```

The Registration function code

```php
<?php

  function register(){
  if(isset($_SESSION['id'])){

      echo '<div class="alert alert-danger" role="alert"> Sorry Dr/ '.$_SESSION['user'].' but you are already exist
</div>';

  }


   else{
```

```
        echo'<form  action="include/register.php" method="post" id="register" class="form-horizontal"
enctype="multipart/form-data">
 <div class="form-group">
   <label for="username" class="col-sm-2 control-label"><span style="color: red;">*</span>User_name:</label>
   <div class="col-sm-5">
    <input type="text" class="form-control" name="username" id="username" placeholder="Name">
   </div>
 </div>
 <div class="form-group">
   <label for="email" class="col-sm-2 control-label"><span style="color: red;">*</span>Email:</label>
   <div class="col-sm-5">
    <input type="text" class="form-control" id="email" name="email" placeholder="Email"><!-- type text not
email--><!--allnumber type is text-->
   </div>
 </div>
 <div class="form-group">
   <label for="password" class="col-sm-2 control-label"><span style="color: red;">*</span>Password:</label>
   <div class="col-sm-5">
    <input type="password" class="form-control" id="password" name="password" placeholder="Password">
   </div>
 </div>
   <div class="form-group">
   <label for="re_password" class="col-sm-2 control-label"><span style="color: red;">*</span>
Re_Password:</label>
   <div class="col-sm-5">
    <input type="password" class="form-control" id="re_password" name="re_password"
placeholder="Password">
   </div>
 </div>
 <div class="form-group">
   <label for="phone" class="col-sm-2 control-label">phone:</label>
   <div class="col-sm-5">
    <input type="tel" class="form-control" id="phone" name="phone" placeholder="phone">
```

```
    </div>
   </div>
   <div class="form-group">
    <label for="gender" class="col-sm-2 control-label">gender:</label>
    <div class="col-sm-3">
     <select  class="form-control" id="gender" name="gender" >
     <option value="Male">Male</option>
     <option value="Female">Female</option></select>
    </div>
   </div>


   <div class="form-group">
    <label for="About_you" class="col-sm-2 control-label">About you:</label>
    <div class="col-sm-5">
     <textarea class="form-control" id="About_you" name="About_you" placeholder="" row="4"></textarea>
    </div>
   </div>
   <div class="form-group">
    <label for="facebook" class="col-sm-2 control-label"> <i class="fa fa-facebook-square fa-2x" aria-
hidden="true"></i>
</label>
    <div class="col-sm-5">
     <input type="text" class="form-control" id="facebook" name="facebook" placeholder="your facebook link">
    </div>
   </div>
   <div class="col-md-2"></div>
   <div class="col-md-5 text_left">
    <div id="result" >


    </div>
   </div>
   <div class="form-group">
```

```
      <div class="col-sm-offset-2 col-sm-5">

      <button type="submit" name="submit" class="btn btn-danger btn-block">Sign in <i class="fa fa-pencil fa-lg"
aria-hidden="true"></i></button>

    </div>

  </div>

</form>';

    }

    }
```

The add chapter code

```php
<?php

      include_once("include/header.php");

      ?>
 <article class=" col-sm-offset-3 col-xs-9 art_bg">
 <div class="page-header">
  <h1><i class="fa fa-book"></i> Add new Chapter </h1>
</div>
<div class="col-xs-12">
<form class="form-horizontal" id="myform" method="post" action="addch.php">
<div class="form-group">
   <label for="Chapter_num" class="col-sm-2 control-label">Chapter num:</label>
   <div class="col-sm-5">
    <input type="text" class="form-control" id="Chapter_num" name="Chapter_num" placeholder="number ">
   </div>
  </div>
<div class="form-group">
   <label for="Chapter_name" class="col-sm-2 control-label">Chapter name:</label>
   <div class="col-sm-5">
    <input type="text" class="form-control" id="Chapter_name" name="Chapter_name" placeholder="name">
   </div>
  </div>
<div class="form-group">
<label for="course_code" class="col-sm-2 control-label">Course code:</label>
```

76

```html
<div class="col-sm-3">
<input type="text" class="form-control" name="course_code" id="course_code">
</div>
</div>
 <div class="form-group">
   <label for="num_of_hours" class="col-sm-2 control-label">num of hours:</label>
   <div class="col-sm-5">
    <input type="text" class="form-control" id="num_of_hours" name="hours" placeholder="hours">
   </div>
  </div>
<div class="form-group">
   <label for="num_of_pages" class="col-sm-2 control-label">num of pages:</label>
   <div class="col-sm-5">
    <input type="text" class="form-control" id="num_of_pages" name="pages" placeholder="pages">
   </div>
  </div>
<div class="form-group">
   <label for="num_of_learn_objective" class="col-sm-2 control-label">num of learn obj:</label>
   <div class="col-sm-5">
    <input type="text" class="form-control" id="num_of_learn_objective" name="obj"
placeholder="learn_objective">
   </div>
  </div>
<span id="resultt"></span>
 <div class="col-md-2"></div>
 <div class="col-md-5 text_left">
   <div id="resultt" >
   </div>
    </div>
  <div class="form-group" >
   <div class="col-sm-offset-2 col-sm-3">
    <button type="submit" name="submit" id="sub" class="btn btn-danger btn-block"  >insert  <i class="fa fa-plus
fa-lg" aria-hidden="true"></i> </button>
```

```html
    </div>
  </div>


</form>
</div>
</article>
    <?php
    include_once("include/footer.php");


    ?>
```

The add question code

```php
<?php
    include_once("include/header.php");
    ?>
 <article class=" col-sm-offset-3 col-xs-9 art_bg">
 <div class="page-header">
  <h1><i class="fa fa-question-circle"></i> Add new Question </h1>
</div>
<div class=" col-xs-12">
<form class="form-horizontal" id="form" action="addq.php" method="post" >
  <div class="form-group">
  <label for="Question_type" class="col-sm-2 control-label">Question_type:</label>
  <div class="col-sm-3">
    <select name="type">
   <option>explain</option>
   <option>true and false</option>
   <option>complete</option>
   <option>multiple choice</option>
   </select>
      </div>
  </div>
```

```html
  <div class="form-group">
  <label for="Description" class="col-sm-2 control-label">Description:</label>
  <div class="col-sm-5">
    <textarea class="form-control" id="Description" name="desc"  placeholder="" row="4"></textarea>
  </div>
 </div>
  <div class="form-group">
  <label for="Level of knowledge" class="col-sm-2 control-label">knowledge:</label>
  <div class="col-sm-3">
    <select name="Level">
   <option>recall</option>
   <option>comprehension</option>
   <option>application</option>
   <option>analysis</option>
   <option>advanced</option>
    </select>
         </div>
 </div>
<div class="form-group">
   <label for="Time" class="col-sm-2 control-label">Time:</label>
   <div class="col-sm-5">
    <input type="text" class="form-control" id="Time" name="time" placeholder=""><!-- type text not email--><!--allnumber type is text-->
   </div>
 </div>
  <div class="form-group">
  <label for="Degree" class="col-sm-2 control-label">Degree:</label>
  <div class="col-sm-5">
    <input type="text" class="form-control" id="Degree" name="degree" placeholder=""><!-- type text not email--><!--allnumber type is text-->
  </div>
 </div>
```

```html
  <div class="form-group">

   <label for="CH_Num" class="col-sm-2 control-label">CH_Num:</label>

   <div class="col-sm-5">

     <input type="text" class="form-control" id="CH_Num" name="Chapter_num" placeholder=""><!-- type text
not email--><!--allnumber type is text-->

   </div>

  </div>

  <div class="form-group">

<label for="course_code" class="col-sm-2 control-label">Course code:</label>

<div class="col-sm-3">

<input type="text" class="form-control" name="course_code" id="course_code">

</div>

</div>

  <div class="form-group">

   <label for="Keyword" class="col-sm-2 control-label">Keyword:</label>

   <div class="col-sm-5">

     <input type="text" class="form-control" id="Keyword" name="keyword" placeholder=""><!-- type text not
email--><!--allnumber type is text-->

   </div>

  </div>

<span id="resul"></span>

 <div class="col-md-2"></div>

 <div class="col-md-5 text_left">

   <div id="resul" >

   </div>

    </div>

  <div class="form-group">

   <div class="col-sm-offset-2 col-sm-3">

     <button type="submit" name="submit" id="sub" class="btn btn-danger btn-block">ADD  <i class="fa fa-plus
fa-lg" aria-hidden="true"></i> </button>

   </div>

  </div>

</form>
```

```php
        </div>

    </article>

    <?php

        include_once("include/footer.php");


        ?>
```

The view all chapters code

```php
<?php

        include_once("include/header.php");

        ?>

 <article style="background:#E0E0E0;" >

 <div class="page-header">

  <h1><i class="fa fa-book"></i> View All Chapters</h1>

</div>

<form class="form-horizontal" method="POST">

<div class="form-group">

<label for="course_code" class="col-sm-2 control-label">Course_code:</label>

<div class="col-sm-3">

<input type="text" class="form-control" name="course_code" id="course_code">

</div>

</div>

<div class="form-group">

<div class="col-sm-offset-2 col-sm-3">

<button type="submit" class="btn btn-danger btn-block" name="select">

Select

</div>

</div>

</form>

<div class="table-responsive" >

<table class="table table-striped">

<tr style="color:#455B73;">

<th>ch_num </th>
```

```php
<th>ch_name </th>

<th>num _of_ hours </th>

<th>num _of_pages </th>

<th>num_of_learn_objective </th>

</tr>

<?php

$connect = mysqli_connect("localhost", "root", "", "design _exam");

if(isset($_POST['select'])) // name ur submit button

{

extract($_POST);

$sql = "SELECT * FROM course INNER JOIN chapter ON course.course_code = chapter.course_code WHERE
course.course_code ='$course_code'";

$result = mysqli_query($connect, $sql);

if(mysqli_num_rows($result) > 0)

{

while($row = mysqli_fetch_array($result))

{

?>

<tr >

<td><?php echo $row["ch_num"];?></td>

<td><?php echo $row["ch_name"]; ?></td>

<td><?php echo $row["num _of_ hours"];?></td>

<td><?php echo $row["num _of_pages"];?></td>

<td><?php echo $row["num_of_learn_objective"];?></td>

</tr>

<?php

}}}

?>

</table>

</div>

</article>

<?php
```

```php
include_once("include/footer.php");
?>
```

The view question bank code

```php
<?php
    include_once("include/header.php");
    ?>
<article style="background:#E0E0E0;" >
<div class="page-header">
<h1><i class="fa fa-question-circle"></i> View Question Bank</h1>
</div>
<form class="form-horizontal" method="POST">
<div class="form-group">
<label for="course_code" class="col-sm-2 control-label">Course_code:</label>
<div class="col-sm-3">
<input type="text" class="form-control" name="course_code" id="course_code">
</div>
</div>
<div class="form-group">
<div class="col-sm-offset-2 col-sm-3">
<button type="submit" class="btn btn-danger btn-block" name="select">
Select
</div>
</div>
</form>
<div class="table-responsive" >
<table class="table table-striped">
<tr style="color:#455B73;">
                <th>Type </th>
                <th>Description  </th>
                <th>knowledge   </th>
                <th>Time    </th>
                <th>Degree </th>
```

```php
                <th>Keyword   </th>
            </tr>
<?php
$connect = mysqli_connect("localhost", "root", "", "design _exam");

if(isset($_POST['select'])) // name ur submit button
{
extract($_POST);

$sql = "SELECT * FROM course INNER JOIN question ON course.course_code = question.course_code WHERE
course.course_code ='$course_code'";

$result = mysqli_query($connect, $sql);

if(mysqli_num_rows($result) > 0)
{
while($row = mysqli_fetch_array($result))
{
?>
 <tr >
                <td><?php echo $row["ques_type"];?></td>
                <td><?php echo $row["ques_description"]; ?></td>
                <td><?php echo $row["knowledge"];?></td>
                <td><?php echo $row["ques_time"];?></td>
                <td><?php echo $row["ques_degree"];?></td>
                <td><?php echo $row["keyword"];?></td>
            </tr>
<?php
}}}
?>
</table>
</div>
</article>
<?php
include_once("include/footer. Php");
?>
```

The Create Exam code

```php
<?php
    include_once("include/header.php");
    ?>
<article class=" col-sm-offset-3 col-xs-9 art_bg">
<div class="page-header">
<h1>  Create Exam</h1>
</div>
<div class=" col-xs-12">
<form class="form-horizontal" method="post" id="x" action="view_exam.php">
  <div class="form-group">
   <label for="university" class="col-sm-2 control-label">university:</label>
   <div class="col-sm-3">
     <input type="text" class="form-control" id="university" name="university" value="Zagazig university ">
   </div>
 </div>
 <div class="form-group">
   <label for="faculty" class="col-sm-2 control-label">faculty:</label>
   <div class="col-sm-4">
     <input type="text" class="form-control" id="faculty" name="faculty" value=" faculty of computer and information">
   </div>
 </div>
  <div class="form-group">
   <label for="Exam_type" class="col-sm-2 control-label">Exam_type:</label>
   <div class="col-sm-3">
     <select name="Exam_type">
     <option value="Quiz" >Quiz</option>
```

```html
          <option value="Midterm">Midterm</option>

          <option value="Final">Final</option>

        </select>

            </div>

    </div>

<div class="form-group">

<label for="course_code" class="col-sm-2 control-label">Course_code:</label>

<div class="col-sm-3">

<input type="text" class="form-control" name="course_code" id="course_code">

</div>

</div>

<div class="form-group">

   <label for="Date" class="col-sm-2 control-label">Date:</label>

   <div class="col-sm-3">

     <input type="text" class="form-control" name="date" id="Date" placeholder=""><!-- type text not email--><!--
allnumber type is text-->

   </div>

  </div>

<div class="form-group">

   <label for="Duration" class="col-sm-2 control-label">Duration:</label>

   <div class="col-sm-3">

     <input type="text" class="form-control" name="time" id="Duration" placeholder=""><!-- type text not email--
><!--allnumber type is text-->

   </div>

  </div>

  <div class="form-group">

   <label for="Degree" class="col-sm-2 control-label">Degree:</label>

   <div class="col-sm-3">

     <input type="text" class="form-control" name="degree" id="Degree" placeholder=""><!-- type text not email--
><!--allnumber type is text-->

   </div>

  </div>

    <div class="form-group">
```

86

```html
    <label for="Recall" class="col-sm-2 control-label">Recall :</label>

    <div class="col-sm-3">

      <input type="text" class="form-control" id="Recall" placeholder=""><!-- type text not email--><!--allnumber
type is text-->

    </div>

  </div>

    <div class="form-group">

    <label for="Comprehension" class="col-sm-2 control-label">Comprehension:</label>

    <div class="col-sm-3">

      <input type="text" class="form-control" id="Comprehension" placeholder=""><!-- type text not email--><!--
allnumber type is text-->

    </div>

  </div>

    <div class="form-group">

    <label for="Application" class="col-sm-2 control-label">Application:</label>

    <div class="col-sm-3">

      <input type="text" class="form-control" id="Application" placeholder=""><!-- type text not email--><!--
allnumber type is text-->

    </div>

  </div>

    <div class="form-group">

    <label for="Analysis" class="col-sm-2 control-label">Analysis :</label>

    <div class="col-sm-3">

      <input type="text" class="form-control" id="Analysis" placeholder=""><!-- type text not email--><!--allnumber
type is text-->

    </div>

  </div>

    <div class="form-group">

    <label for="Advanced" class="col-sm-2 control-label">Advanced :</label>

    <div class="col-sm-3">

      <input type="text" class="form-control" id="Advanced" placeholder=""><!-- type text not email--><!--
allnumber type is text-->

    </div>

  </div>
```

```html
</div>
<span id="res"></span>
 <div class="col-md-2"></div>
 <div class="col-md-5 text_left">
   <div id="res" >
   </div>
    </div>
  <div class="form-group" >
  <div class="col-sm-offset-4 col-sm-3">
    <button type="submit" name="submit" class="btn btn-danger btn-block"> Create</i> </button>
  </div>
 </div>
</form>
</div>
</article>
```

```php
    <?php
     include_once("include/footer.php");

     ?>
```

The view Exam code

```php
<?php
session_start();
    include_once("include/config.php");
     ?>
<?php

 $connect = mysqli_connect("localhost", "root", "", "design _exam");
```

```php
if((isset($_POST['course_code'])) && !empty($_POST['course_code']))

{

   $course_code = $_POST['course_code']; //note i used $_POST since you have a post form **method='post'**

    echo  nl2br (" \n ");   echo  nl2br (" \n ");


if((isset($_POST['university'])) && !empty($_POST['university']))

{

   $universty = $_POST['university'];

echo " ";echo " ";echo " ";echo " ";echo " ";echo " ";echo " "; echo
"<strong>";  university: echo $university;  echo "</strong>";

 echo  nl2br (" \n ");

if((isset($_POST['faculty'])) && !empty($_POST['faculty']))

{

   $faculty = $_POST['faculty'];

echo " ";echo " ";echo " ";echo " ";echo " ";echo " ";echo " "; echo
"<strong>"; faculty: echo $faculty; echo "</strong>";

   echo  nl2br (" \n ");

   if((isset($_POST['course_code'])) && !empty($_POST['course_code']))

{

   $course_code = $_POST['course_code'];

echo " ";echo " ";echo " ";echo " ";echo " ";echo " ";echo " "; echo
"<strong>"; echo "Course_Code:";  echo $course_code; echo "</strong>";

   echo  nl2br (" \n ");

   if((isset($_POST['time'])) && !empty($_POST['time']))

{

   $time = $_POST['time'];

 echo " ";echo " ";echo " ";echo " ";echo " ";echo " ";echo " "; echo
"<strong>";echo "Time Allowed:"; echo $time;echo " ";  echo "min"; echo "</strong>";

   echo  nl2br (" \n ");

if((isset($_POST['date'])) && !empty($_POST['date']))

{

   $date = $_POST['date'];

echo " ";echo " ";echo " ";echo " ";echo " ";echo " ";echo " "; echo
"<strong>";  echo "Date:";  echo $date; echo "</strong>";
```

```php
    echo  nl2br (" \n ");


if((isset($_POST['degree'])) && !empty($_POST['degree']))

{

   $degree = $_POST['degree'];
 echo " ";echo " "; echo "<strong>";echo "Full Mark:";  echo $degree; echo "</strong>";

   echo  nl2br (" \n ");

if((isset($_POST['Exam_type'])) && !empty($_POST['Exam_type']))

{

   $Exam_type = $_POST['Exam_type'];

echo " ";echo " ";echo " ";echo " ";  echo "<strong>"; echo "Exam Type:";  echo
$Exam_type; echo "</strong>";

   echo  nl2br (" \n ");

echo "       ;";

   echo '<img src="images/zag.png" width="120 px;" height="120px;" text-align: center >';

  echo"<strong>";echo"<hr>" ;echo"</strong>";

$sql = "SELECT * FROM course INNER JOIN question ON course.course_code = question.course_code WHERE(
course.course_code ='$course_code' AND ques_type ='explain')";

 $result = mysqli_query($connect, $sql);

 $sql2 = "SELECT * FROM course INNER JOIN question ON course.course_code = question.course_code WHERE(
course.course_code ='$course_code' AND ques_type ='multiple choice')";

 $result2 = mysqli_query($connect, $sql2);

  $sql3 = "SELECT * FROM course INNER JOIN question ON course.course_code = question.course_code WHERE(
course.course_code ='$course_code' AND ques_type ='complete')";

 $result3 = mysqli_query($connect, $sql3);

  $sql4 = "SELECT * FROM course INNER JOIN question ON course.course_code = question.course_code WHERE(
course.course_code ='$course_code' AND ques_type ='true and false')";

 $result4 = mysqli_query($connect, $sql4);

?>



 <!DOCTYPE html>

 <html>

    <head>
```

90

```html
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/2.2.0/jquery.min.js"></script>

    <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/css/bootstrap.min.css" />

    <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/js/bootstrap.min.js"></script>


</head>
<body>

    <br />

    <div class="container" style="background:#E0E0E0;" >

      <div class="table-responsive"  >

         <table class="table table-striped">

            <tr style="color:#455B73;">

               <th> Question 1: explain </th>

            </tr>

            <?php

            if(mysqli_num_rows($result) > 0)

            {      $i=1;

                while($row = mysqli_fetch_array($result))

                {             ?>

            <tr >

                <td><?php  echo $i; $i++; ?></td>

                <td><?php echo $row["ques_description"]; ?></td>

            </tr>

            <?php      } } }}}}} }}

            ?>      </table>  <hr/>

                   <table class="table table-striped">

            <tr style="color:#455B73;">

               <th>Question 2:multiple choice </th>

            </tr>

            <?php

            if(mysqli_num_rows($result2) > 0)

            {

             $i=1;
```

91

```php
                while($row = mysqli_fetch_array($result2))

                {

            ?>

            <tr >

               <td><?php  echo $i; $i++; ?></td>

               <td><?php echo $row["ques_description"]; ?></td>

            </tr>

            <?php

                 }

            }

?>     </table> <hr/>

        <table class="table table-striped">

           <tr style="color:#455B73;">

              <th>Question 3:complete</th>

           </tr>

           <?php

           if(mysqli_num_rows($result3) > 0)

           {

            $i=1;

              while($row = mysqli_fetch_array($result3))

              {     ?>        <tr >

               <td><?php  echo $i; $i++; ?></td>

               <td><?php echo $row["ques_description"]; ?></td>

            </tr>

            <?php

    }   }  ?>     </table>  <hr/>

         <table class="table table-striped">

           <tr style="color:#455B73;">

              <th>Question 4:true and false </th>

           </tr>

           <?php

           if(mysqli_num_rows($result4) > 0)
```

```php
            {   $i=1;

                while($row = mysqli_fetch_array($result4))

                {       ?>          <tr >

                 <td><?php  echo $i; $i++; ?></td>

                 <td><?php echo $row["ques_description"]; ?></td>

            </tr>

            <?php      }      }         ?>

        </table>

      </div>

    </div>

    <br />

  </body>

</html>
```

Interview

- **Selecting Interviewees** : user(professors)
- *Dr.Amr Abdullatif*
- Dr.Nisreen Alsaber
- *Dr.Heba Zaki*
- **Designing Interview Questions**: open-ended question /structured interview
- **Explain idea of proposed system**
- **What are the difficulties faced by professorduring creating exam?**
- **Preparing for the Interview**
- **Professors determine suitable time of meeting**
- **Conducting the Interview**
- **Record all information**
- **Post-Interview Follow-up**

- **Interview Report.**

Dr.Amr Abdullati

Things I will take in my mind:

- ✓ Time*.*
- ✓ Single type, multi type…
- ✓ Level of difficult.
- ✓ Ordered or shuffled.

Dr.Nisreen Alsaber

Direct Questions:

- ✓ True and false.
- ✓ Multiple choice.

Indirect Question:

In the form of scenario focus on the concept and the student may understand this scenario.

Test paper may contain:
- ✓ **The name of the university.**
- ✓ **The name of the faculty.**
- ✓ **Time of exam.**
- ✓ **The date of the exam.**

And the professor may enter the course name and the course code.

- o **Any question may contain a collection of tags (the place of question in details).**
- o **The paper will be in the form of report.**

Dr. Heba Zaki

- ✓ **Define the location of the question exactly (section, sub section).**
- ✓ **We will make a keyword.**
- ✓ **We will make an option called "add chap"** auto create number of chapters.

Difficult During Design:

- o **How to cover all parts of course without repetition.**
- o **How to distribute the question (there is a difficulty in compiling grades and I have to convert the type of question).**

After pressed in the "create exam" option the professor must enter:

- ✓ *Total scores.*
- ✓ *Time.*
- ✓ *Number of questions.*
- ✓ *Type of question.*
- ✓ *Type of exam (midterm, final, quiz).*

The system may ask the professor the answer will be inside the question paper or not if the answer be in the paper he will put long space between questions, if not he will put questions behind each other.

References

Websites

https://www.slideshare.net/chalexsimon/online-examination-final-project?qid=c38f7ca9-9393-4efa-8900-ef7c4bc1653a&v=&b=&from_search=2

/https://www.smartdraw.com/sequence-diagram

/https://www.smartdraw.com/data-flow-diagram

https://en.wikipedia.org/wiki/JQuery

https://en.wikipedia.org/wiki/JavaScript

/https://www.w3schools.com

Books

Sytems analysis and Design 5th ed

Sytems analysis and Design 7th ed