



SHMA: Online Learning Platform for Schools

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نموذج حقوق الملكية الفكرية لمشاريع التخرج في قسم علوم الحاسوب

يتم قراءة وتقييم هذا النموذج من قبل الطلاب المسجلين لمشاريع التخرج في قسم علوم الحاسوب تعود حقوق الملكية الفكرية لمشاريع التخرج ونتائجها (مثل براءات الاختراع أو أي منتج قابل للتسويق) إلى جامعة العلوم والتكنولوجيا الأردنية، وتخصيص هذه الحقوق إلى قوانين وأنظمة وتعليمات الجامعة المتعلقة بالملكية الفكرية وبراءات الاختراع. بناءً على ما سبق أتفق على ما يلي:

- (1) أن أحفظ كافة حقوق الملكية الفكرية لجامعة العلوم والتكنولوجيا الأردنية في مشروع التخرج.
- (2) أن ألتزم بوضع اسم جامعة العلوم والتكنولوجيا الأردنية وأسماء جميع الباحثين المشاركين في المشروع على أي نشرة علمية للمشروع كاملاً أو لنتائجها. ويشمل ذلك النشر في المجلات والمؤتمرات العلمية عامة أو النشر على الموقع الإلكتروني أو براءات الاختراع أو المسابقات العلمية.
- (3) أن ألتزم بتأسيس حقوق التأليف المعتمدة في جامعة العلوم والتكنولوجيا الأردنية.
- (4) أن أقوم بإعلام الجهة المختصة في الجامعة عن أي اختراع أو اكتشاف قد ينبع عن هذا المشروع وأن ألتزم السرية التامة في ذلك وأن أعمل من خلال الجامعة على الحصول على براءة الاختراع التي قد تنتج عن هذا المشروع.
- (5) أن تكون جامعة العلوم والتكنولوجيا الأردنية هي المالك لأي براءة اختراع قد تنتج عن هذا المشروع وتشمل هذه الملكية حق الجامعة في إعطاء التراخيص والتسويق والبيع كمؤسسة راعية وداعمة لكافة الأنشطة البحثية. ويكون حق للطالب شمول اسمه على براءة الاختراع لأحد المخترعين، وفي حال تم إعطاء تراخيص أو تسويق وبيع لأي من منتجات المشروع يمنح المخترعون بما فيهم الطالب نسبة من الإيرادات حسب تعليمات البحث العلمي في جامعة العلوم والتكنولوجيا الأردنية.

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Dedications

Our team would like to provide their best gratitude and appreciation to our mentor throughout this project Dr. Omar Alzoubi for his enthusiasm, patience, and sharing his knowledge and experience with us as we have gained and learned a lot from her guidance and teaching.

ABSTRACT

Online Education nowadays is more applicable for the current young generation than physical learning since it gained much popularity recently due to the Covid19 pandemic. This pandemic inspired us to develop our proposed system, SHMA, an online eLearning System for Jordanian schools to help our country and our people in Jordan stay safe and keep learning from their homes.

In our project, we are developing a website where every student in a school or a person out of school can register to the website as a student to view courses and quizzes posted by teachers. They can also enter the chat room with their teachers to answer their various questions or have a casual chat. Also, users can register as a teacher, which gives them the privilege to post their own made courses and follow them up with quizzes to test the students that enrolled in their courses and track their progress.

CHAPTER 1

INTRODUCTION

1.1 Overview

Distance education is a system based on modern technology to provide it and work with it, which is a system that depends on it many educational institutions that enable students to learn outside the boundaries of the classroom. It enables teachers to publish lessons and goals, set assignments, implement educational activities, communicate through multiple techniques, divide students into workgroups, help exchange ideas and opinions between teachers and students, and share scientific content that helps achieve high-quality educational outcomes. (1)

Since technology has been greatly developed today, most students will benefit from the E-learning system without stress, regardless of where they are. Distance education is not a new thing, as many believe it began in the nineteenth century in the name of teaching by correspondence at the United Nations in 1873 to promote the study at home for the sake of publication education among Americans (2). Still, in our time, distance education has evolved and has become dependent in most countries of the world because of the great technological progress. Because of the spread, the world is witnessing an Extensive of Covid-19 disease.

In Jordan, on 14_3_2020, it was announced that the study and transformation of the distance learning system were interrupted. Because of the start of Corona cases in the country and reducing the spread of the disease, UNESCO has done statistical work on learners affected by school closures worldwide with the following results: (3)

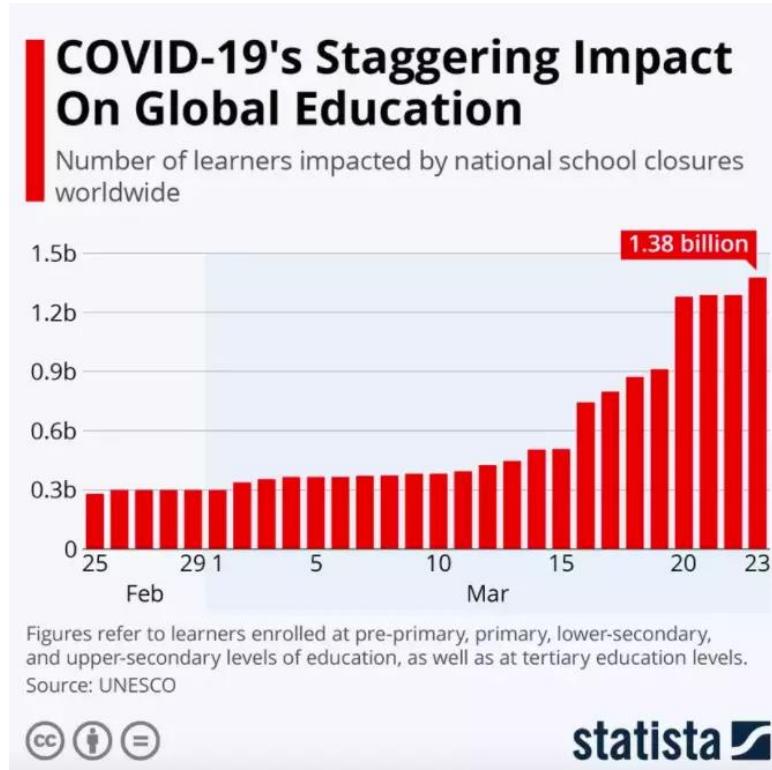


Figure 1.1 Covid-19's Staggering Impact on Global Education.

1.2 Project Motivation

The need to develop a more efficient learning platform has become imperative to develop a distance education approach.

In Jordan, the project idea was chosen to serve our school students in all stages of their primary and secondary studies Freely. SHMA.jo, our distance teaching website, is of great value because it helps the most significant number of students obtain the right to learn and present information in the simplest and best way while they are in their homes. This will make their lives more comfortable and flexible as it transcends restrictions and time associated with traditional schools, and unfortunately, many of the teachers are unemployed. Therefore, our site allows teachers to register on the site, give lessons on it, and make profits based on each teacher's points.

1.3 Problem Statement

Many people faced various difficulties and obstacles in obtaining a traditional education for several reasons, such as the spatial distance of the school from the student, the cost of transportation, and the high financial cost for private schools. Also, large numbers of students in the class lead to poor communication between the teacher and the student. The reliance in traditional schools on indoctrination is all reasons that make the process of distance education better and more feasible.

1.4 Objective

The main objective of this project is to build a non-profit educational website to serve the most significant number of students, especially those who face difficulties attending traditional schools for whatever reason and improving education outcomes. Students will be able to open the site as long as they have an internet connection and start studying, making the educational process more accessible, more comfortable, and convenient for students. In addition, it is providing an opportunity for advanced research, effective communication, and adaptation of students to use modern technological programs. This will also allow the platform to conduct discussions, establish learning societies, involve parents, and monitor student performance and e-learning evaluation tools.

CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter will discuss various online education applications/systems discuss them briefly and talk about how their work is related to our work and provide in our system what was most needed but not provided in most of these systems.

2.1 Abwaab Platform:

Abwaab is an educational platform established in 2019, allowing students to study depending on the schedule that suits them, in addition, the Abwaab platform has a continuous rating system with their teachers.

It has many advantages, the most important of which is that it allows the student to follow up on his progress in the subject from 100%. And the variety of ideas put forward by the teacher also provides exams Lectures to test the student. The interface of the platform has some criticism because of the difficulty of using the site and register with it. The duration of the educational videos is very short, and it does not include all Educational stages.

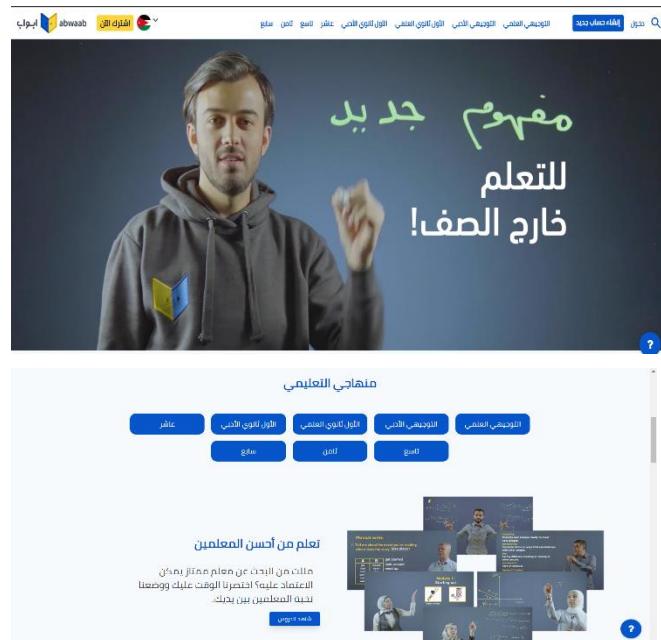


Figure 2.1 Abwaab Interface.

2.2 Darsak platform:

Jordanian online learning platform that provides public school students in all stages of their primary and secondary studies educational lessons through video clips that it's organized and scheduled according to the Jordanian education curriculum, provided by a distinguished group of teachers.

It is the official Jordanian platform, which is characterized by the teacher's follow up to the student by sending him regular homework and providing free access to the platform without the need for the internet. But many students complain about it because it contains many negatives, including that the class time is not enough, and the information is received to the student is not good, and there is no direct communication between the student and the teacher and the option to 'ask the teacher' is neglected as the teacher does not respond to the Students' questions usually.

As for the tests, there is no control over the student, as a result of the cheating process is done easily, and the duration of non-standard tests. Unfortunately, it is only available to State school students.

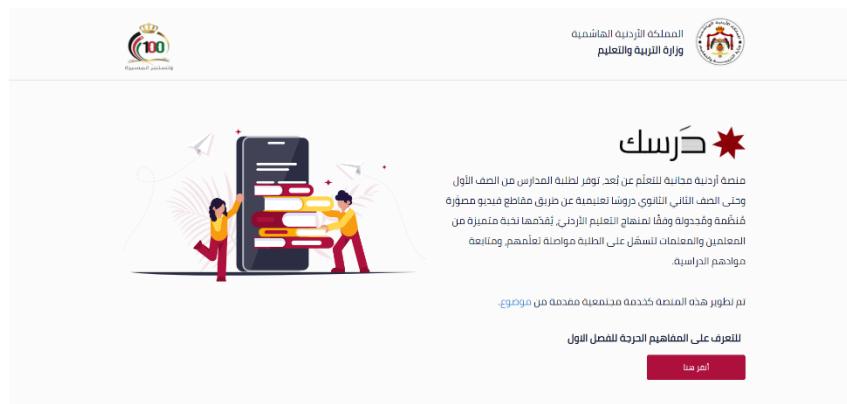


Figure 2.2 Darsak Interface.

2.3 Watad platform:

Watad is an online educational platform in Jordan it provides an advanced educational environment for the primary and secondary students and especially the Tawjihi stage. One of the famous Jordanian platforms, high school students depend on it more than others because of the large number of teachers and the variety of their methods, and the reason for its popularity is the availability of recorded and direct videos. And direct communication between the students themselves and the teacher. And the ease of dealing with it by the teacher so that he can Modification of its teaching content after making it available to the student. Its content is available in digital and paper form. However, all of its lessons and services are only available on a paid fee.

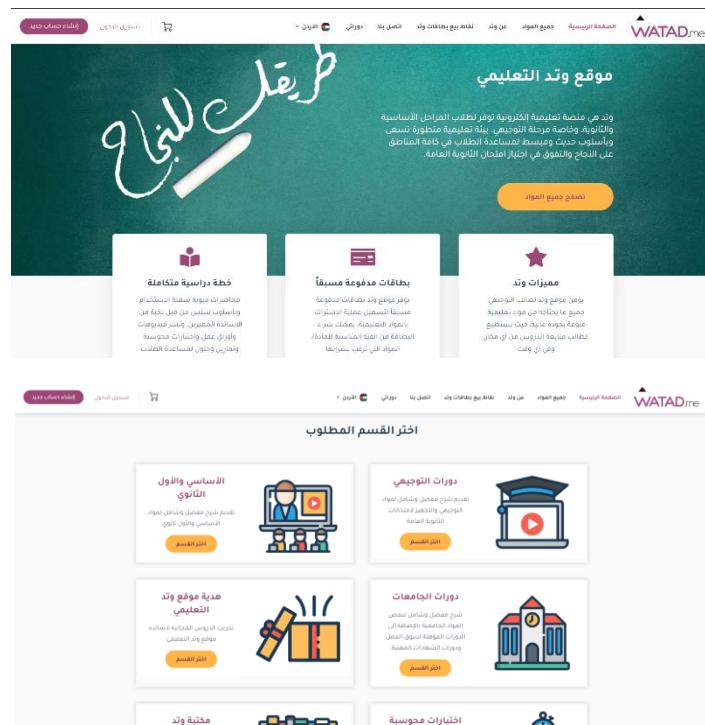


Figure 2.3 Watad Interface.

2.4 Edraak platform:

Edraak is an online Arabian platform for open source group courses. Edraak was established at the initiative of the Queen Rania Foundation for Education and Development.

It is the most popular platform in the Arab world in terms of the accuracy of educational curricula. It offers many different curricula for all educational stages at the end of each session. You can obtain a recognized certificate in some fields and its advantages are that it allows parents to participate in the educational process even though it is an excellent and global platform. However, it is not sufficient to replace regular schools because it does not cover educational curricula, and it is distinguished from others by being free for all. Its teachers are holders of a postgraduate degree from various universities of the world.

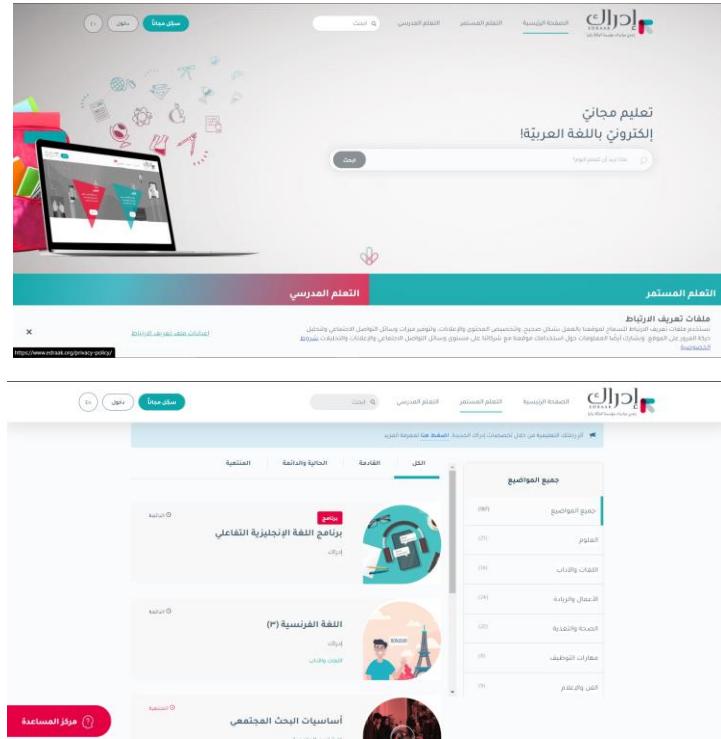


Figure 2.4 Edraak Interface.

2.5 Madrasati platform:

The official Saudi platform, which is one of the most several platforms for teaching methods, such as direct communication between the teacher and the student, including direct and recorded videos, books, illustrated and written stories. It also provides classroom communication rooms for communication between students themselves, and others. Describe by different exam methods, such as banks of questions or multiple options.



Figure 2.5 Madrasati Interface.

2.6 Comparison:

In conclusion, we are going to design an online educational site that suits the users and helps them with their studies. So now we have a good idea about how's the project is going to be by looking up similar sites and understanding how they work, the pros and cons they have.

Site name	Country	Friendly UI	Comprehensive	Communication between the teacher and the student	Follow-up and supervision
Abwaab	Jordan	NO	NO	Yes	Yes
Darsak	Jordan	NO	Yes	NO	NO
Watad	Jordan	Yes	NO	Yes	Yes
Edraak	Jordan(international)	Yes	NO	NO	NO
Madrasati	Saudi Arabia	Yes	Yes	Yes	Yes

Table 2.1 Related Work Comparison.

CHAPTER 3

ANALYSIS AND DESIGN

This chapter will discuss an overall planning technique and how the system works, analyzing the system and providing the design.

3.1 Introduction

SHMA is a website that manages three parties, the student and the teacher and the Guardian. Thus, our system will consist of some of an existing system's features and newly added features that ensure the accuracy and efficiency the lacked in most of the existing systems.

3.2 Functional Requirement Specification

We obtained the system requirements by surveying almost **400** Jordanians using Google Forms, as you can see in the Appendices of this document. Also, we surveyed **104** teachers, interviewing some teachers, and we have done team brainstorming. The following subsection introduces more details about the analysis and requirement collections.

3.2.1 Analysis of Survey Answers:

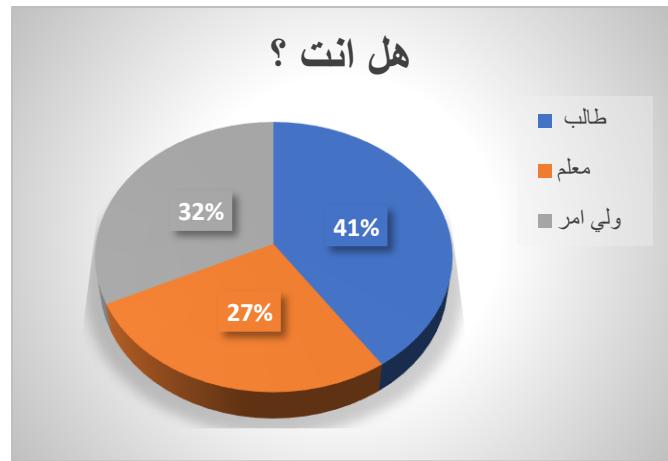


Figure 3.1 shows the overall participants in our questionnaire

A. Students Questions:

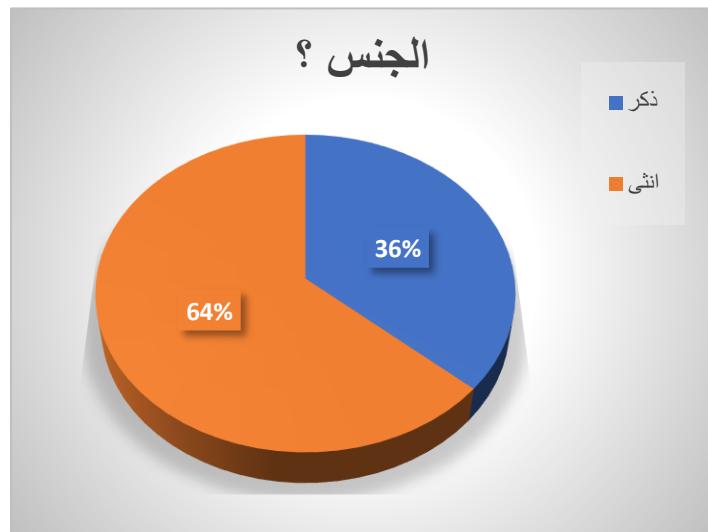


Figure 3.2 shows the sex of the students

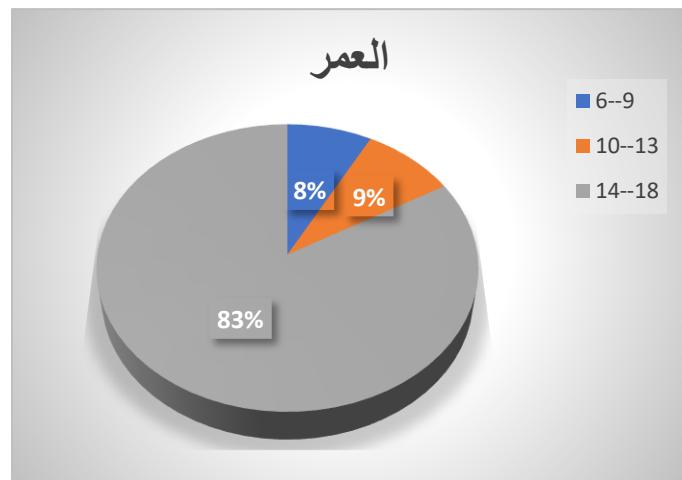


Figure 3.3 shows the range of participant's age

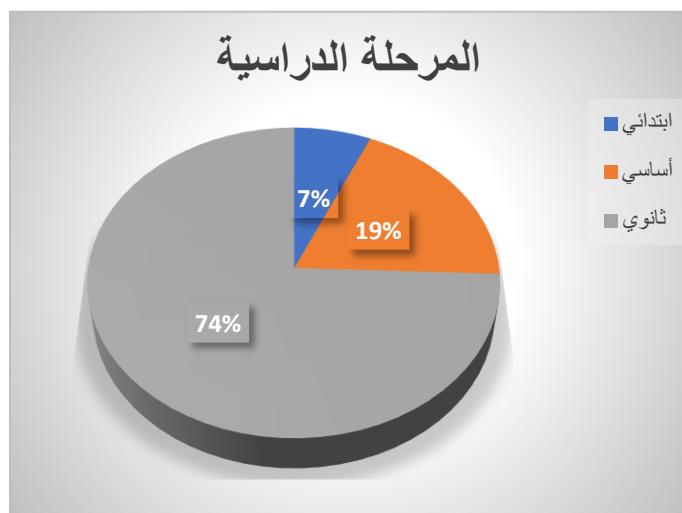


Figure 3.4 shows the education level of the students

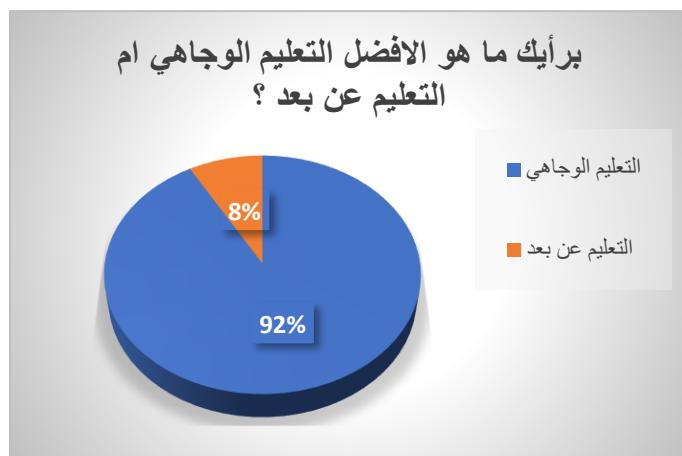


Figure 3.5 shows that most students agreed that physical learning is better than online learning.

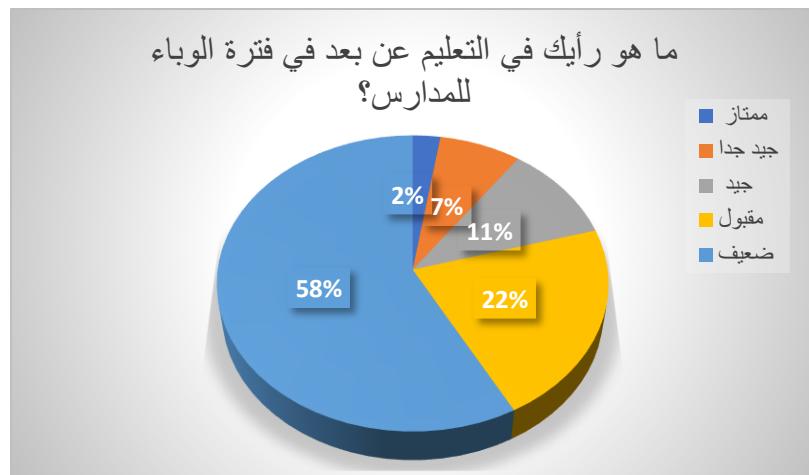


Figure 3.6 shows the students opinion on how online learning during the covid19 pandemic was.

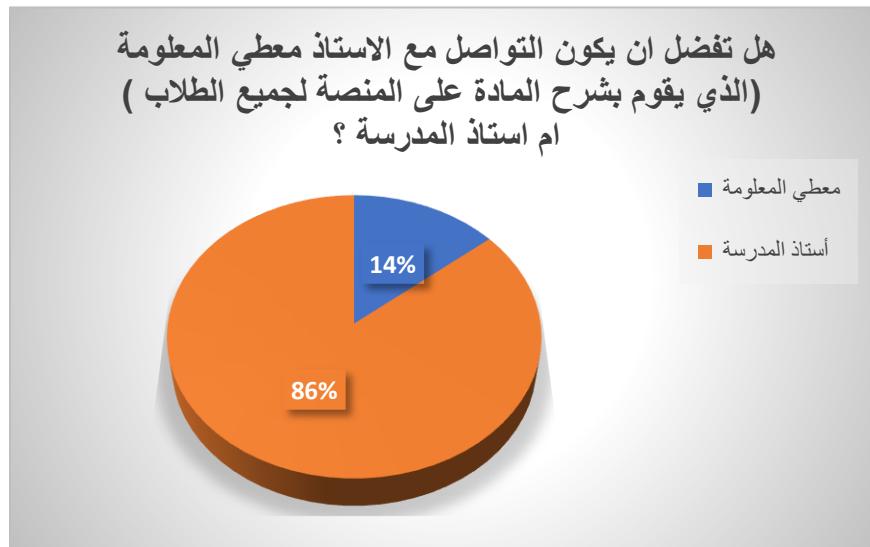


Figure 3.7 shows that most students agreed that they prefer to take the information from the teacher they know not from a foreign teacher.

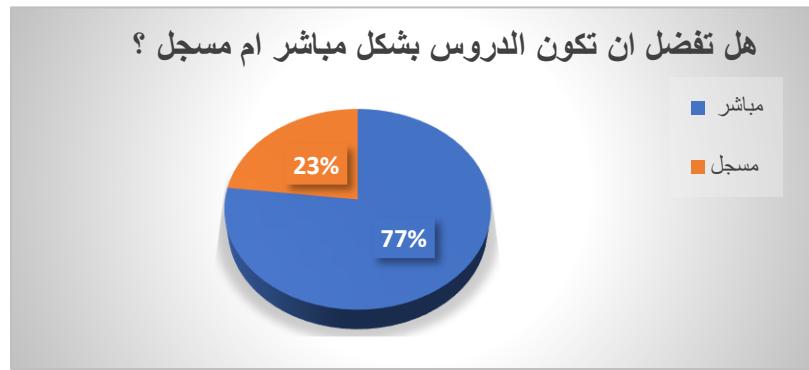


Figure 3.8 shows that most students agreed that they prefer to take live lecture instead of recorded one.

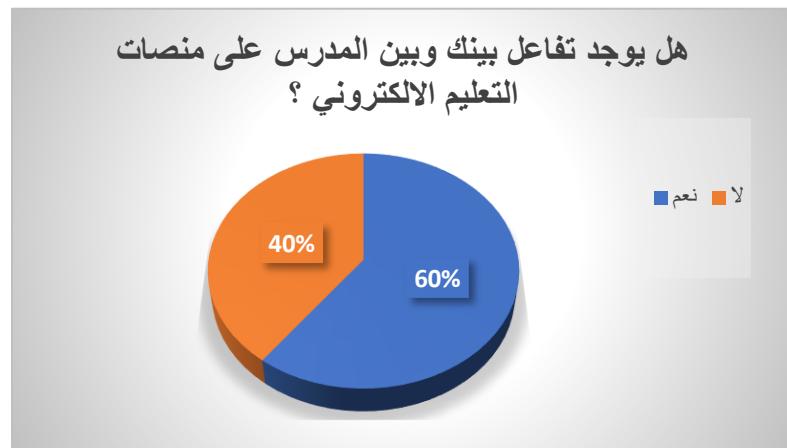


Figure 3.9 shows that there are some students who don't have a direct communication between them and their teachers.

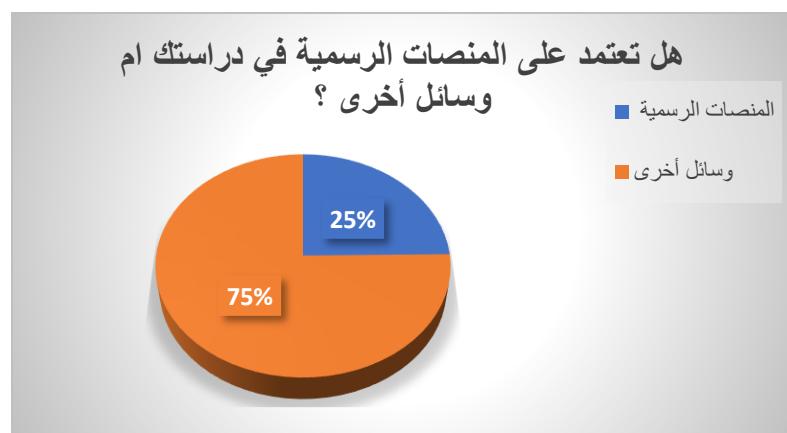


Figure 3.10 shows that most students don't use the official free platform from the government.

B. Teachers Questions:

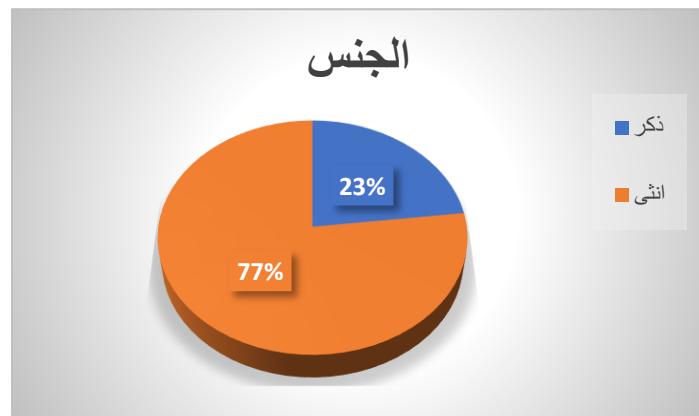


Figure 3.11 shows the sex of the teachers.

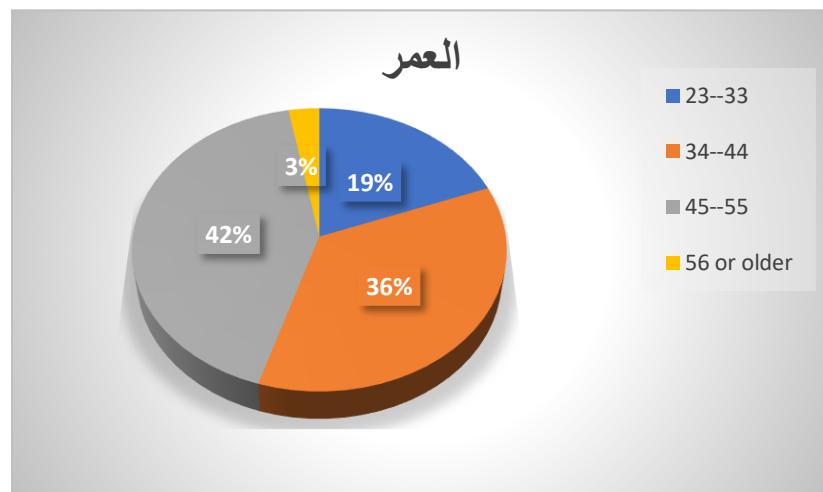


Figure 3.12 shows the range of participant's age.

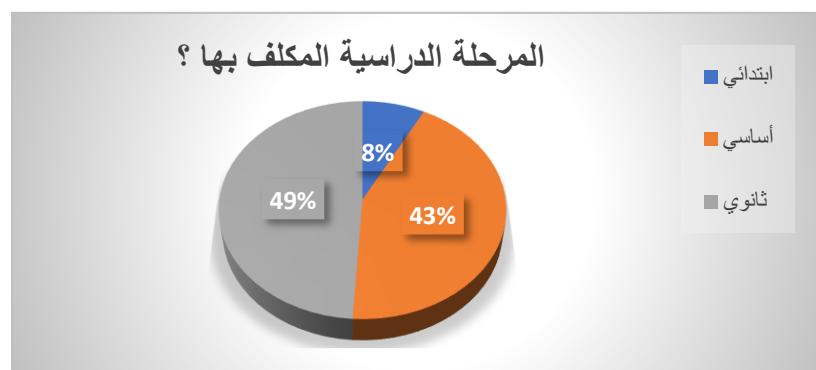


Figure 3.13 shows the education level they teach.



Figure 3.14 shows that all the teachers agreed on physical learning is better than online learning.



Figure 3.15 shows that if the teachers cover all of materials in a perfect way.

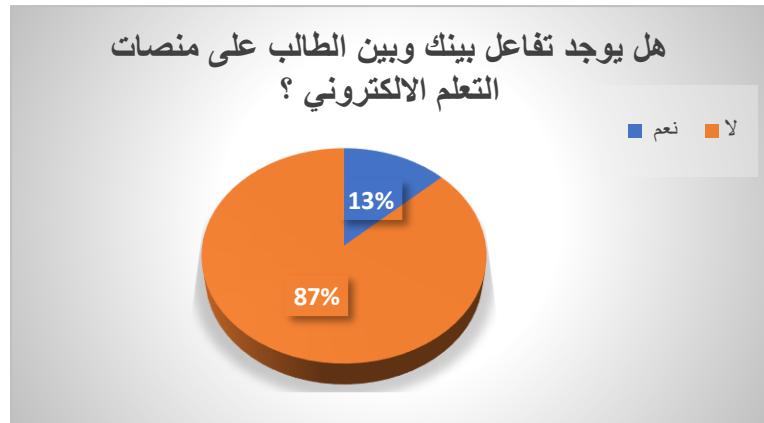


Figure 3.16 shows that the majority of the teachers don't have a direct communication between them and the students.



Figure 3.17 shows that the majority of the teachers prefer parents to keep track of their kids in online learning.

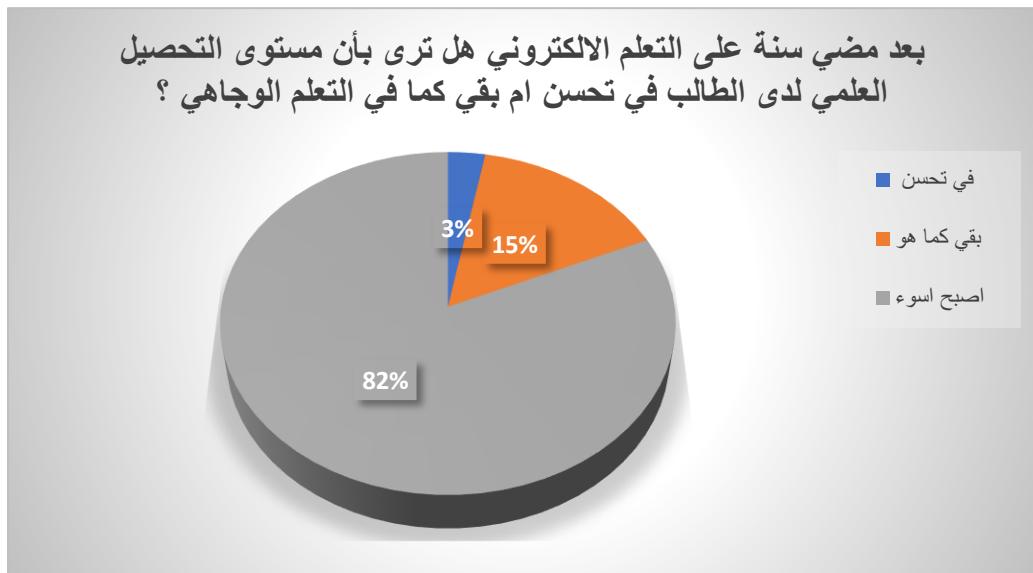


Figure 3.18 shows that the majority of teachers think the education became worse during the covid19 pandemic.

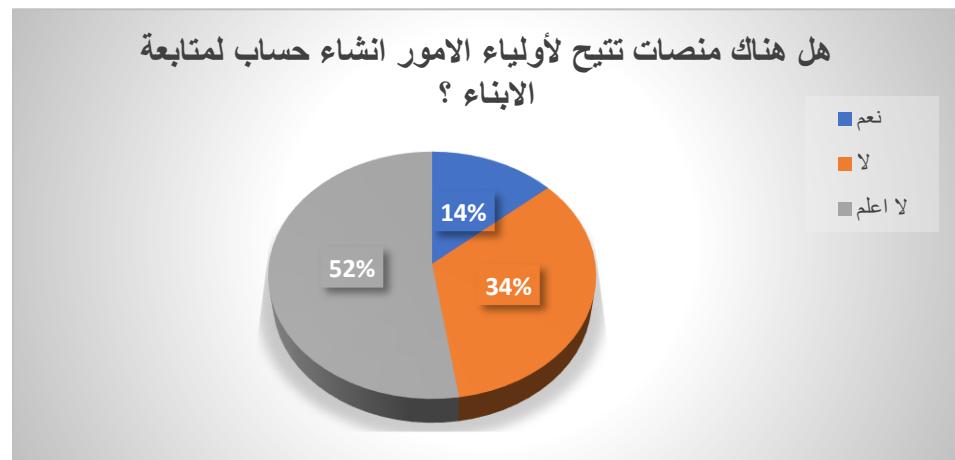


Figure 3.19 shows most of the teachers don't know if there is a platform that allows the parents to have an account on it to keep track of their kids.

C. Parents Questions:

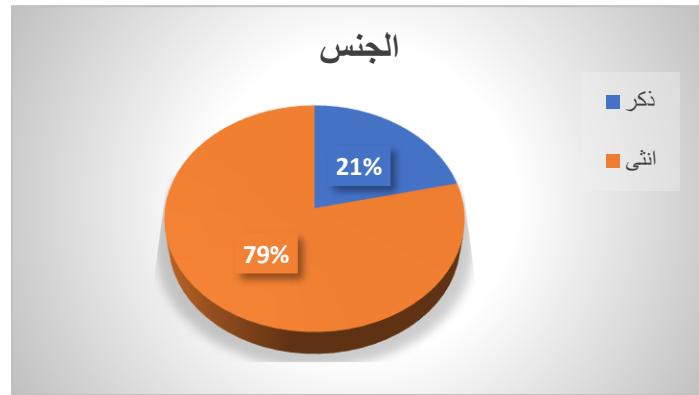


Figure 3.20 shows the sex of the parents.

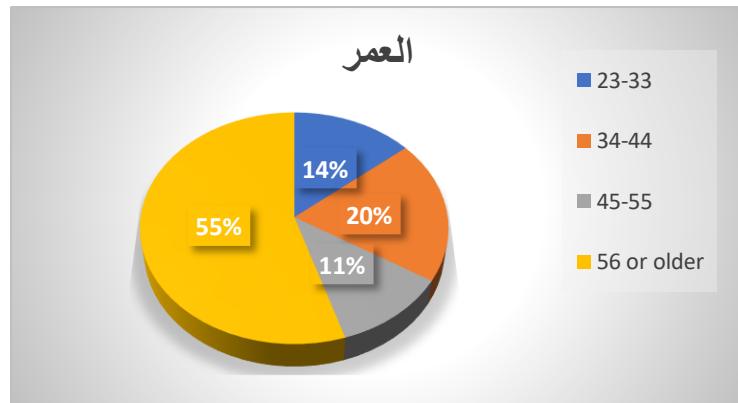


Figure 3.21 shows the range of participant's age.

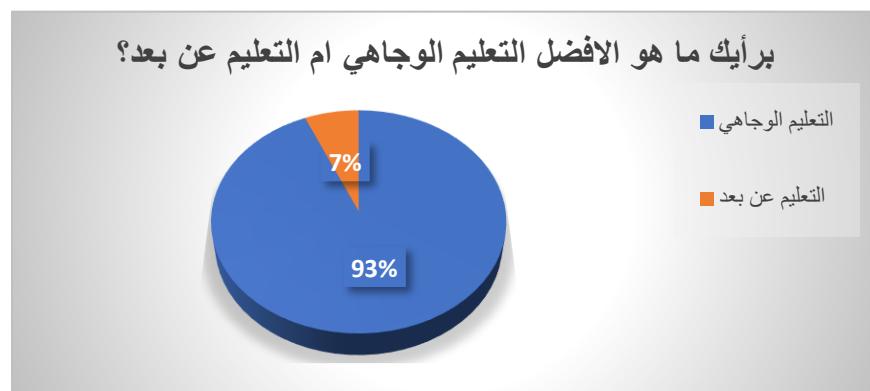


Figure 3.22 shows that most of the parents agreed on physical learning is better than online learning.



Figure 3.23 shows that most of parents would like to keep track on their kids in online learning.

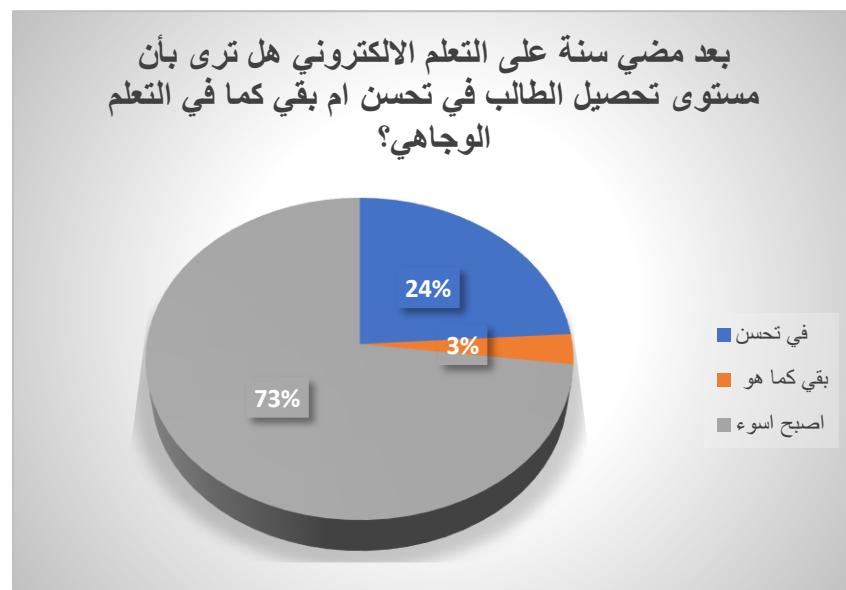


Figure 3.24 shows that majority of the parents think the education became worse during the covid19 pandemic.

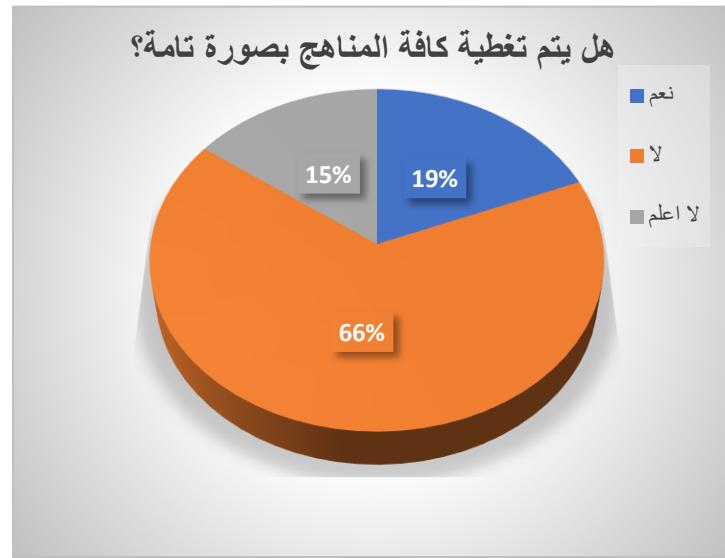


Figure 3.25 shows that most of the parents think the teachers don't cover all of the materials in a perfect way.

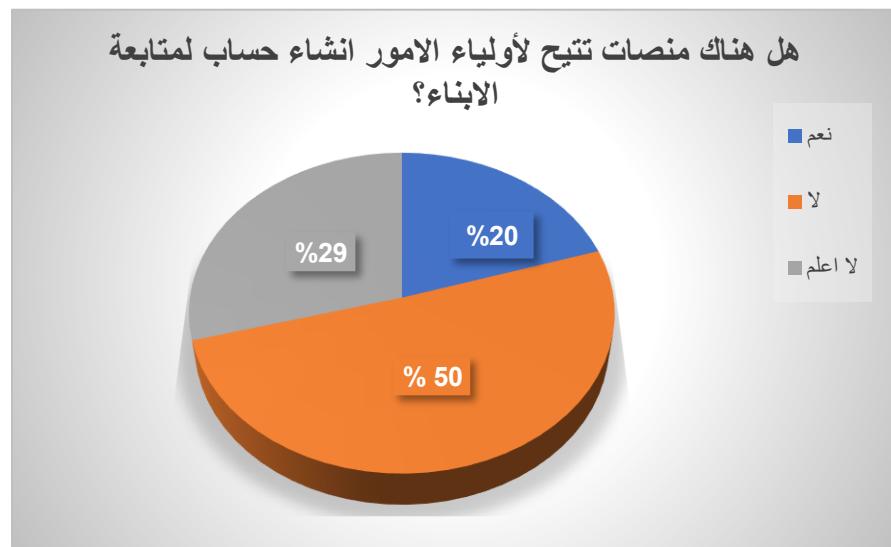


Figure 3.26 shows most of the parents don't know if there is a platform that allows them to have an account to keep track of their kids.

3.2.2 Stakeholders

They website would be used by:

- 1) End users
 - Students
 - Teachers
 - Parents
- 2) Administrators
 - SHMA Directors

3.2.3 Functional Requirements:

Since our system includes three parties, which are: 1- the student who will be able to take the courses, 2-the parents who will be able to keep on track of their children, 3- and finally the teachers who can upload the courses and give the exams, with no further ado our system will have the following requirements:

- The system will allow the users to register using personal email and password.
- The system will store its data in a database.
- The system will allow the users to modify their profile.
- The system will allow the teachers to upload their courses in a PDF, docs, ppt etc... and video format.
- The system will allow the students to choose which grade they're in and their desired teacher and the courses they want to take.
- The system will allow the student to take the quizzes provided by the teachers.
- The system will have an interaction method between the teachers and the students.
- The system will have a rating system for the teachers.
- The system will have a reward system for the good teachers based on students' ratings.
- The system will allow the users to apply for every SHMA possible service. (i.e.)
- The system shall give the users the option to save their course journey path and be able to complete it later.
- The system will inform the users of the latest updates for the new courses.
- The system will allow the users to delete or disable their account.

3.2.4 Non-Functional Requirements:

- **Usability:** Our system will provide easy use GUI and easy understand the concept for users to achieve our goal of providing needed information for the students and teachers.
- **Performance and scalability:** For Performance, our System does not require real-time updates as our updates are needed to be daily thus the performance of our system should be within a day to be updated.
- **Security:** We Intend to keep user's information and status to be confidential in which they can trust our system.
- **Maintainability:** Our system should be self-maintained and the database connection should be automated, any other functionality errors should be maintained by the DEV team.

3.2.5 System Development Approach

There are many approaches like (Waterfall / Agile / Prototyping / RAD/...etc.). We use waterfall in our project because we determined the requirements and the way that the waterfall model is working by splitting the project into sequential phases, where each phase depends on the deliverables of the previous one and corresponds to a specialization of tasks in the process of workflow

1. **System and software requirements:** captured in a product requirements document.
2. **Analysis:** resulting in models, schema, and business rules.
3. **Design:** resulting in the software architecture.
4. **Coding:** the development, proving, and integration of software.
5. **Testing:** the systematic discovery and debugging of defects.
6. **Operations:** the installation, migration, support, and maintenance of complete systems.

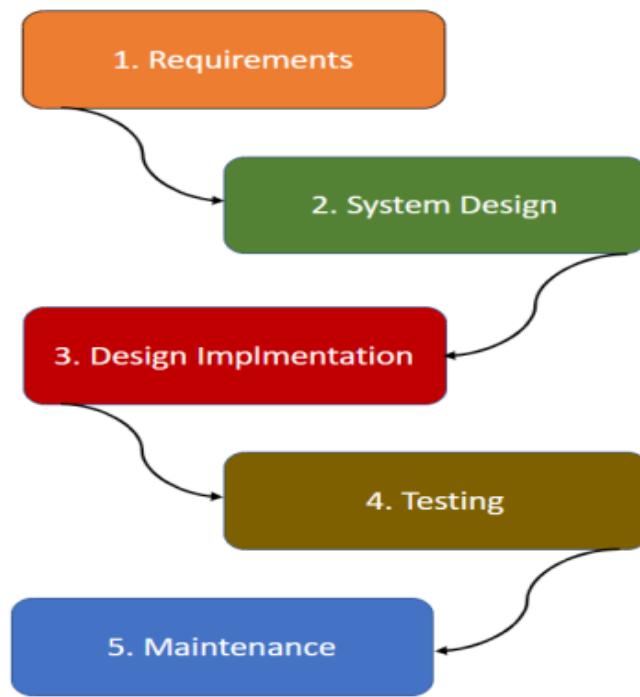


Figure 3.27 Waterfall model

3.2.6 Organizational Structure

In the table below we divided the work in between us in sort of a way to make it fair to all of us

Roles	Members
Team management	Leader: Mahmoud Team members: Abdullah, Sajedah, Haitham
Discussions and Reports	Mahmoud, Abdullah, Haitham, Sajedah
Requirements gathering	Mahmoud, Sajedah, Haitham
System Documentation	Mahmoud, Sajedah, Haitham
Software Design	Abdullah, Sajedah
Database Design	Abdullah, Sajedah
Interface Design	Mahmoud, Haitham
Implementation Phase 1	Mahmoud, Abdullah, Haitham, Sajedah
Review	Mahmoud, Abdullah, Haitham, Sajedah
Implementation Phase 2	Mahmoud, Abdullah, Haitham, Sajedah
Review	Mahmoud, Abdullah, Haitham, Sajedah
Perform System Testing	Mahmoud, Abdullah, Haitham, Sajedah
Document Issues Found	Mahmoud, Abdullah, Haitham, Sajedah
Correct Issues Found	Mahmoud, Abdullah, Haitham, Sajedah
Maintenance	Mahmoud, Abdullah, Haitham, Sajedah

Table 3.1 Organizational Structure

3.2.7 Gantt Chart

In the Gantt Chart below we divided the tasks and our future tasks into the time span we had available. As shown in the chart, the analysis, and design processes duration about 60 days. The tasks appear as vertical lines on the chart, the task start, and end dates, duration and milestones appear as horizontal bars, the percentage of work completed for each task also is displayed on the horizontal bars.

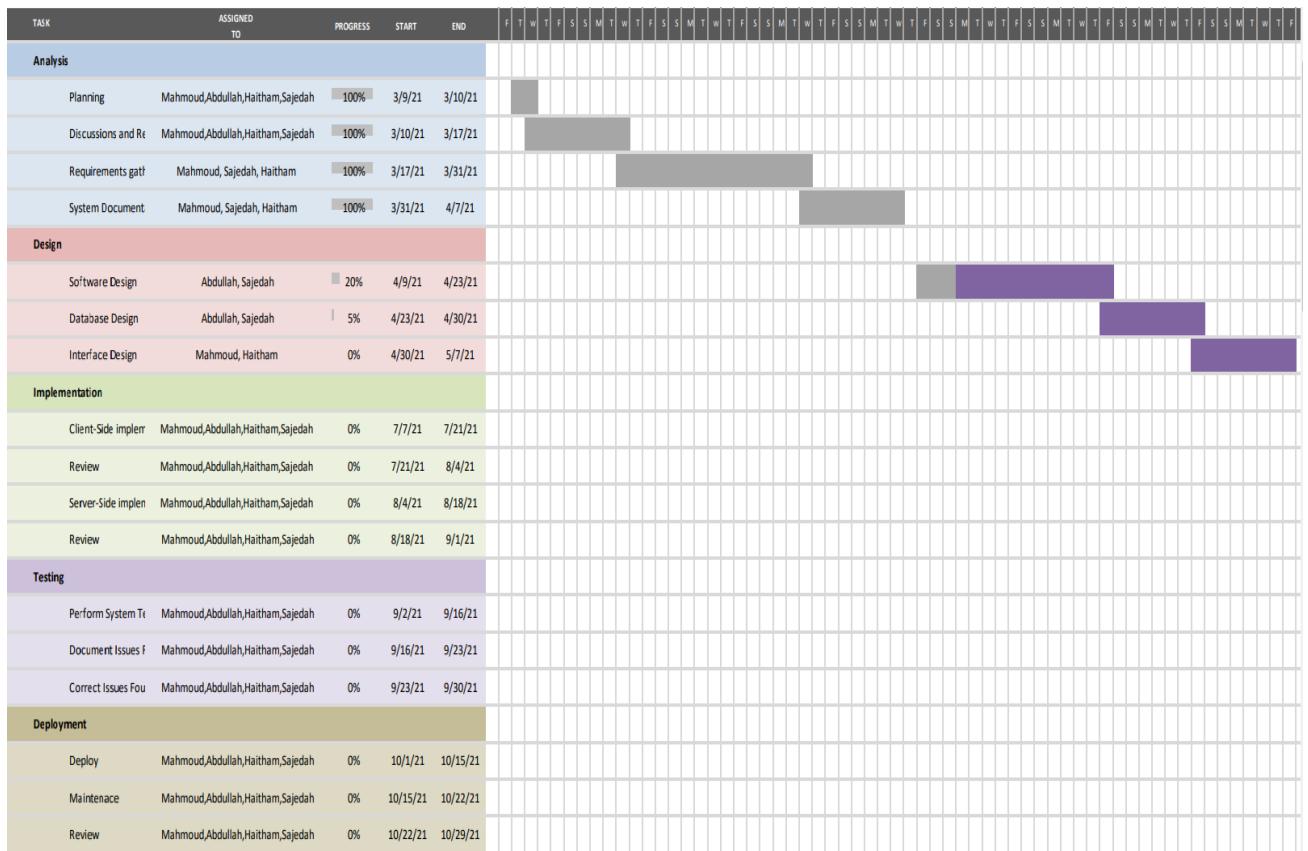
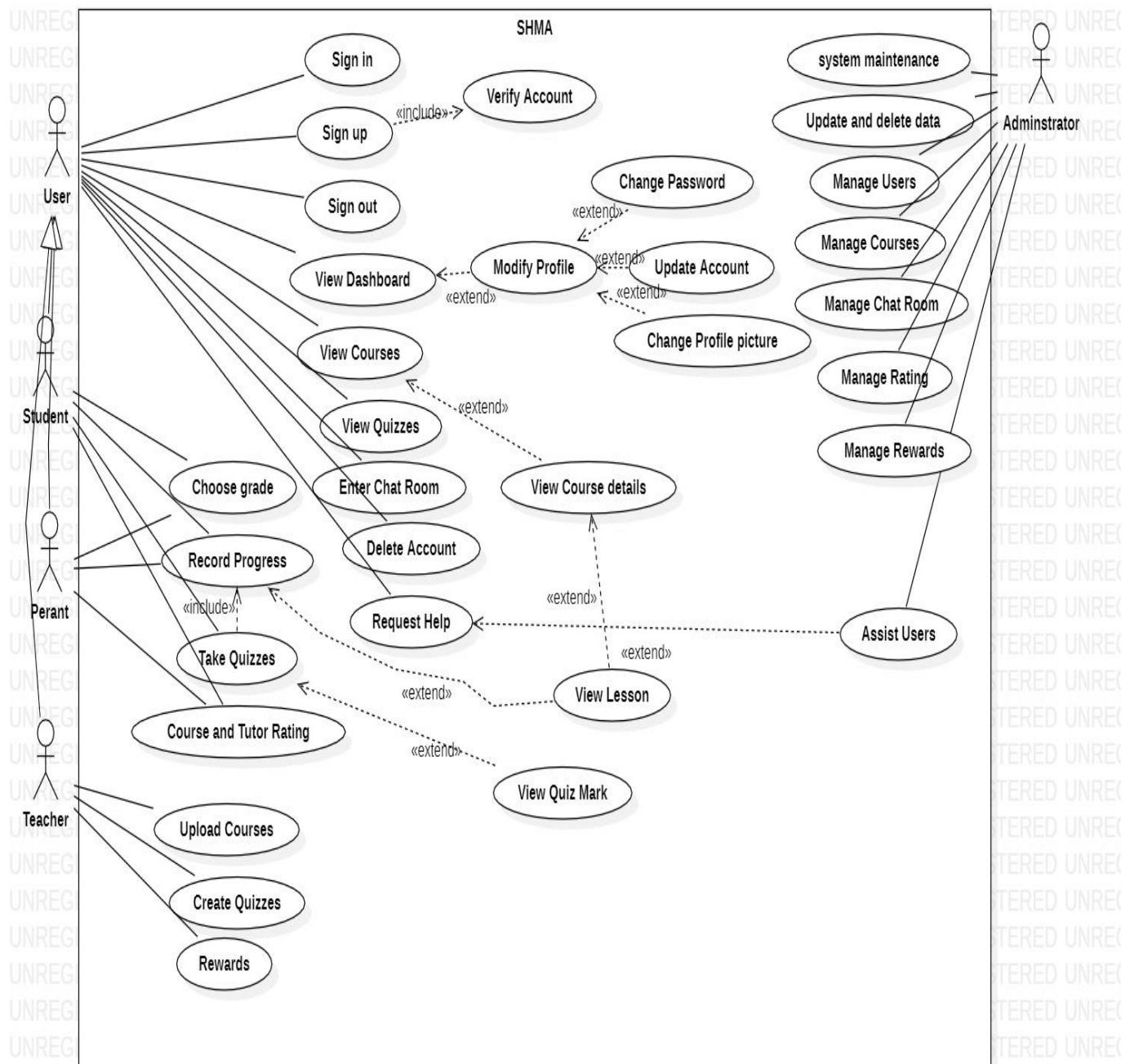


Figure 3.28 Gantt Chart

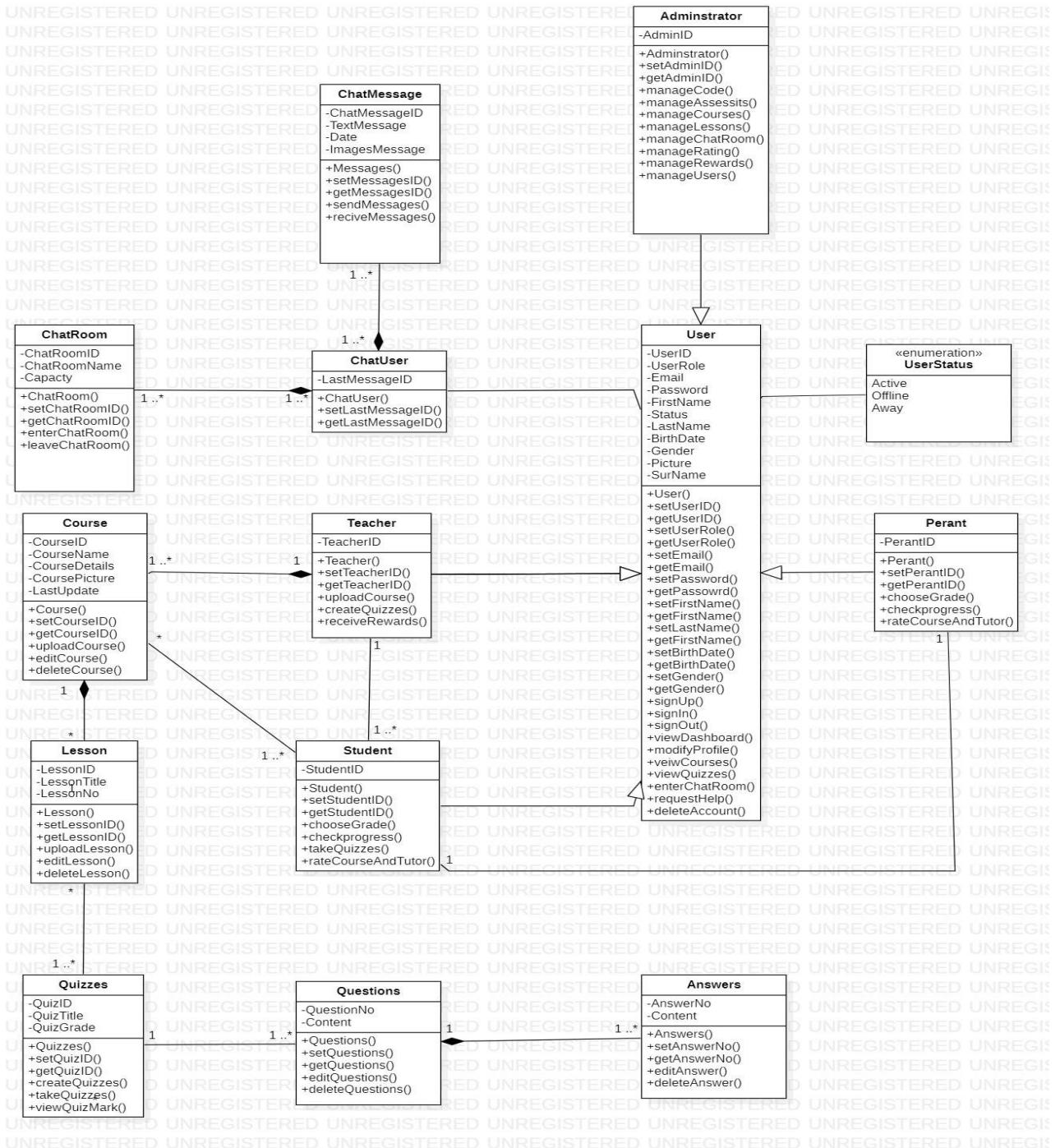
3.2.8 Use Case Diagram:

A representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.



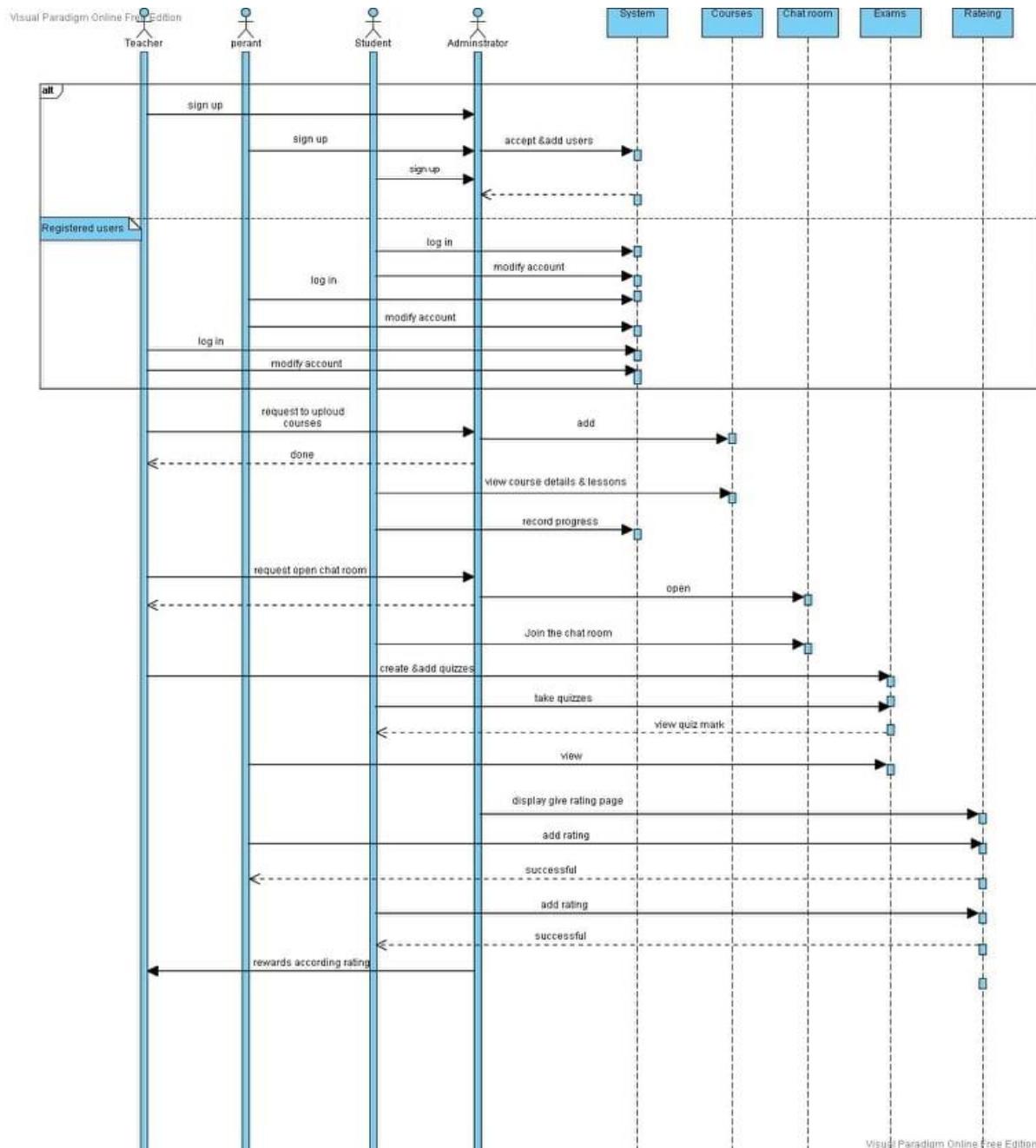
3.2.9 Class Diagram:

The main building block of object-oriented modeling. It is used for general conceptual modeling of the structure of the application, and for detailed modeling translating the models into programming code.



3.2.10 Sequence Diagrams:

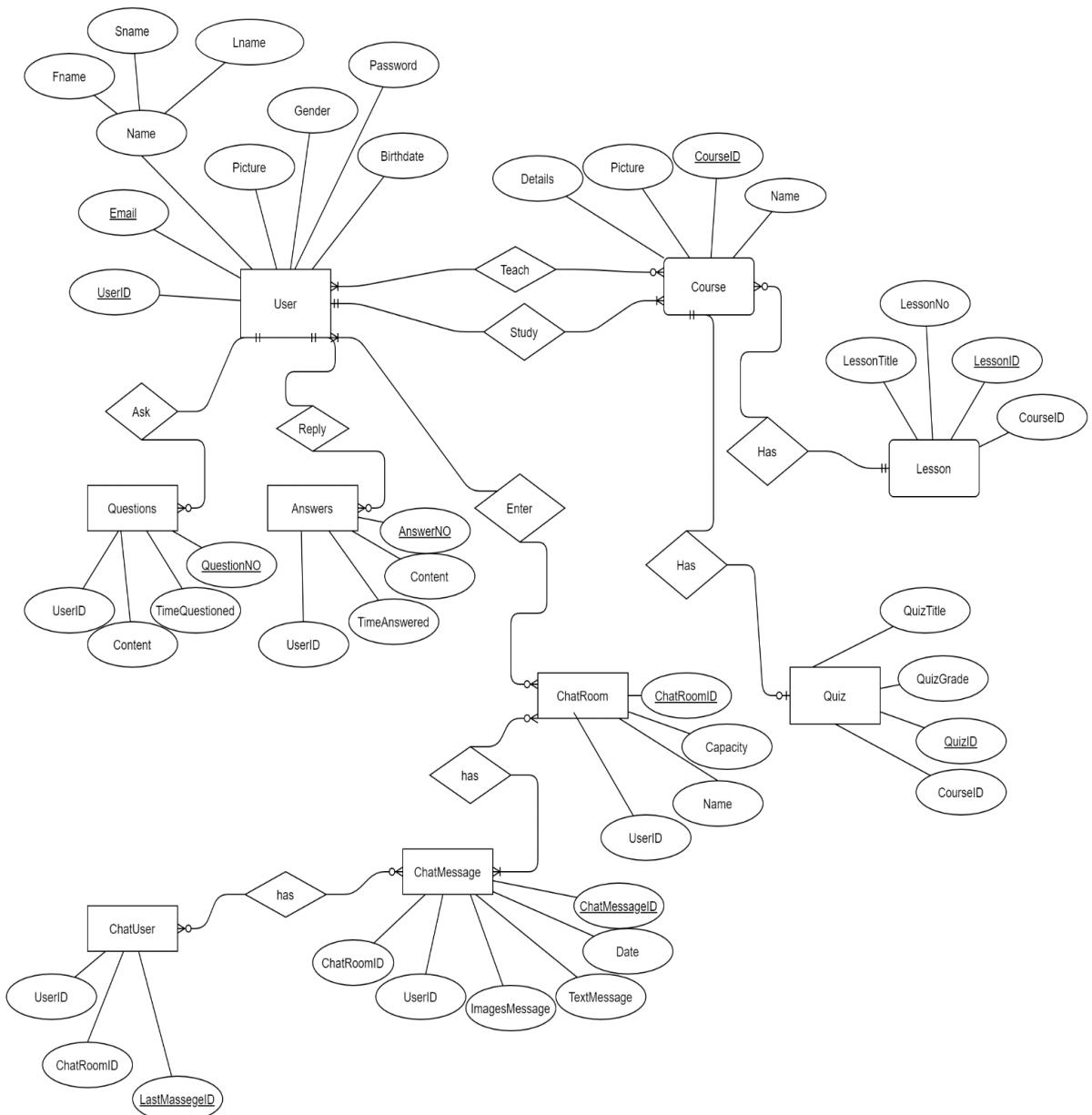
An interaction diagram that describes how—and in what order—the group of objects works together, to understand requirements for our system.



3.2.11 Entity-Relationship Diagram and Database Table:

The database is an absolutely essential part of software systems, and to fully utilize ER Diagrams in database construction guarantees us to produce efficient database design to use in database creation, management, and maintenance. As shown below, a visual representation of the entities within our system and how they interact with each other.

A. Entity-Relationship Diagram:



B. Database Tables:

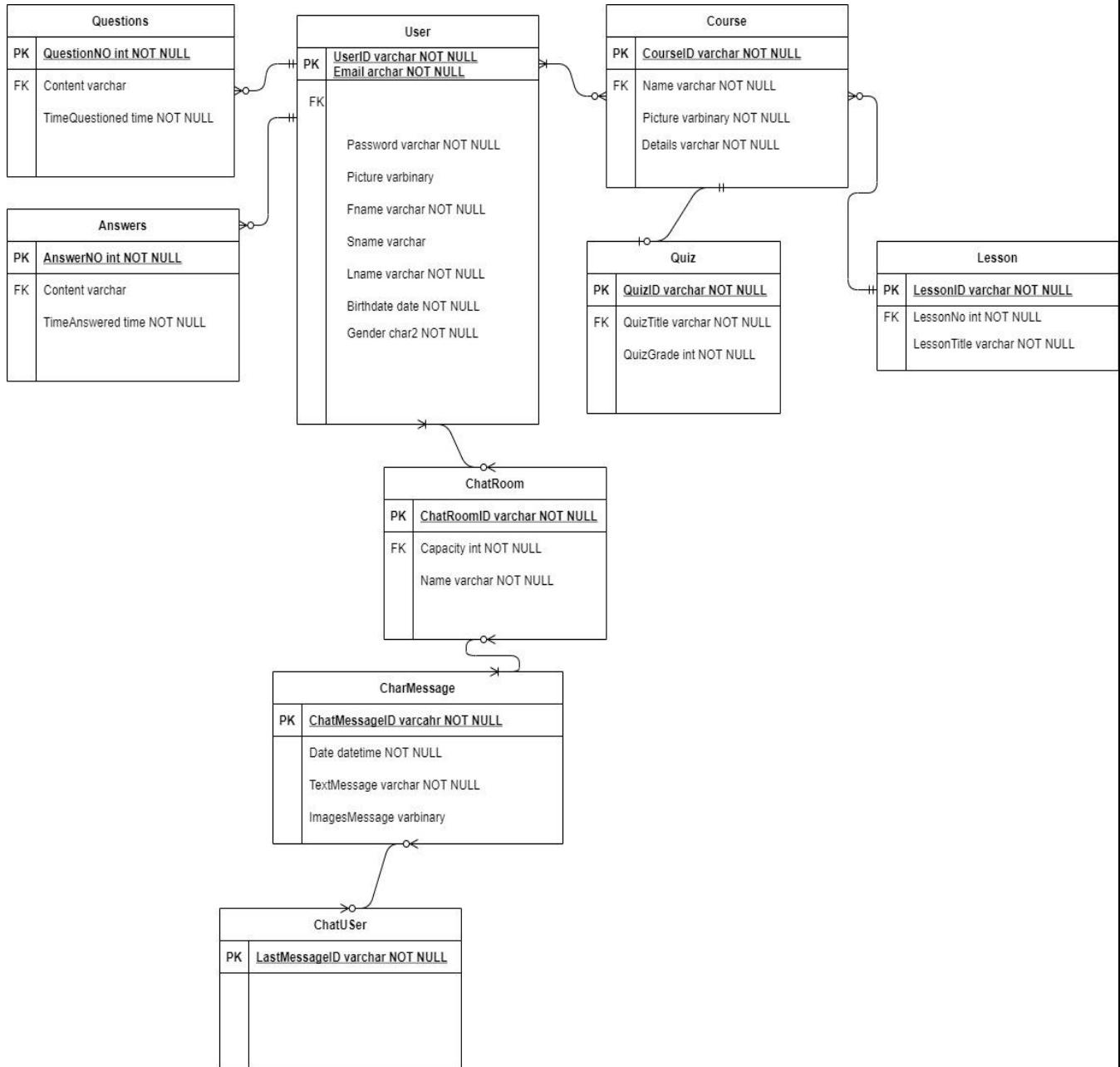


Table 3.2 User

Field Name	Data Type	Size	Allow Null	Description
UserID	Varchar	64	No	User's ID to log in to the website.
Email	Varchar	64	No	User's personal email to confirm signing up and can be used to recover password if missing.
Password	Varchar	64	No	User's password to log in to the website.
Picture	Varbinary	MAX	Yes	User's desired profile picture if he didn't upload one a default picture will be displayed.
Fname	Varchar	64	No	User's first name.
Sname	Varchar	64	Yes	User's Surname.
Lname	Varchar	64	No	User's Last name.
BirthDate	Date	3	No	User's date of birth shown as dd/mm/yyyy.
Gender	Char2	2	No	User's gender

Table 3.3 Course

Field Name	Data Type	Size	Allow Null	Description
CourseID	Varchar	64	No	The unique course identifier.
Name	Varchar	64	No	The course name.
Picture	Varbinary	MAX	No	The background cover of the course.
Details	Varchar	MAX	No	Course descriptions.

Table 3.4 Lesson

Field Name	Data Type	Size	Allow Null	Description
LessonID	Varchar	64	No	The unique lesson identifier
LessonNo	Integer	4	No	Lesson's number.
LessonTitle	Varchar	64	No	Lesson's title.

Table 3.5 Quiz

Field Name	Data Type	Size	Allow Null	Description
QuizID	Varchar	64	No	The unique quiz identifier.
QuizTitle	Varchar	64	No	Quizzes title.
QuizGrade	Integer	MAX	No	Quizzes grade.

Table 3.6 Questions

Field Name	Data Type	Size	Allow Null	Description
QuestionNO	Integer	4	No	Question number.
Content	Varchar	MAX	Yes	Question content and details.
TimeQuestioned	Time	3 to 5	No	The time the question has been asked.

Table 3.7 Answers

Field Name	Data Type	Size	Allow Null	Description
AnswerNo	Integer	4	No	Answer number.
Content	Varchar	MAX	Yes	Answer content and details.
TimeAnswered	Time	3 to 5	No	The time the answer has been replied.

Table 3.8 ChatRoom

Field Name	Data Type	Size	Allow Null	Description
ChatRoomID	Varchar	64	No	Chat Room identifier.
Capacity	Integer	4	No	Chat Room capacity.
Name	Varchar	64	No	Chat Room name.

Table 3.9 ChatMessage

Field Name	Data Type	Size	Allow Null	Description
ChatMessageID	Varchar	64	No	Message's identifier.
Date	Datetime	8	No	Date and time sent and received.
TextMessage	Varchar	MAX	Yes	Messages content as text
ImagesMessage	Varbinary	MAX	Yes	Messages content as image.

Table 3.10 ChatUser

Field Name	Data Type	Size	Allow Null	Description
LastMessageID	Varchar	64	No	To pull the last message if a user entered late.

3.3 Interface Design

This Section Provides more details about the website (SHMA).

- **Home section**

After opening the website, the user will be shown this landing page below with the website's logo and title.

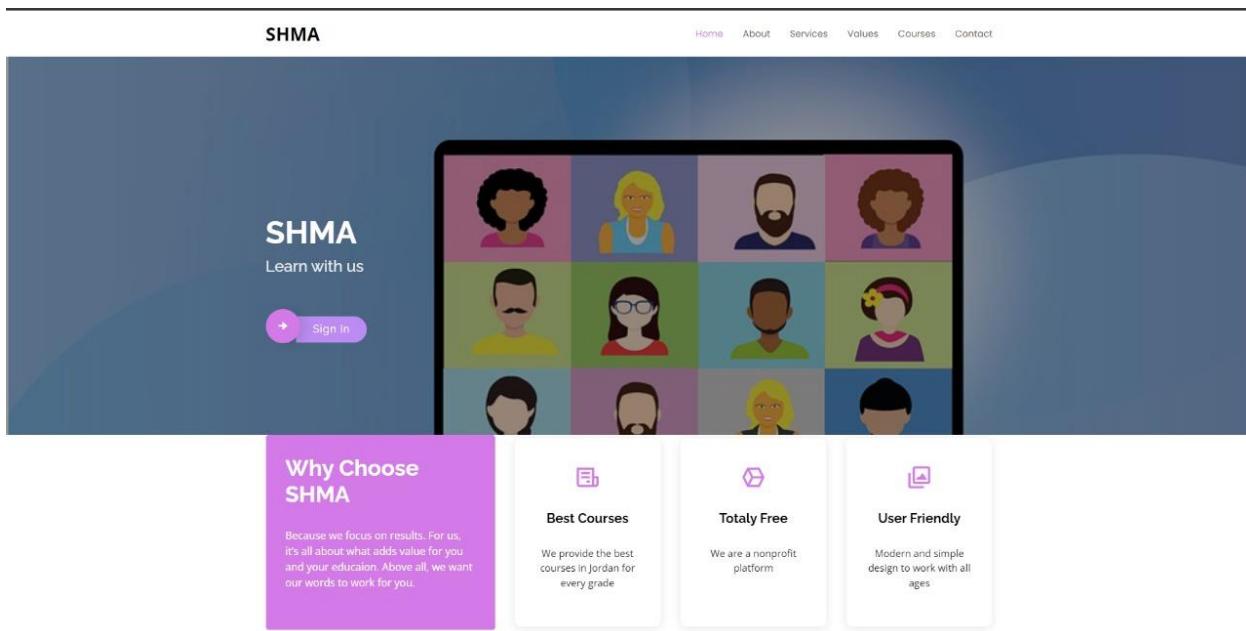


Figure 3.29 Home section

- **Login section**

Below is the log in section, which asks the user for the username and password, checking if they exist in the database and validates the data input.

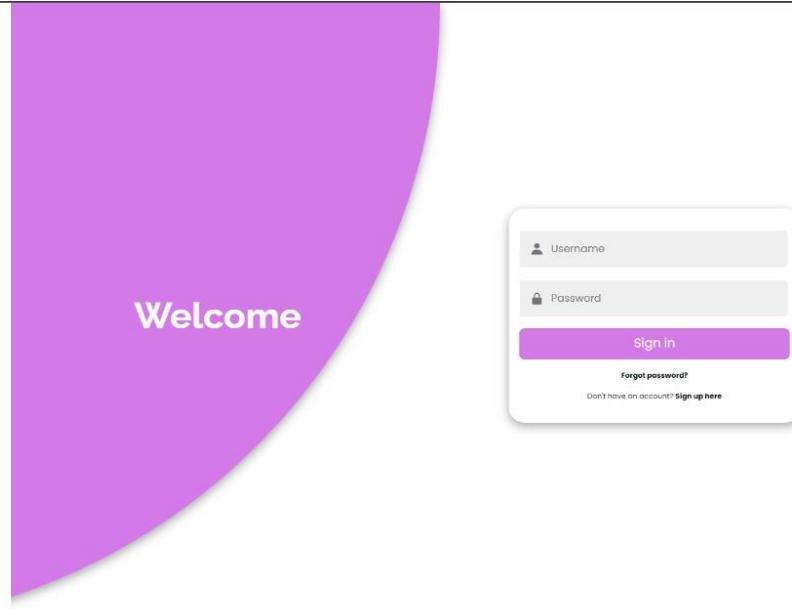


Figure 3.30 Login section

- **Register section**

This section is the register form, asking the user for more information, and choosing whether to sign up either as: a student, parent, or a teacher.

Sign in here'."/>

First Name

Last Name

Sign Up As

Gender

mm/dd/yyyy

Abdullah

Email

...

Confirm password

Sign up

Already have an account? [Sign in here](#)

Learn With Us

Figure 3.31 Register section

- **Features section**

This section describes features offered by our website.

The screenshot shows the 'Services' section of the SHMA website. At the top, there is a navigation bar with links to Home, About, Services (which is the current page), Values, Courses, and Contact. Below the navigation, the title 'Services' is centered. The page contains six feature cards arranged in two rows of three:

- ONLINE CLASS**: This provides education institutions new opportunities to deliver content in ways that the students of today can relate to.
- DIRECT COMMUNICATION**: Chat rooms allow users from any location to join in, making them an ideal solution for conferences between multiple people.
- FREE COURSES**: We provide the best courses in Jordan for every grade for free.
- OUR TEACHERS**: We have the best teachers, makes you understand the subject with fun learning and very enthusiastic to teach and clears all your doubts.
- REWARDS**: Reward systems are positive outcomes that encourage continued learning. We provide them to encourage education not to be neglected.
- CONTACT**: To contact us to provide any comment or advice, criticism. To develop from our site.

Figure 3.32 Features section

- **Subjects section**

The subjects section demonstrates the popular subjects that are tutored on the website.

SHMA

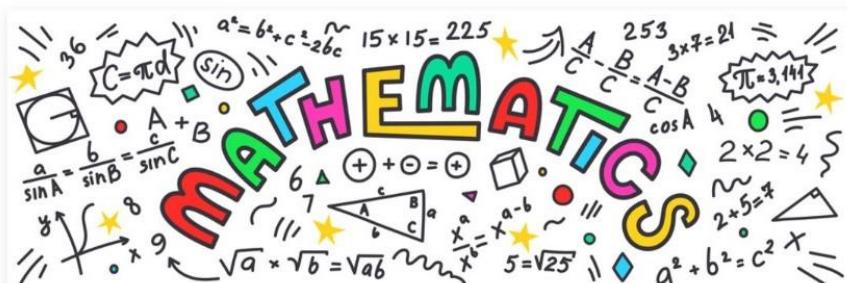
[Home](#) [Logout](#)

Welcome to our courses section



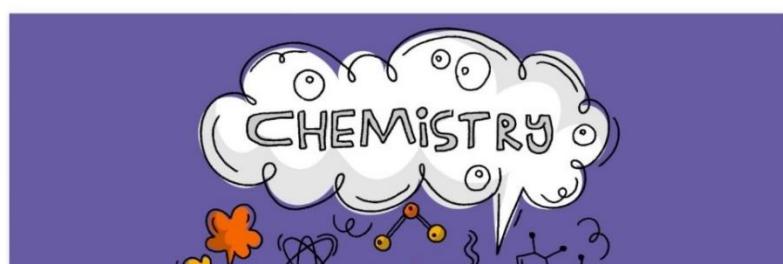
Please select the course you want to enroll

Welcome to our virtual school here you can find all the amazing courses we provide for every grade from elemntry to high school



Mathematics

[View Course](#)



Science

[View Course](#)

1 2 3

Figure 3.33 Subjects section

CHAPTER 4

PLAN OF FUTURE WORK

We plan to finish this project by the end of Fall/2021 semester as the following schedule:

Task Name	Duration	Start Date	End Date
1-Complete UI Design	14 days	24/6/21	7/7/21
2-Implementation	87 days	7/7	1/9/21
Client-Side implementation Review Server-Side implementation Review			
3-Testing	28 days	2/9/21	30/9/21
Perform System Testing Document Issues Found Correct Issues Found			
4- Deployment	29 days	1/10/21	29/10/21
Deploy Maintenance Review			

CHAPTER 4

IMPLEMENTATION

4.1 Web technologies

we can simply define web technologies is an establishment that is responsible for communication and sharing of resources of computers. There are a different types of web technologies starting from creating a web till deployment of the web application such as:

- 1- Creating and Styling a page
- 2- Animation or validation or get data or post data.
- 3- Unit testing framework.
- 4- Database.

4.2 Web development

4.2.1 Front-End

we can define front-end as an application is distinctly human. It's what the user sees, touches, and experiences. The frontend of an application is less about code and more about how a user will interpret the interface into an experience. in our web application tried to make a good UX and UI to make our application easy to use by using HTML, CSS, Java-Script, Bootstrap, and other libraries that support our purpose.

4.2.2 Back-End

we can define Back-End as area of web development that focuses on how a website or web application works. It is what happens behind the scenes.

in our application we used Node.js as programming language for several reasons such as that Node.js can interact with many different database languages including MongoDB, Node is extremely popular when you need a fast and convenient development cycle.

4.2.3 Framework

we can define the framework as a scaffold that you can build applications around. It's generally providing some base functionality which you can use and extend to make more complex applications from, there are frameworks for all sorts of things. *Microsoft MVC* framework is a good example of this.

We used Express.js as a framework, It's a free and open-source web application framework for Node.js. It is used for designing and building web applications quickly and easily. Web applications are web apps that you can run on a web browser. In addition, we used Bootstrap, it's used to make your web page in a responsive manner. Responsive in the sense

4.2.4 Data Base

A database is a collection of data. The data stored in database can be modified, retrieved, and deleted as per user needs. The data stored in database can be of any type like strings, numbers, and images etc. In our project we used MongoDB, it's an open-source database the executive's framework (DBMS) that uses a report situated database model which bolsters different types of information.

We used MongoDB because Its flexible schema makes it easy to evolve and store data in a way that is easy for programmers to work with. MongoDB is also built to scale up quickly and supports all the main features of modern databases such as transactions

4.2.5 API's

An API is a way that we enable a computer to use the program without a keyboard. It gives it a way to communicate with that program electronically.

Chapter 5

Testing AND EVALUATION

5.1 Testing

is a method to check whether the actual software product matches expected requirements and to ensure that the software product is Defect free. It involves the execution of software/system components using manual or automated tools to evaluate one or more properties of interest. The purpose of software testing is to identify errors, gaps, or missing requirements in contrast to actual requirements.

5.2 Validate

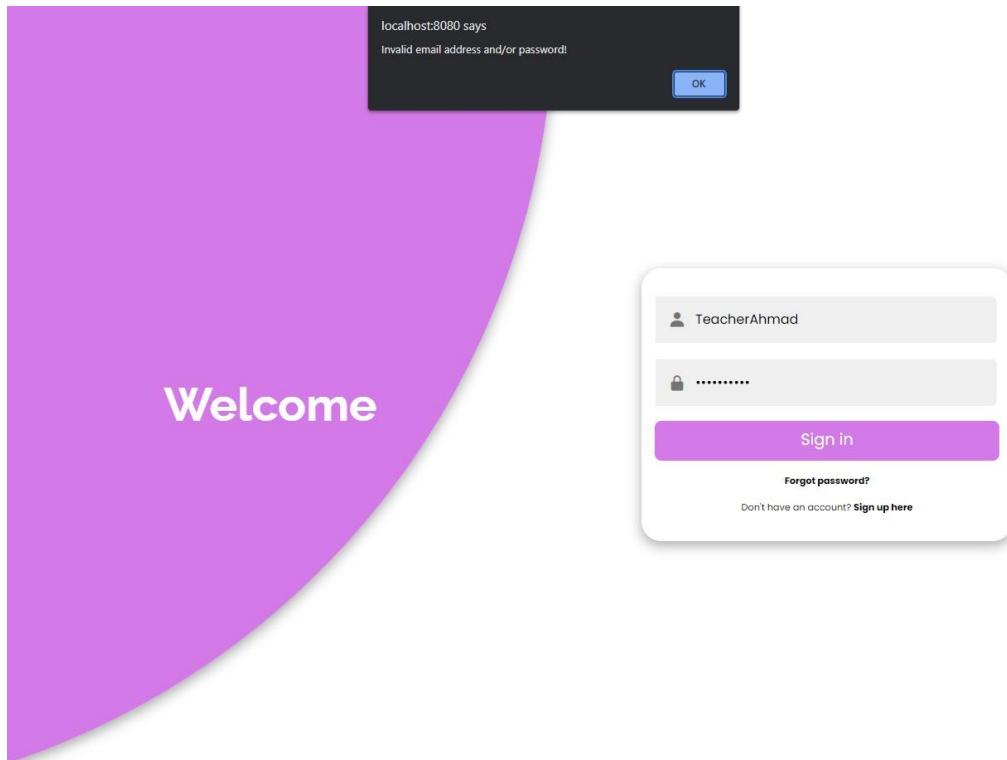


Figure 3.34 login Validate

5.3 Register section

- First and Last name at least 3 chars.

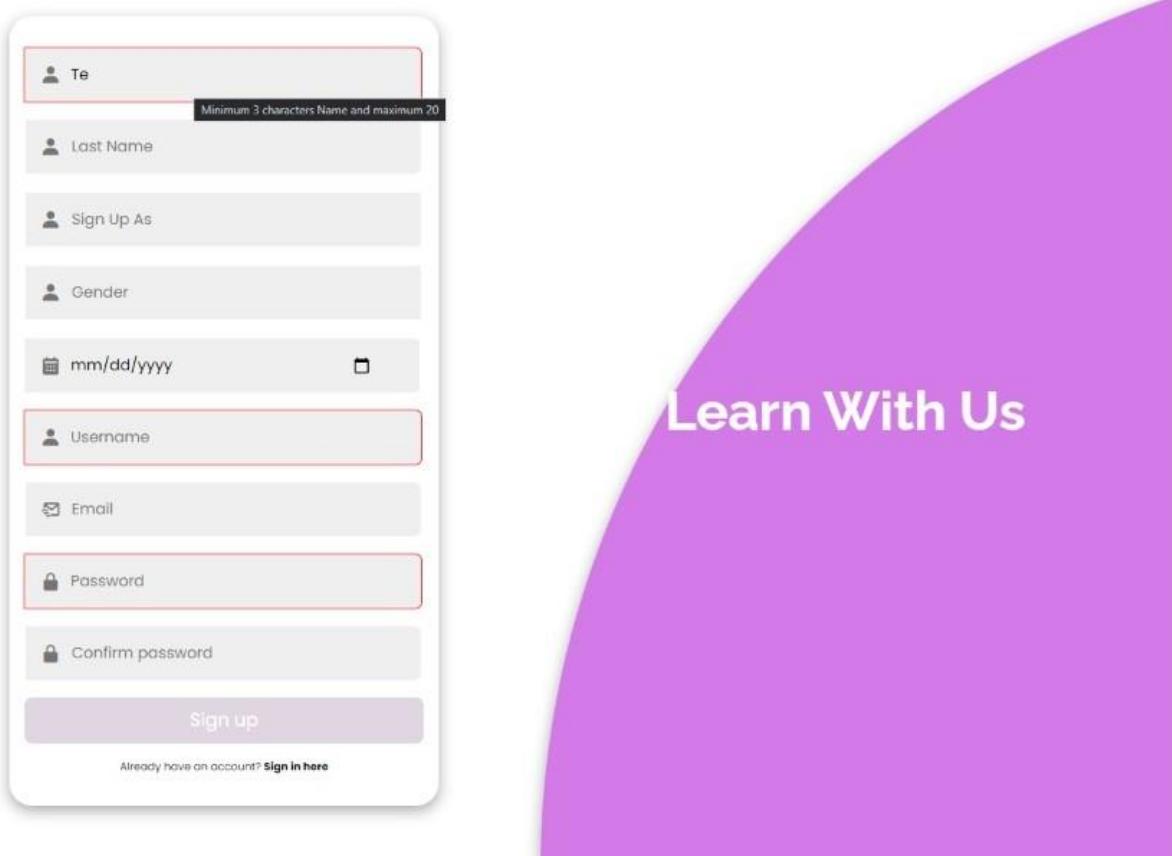


Figure 3.35 First and Last name validate

- The user selects his role.

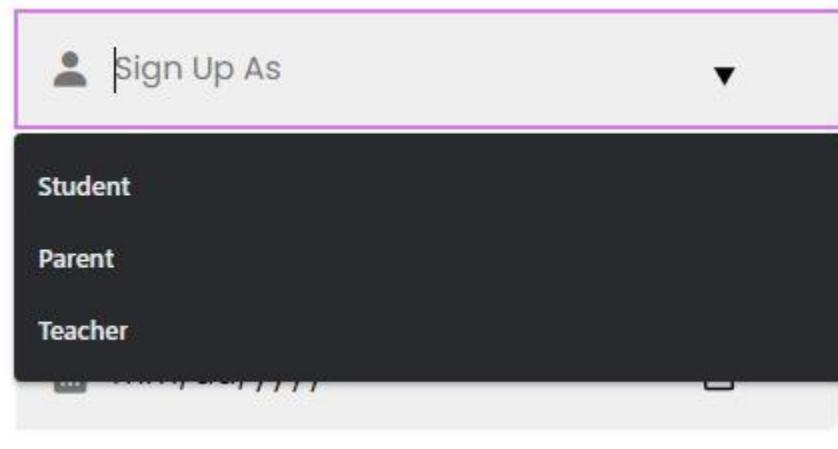


Figure 3.36 Select role

- The user selects his gender.

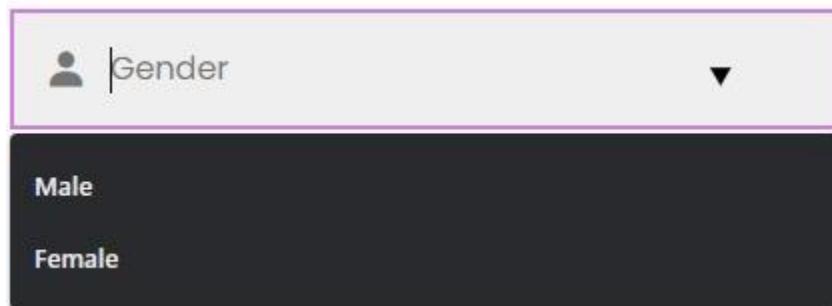


Figure 3.37 Select gender

- The username must be unique and have at least 3 chars and accept the symbol.

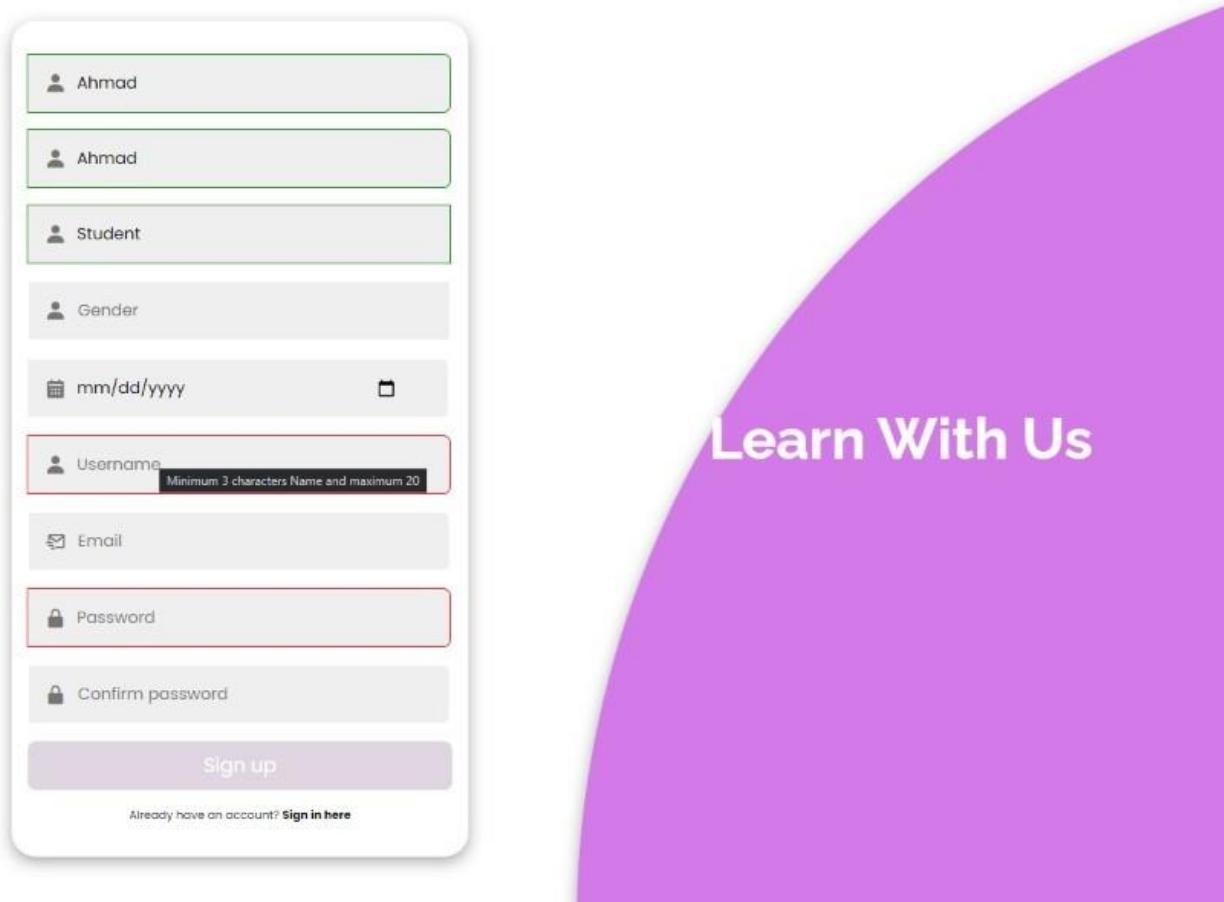


Figure 3.38 Create Username

- The email must contain the '@' symbol and (.com).

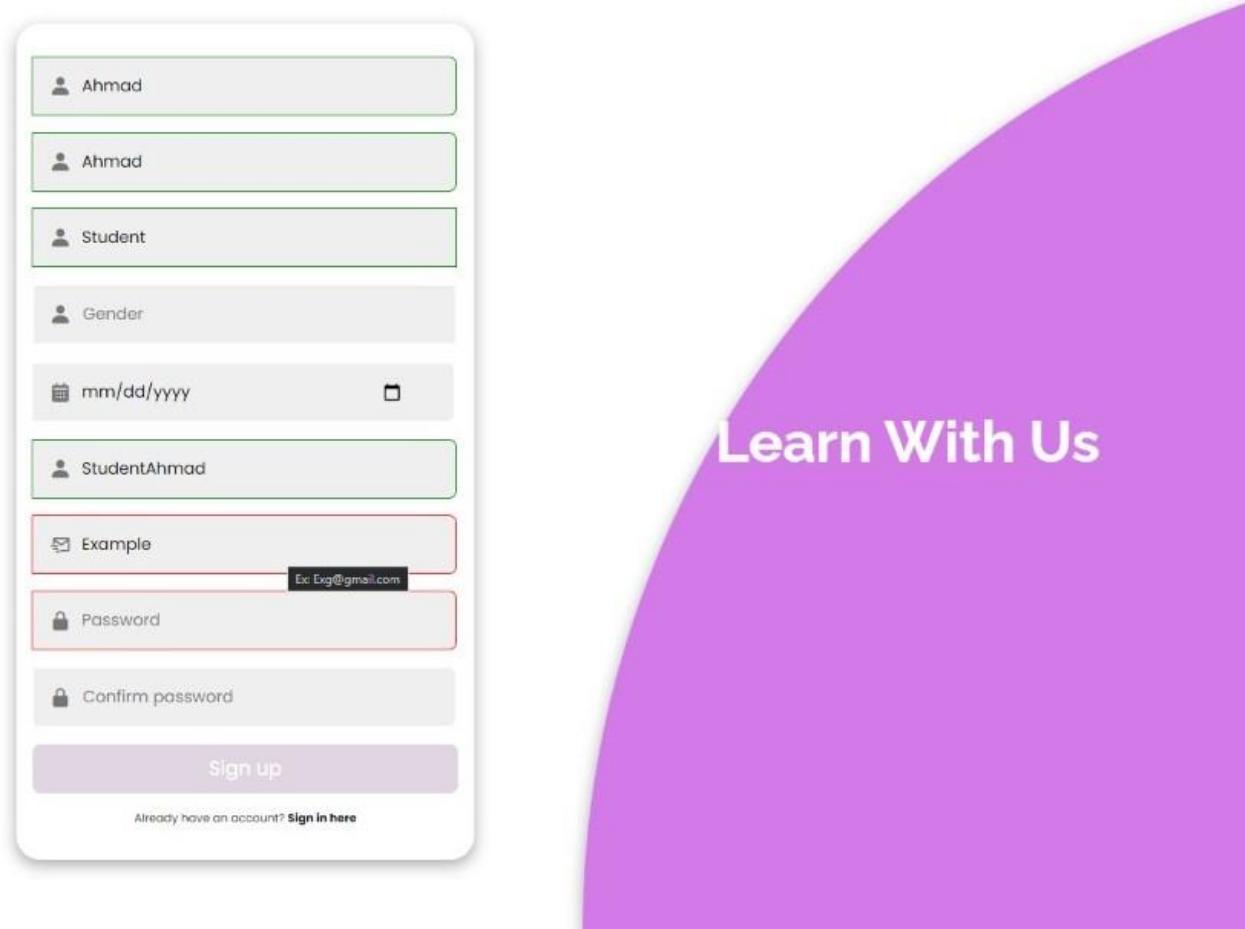


Figure 3.39 Create email

- the password must be at least 6 chars.

The image shows a mobile application interface for sign-up. At the top right, there is a large purple curved graphic with the text "Learn With Us" in white. The sign-up form itself has a light gray background and rounded corners. It contains the following fields:

- A text input field with a person icon and the placeholder "Ahmad".
- A text input field with a person icon and the placeholder "Ahmad".
- A text input field with a person icon and the placeholder "Student".
- A text input field with a person icon and the placeholder "Gender".
- A date input field with a calendar icon and the placeholder "mm/dd/yyyy".
- A text input field with a person icon and the placeholder "StudentAhmad".
- A text input field with an envelope icon and the placeholder "example@example.com".
- A text input field with a lock icon labeled "Password" and a small note "Minimum 6 Characters" below it.
- A text input field with a lock icon labeled "Confirm password".
- A purple "Sign up" button at the bottom.
- At the very bottom, a small note says "Already have an account? [Sign in here](#)".

Figure 3.40 Make password

- The confirmed password must be the same as the password.

A screenshot of a sign-up form for a learning platform. The form includes the following fields:

- First Name: Ahmad
- Last Name: Ahmad
- Gender: Student
- Date of Birth: mm/dd/yyyy
- Email: example@example.com
- Password:
- Confirm Password:

At the bottom of the form, there is a "Sign up" button and a link that says "Already have an account? [Sign in here](#)".

Learn With Us

Figure 3.41 Confirm password

- Sign up button will light up when every box is filled with the right information.

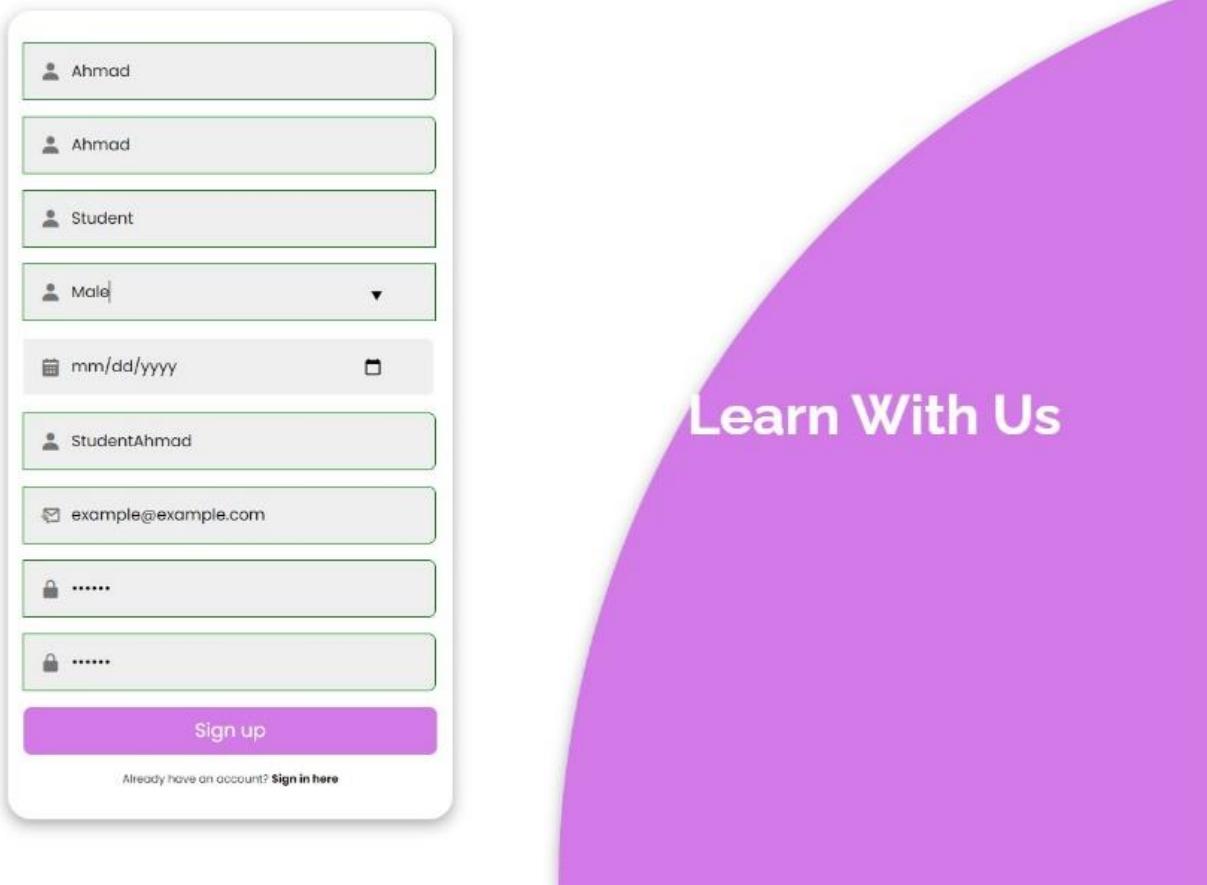
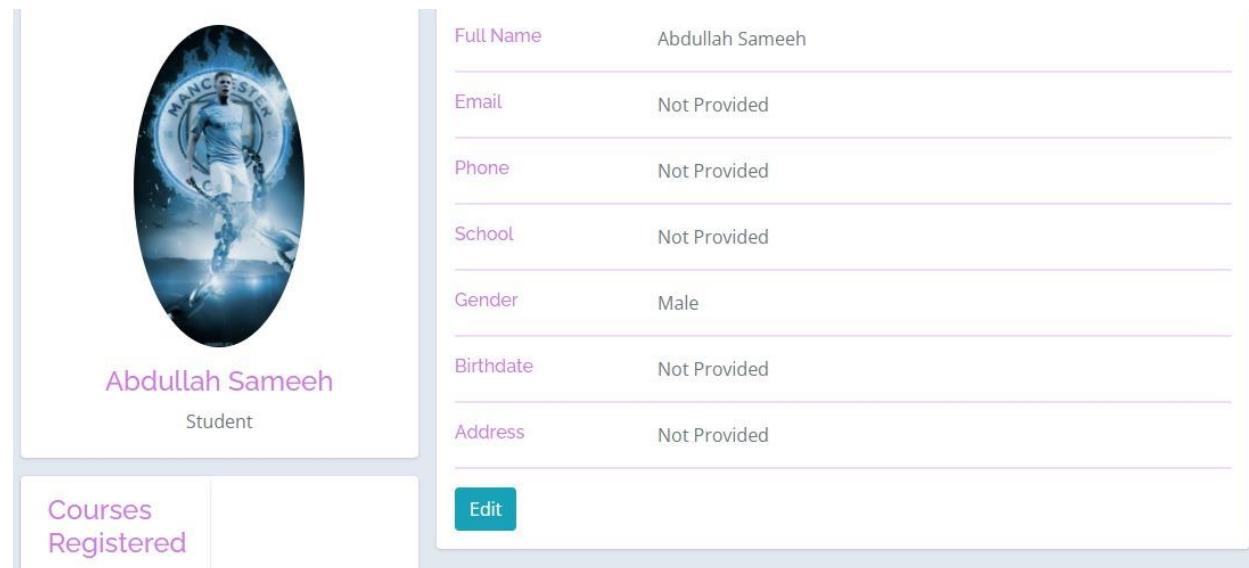


Figure 3.42 Sign up

5.4 Profile Section

the system will allow the user to edit his profile:

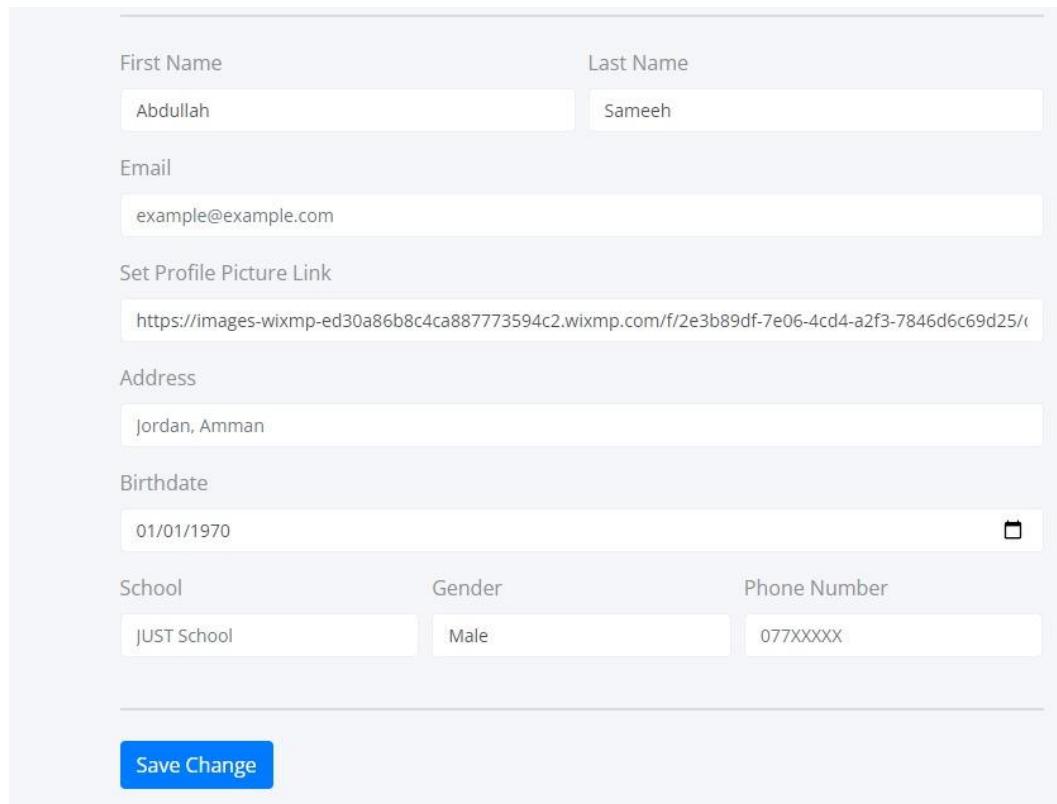


The screenshot shows a user profile section. On the left, there is a circular profile picture of a person in a Manchester City football kit. Below the picture, the name "Abdullah Sameeh" is displayed in purple, followed by the word "Student". To the right of the profile picture, there is a list of profile details in a table format:

Full Name	Abdullah Sameeh
Email	Not Provided
Phone	Not Provided
School	Not Provided
Gender	Male
Birthdate	Not Provided
Address	Not Provided

At the bottom of the profile section, there is a blue "Edit" button.

Figure 3.43 Profile Section



The screenshot shows an editing profile form. The form fields are as follows:

First Name	Last Name	
Abdullah	Sameeh	
Email		
example@example.com		
Set Profile Picture Link		
https://images-wixmp-ed30a86b8c4ca887773594c2.wixmp.com/f/2e3b89df-7e06-4cd4-a2f3-7846d6c69d25/		
Address		
Jordan, Amman		
Birthdate		
01/01/1970		
School	Gender	Phone Number
JUST School	Male	077XXXXX

At the bottom of the form, there is a blue "Save Change" button.

Figure 3.44 Editing Profile

Chapter 6

Conclusions

6.1 Achievements

After all, we have developed a website where any student can register by viewing the courses and tests posted by the teachers, to serve as many students as possible.

Teachers can also register with us, which gives them privileges to post their courses and follow students. All this through a safe and free learning environment that makes the teaching process more comfortable and flexible.

6.2 Findings

We have provided some excellent quality educational materials for all grades. In addition to the ability of the teacher to add his course. With a friendly design user interface suitable for everyone to start your task.

6.3 future works

The development of our site and its features will not stop here, as we aim to make it a widespread platform to benefit as many people as possible, and from the future works planned to add to it:

- Chat Rooms: To allow effective interaction between teacher and student, and students with each other. To take the educational process to a higher level
- Reward System: Rewards for students and teachers contribute to enhancing their self-confidence and motivating them to perform better and achieve other successes.

References

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2. <https://abwaab.me>.
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7. <https://www.toolsqa.com/software-testing/waterfall-model>.
8. <https://stackoverflow.com/questions/1844661/understanding-class-diagram>.
9. <https://www.w3schools.in/dbms/er-model/>.

APPENDICES

Appendix A

Meeting minutes

Date	Attendee	Summary	Achieved	New Problems
3/9/2021	All members	Discussed about the project name and ideas	Better understanding of the project and new name SHMA was chosen for our project	None
3/15/2021	All members	Gathering requirements and write about similar projects	Listed 5 to 6 websites to see the cons and pros.	None
3/22/2021	All members	We discussed the survey questions	Nothing	The questions were only specified to students
3/29/2021	Mahmoud,Abdullah	We discussed the new survey questions	Better version of the survey that targets the students' parents and the teachers	None
4/7/2021	All members	Better understanding of UML Diagrams	We wrote the system requirements	None

4/14/2021	All members	Better understanding of UML Diagrams	We Designed the Use Case diagram and the class diagram	None
4/19/2021	All members	Reviewing the UML diagrams	We designed the sequence diagram and the ER diagram	Modify all the diagrams
5/3/2021	All members	Explaining Database design and the UI	Designed Database tables and the UI	None
5/17/2021	All members	Discuss the project as a whole and suggested modification		Modify the whole project.
15/11/2021	All member	Arrange and discuss a project action plan	Getting started with the website work	None
12/12/2021	All member	Website design and user interface	We designed the best and simplest design in our view	some colors
2/1/2022	All member	API's & Database	We linked Frontend with Database	None
31/1/2022	All member	Testing	We tested the website	None

APPENDIX B

SURVEY QUESTIONS

١. Online education for schools

استبيان حول عملية التعلم الالكتروني في الأردن

*

هل انت؟

طالب

معلم

ولي امر

الطالب

الوصف (اختياري)

* الجنس

ذكر

أنثى

* العمر

6-9

10-13

14-18

المحافظة

تصن الإجابة القصيرة

* المرحلة الدراسية :

ابتدائي

اساسي

ثانوي

بنأيك ما هو الأفضل التعليم الوجاهي ام التعليم عن بعد ? *

التعليم الوجاهي

التعليم عن بعد

ما هو رأيك في التعليم عن بعد في فترة الوباء للمدارس؟ *

ممکن

جيد جدا

جيد

مقبول

ضعيف

* هل تفضل ان يكون التواصيل مع الاستاذ معطى المعلومة (الذى يقوم بشرح المادة على المنصة لجميع الطلاب) ام استاذ المدرسة ؟

معطى المعلومة

استاذ المدرسة

* هل تفضل ان تكون الدروس عن بعد بشكل مباشر ام بشكل مسجل ؟

مباشر

مسجل

* هل يوجد تفاعل بينك وبين المدرس على منصات التعلم الالكتروني ؟

نعم

لا

* هل تعتمد على المنصات الرسمية في دراستك ام وسائل اخرى ؟

المنصات الرسمية

وسائل اخرى

بعد مضي سنة على التعلم الإلكتروني هل ترى بأن مستوى التحصيل العلمي لديك في تحسن أم بقي كما في التعلم الوجاهي؟ *

في تحسن

بقي كما هو

* اذكر المنصات التي تستخدمها للتعليم عن بعد؟

درسك

جو أكاديمي

وتد

ابواب

غير ذلك...

* إلى ماذا تفتقر وسائل التعلم عن بعد في الأردن؟

التواصل المباشر بين الطالب والمعلم

حرم انترنت كافية

الالتزام بالحضور والغياب من الطالب

مراجعة وجود اجهزة الكترونية عدد الطالب

غير ذلك...

علم

الوصف (اختياري)

* الجنس

ذكر

أنثى

* العمر

23-33

34-44

45-55

56 or older

المحافظة

نص الإجابة القصيرة

* المرحلة الدراسية المكلف بها

ابتدائي

أساسي

ثانوي

* ما هو رأيك في التعليم عن بعد في فترة الوباء للمدارس؟

ممتاز

جيد جداً

جيد

مقبول

متحير

* بناءً على ما هو الأفضل التعليم الوجاهي أم التعليم عن بعد؟

التعليم الوجاهي

التعليم عن بعد

* هل يتم تنطيط كافة المناهج بصورة تامة؟

نعم

لا

* هل يوجد تفاعل بينك وبين الطالب على منصات التعلم الإلكتروني؟

نعم

لا

* هل تخصل المتابعة و المراقبة من قبل اولياء الامور في التعليم عن بعد؟

نعم

لا

* بعد مضي سنة على التعلم الإلكتروني هل ترى بأن مستوى التحصيل العلمي لدى الطالب في تحسن أم بقي كما في التعلم الوجاهي؟

في تحسن

بقي كما هو

اصبح أسوء

برأيك كمعلم هل ترى ذهابك الى المدرسة دون وجود الطالب مضيئه للوقت ام يساهم بالعملية التدريسية عن بعد؟ *

مضيء للوقت

يساهم بالعملية التدريسية عن بعد

هل برأيك الاختبارات تقام بشكل عادل من طرف وزارة التربية والتعليم؟ *

نعم

لا

هل تفضل ان يكون لك دور في العملية التدريسية ام متابعة واتراف؟ *

مشارك في العملية التدريسية

متابعة واتراف

هل هناك منصات تتيح لأولياء الامور انشاء حساب لمتابعة الابناء؟

نعم

لا

لا اعلم

ولي الامر

الوصف (اختياري)

* الجنس

ذكر

أنثى

* العمر

- 23-33
- 34-44
- 45-55
- 56 or older

المحافظة

نص الإجابة القصيرة

* ما هو رأيك في التعليم عن بعد في فترة الوباء للمدارس؟ *

ممتاز

جيد جداً

جيد

مقبول

ضعيف

* برأيك ما هو الأفضل التعليم الوجاهي أم التعليم عن بعد؟ *

التعليم الوجاهي

التعليم عن بعد

* هل تفضل المتابعة و المراقبة كولي امر في التعليم عن بعد؟ *

نعم

لا

* بعد مضي سنة على التعلم الإلكتروني هل ترى بأن مستوى التحصيل العلمي لدى الطالب في تحسن أم بقي كما في التعلم الوجاهي؟

في تحسن

بقي كما هو

أصبح أسوء

* هل يتم تغطية كافة المناهج بصورة تامة؟

نعم

لا

لا اعلم

* هل هناك منصات تتيح لأولياء الأمور إنشاء حساب لمتابعة الإيذاء؟

نعم

لا

لا اعلم

* إلى ماذا تفتقر وسائل التعلم عن بعد في الأردن؟

التواصل المباشر بين الطالب والمعلم

جرائم انترنت كافية

الانتمام بالحضور والغياب من الطالب

مراقبة وجود أجهزة الكترونية عند الطالب

غير ذلك...