Kingdom of Saudi Arabia
Ministry of Education Prince Sattam bin Abdulaziz University
College of Computer Engineeringand Sciences
Field Training Committee

المملكة العربية السعودية
وزارة التعليم
جامعة الأمير سطام بن عبد العزيز
كلية هندسة وعلوم الحاسب
لجنة التدريب الميداني

College of Computer Engineering and Sciences

Department of Software Engineering

(SE 4901)

Final Report

Training At

Deanship of Information Technology and Distance Education

جامعة الأمير سطام بن عبدالعزيز
PRINCE SATTAM BIN ABDULAZIZ UNIVERSITY
عمادة تقنية المعلومات والتعليم عن بعد

Start Date 16/12/1444.

End Date 01/02/1445

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Advisor / May Altulayan

Submission date 26/01/1445

1.Summary

The report describes the training experience at the Deanship of Information Technology and Distance Education (DITDE) at Prince Sattam bin Abdulaziz University (PSAU), which oversees and manages the university's IT infrastructure and distance education programmers.

The report contains Information about the Training Company, The training plan and requirements tools that I used to help me make projects (I mentioned them), the Objectives, a detailed description of work and achievement, a conclusion and recommendation, strengths and weaknesses that I faced during the training, and a reference

During the training, I worked on different projects that improved my skills and made me learn new things. I have made different reports about software quality assurance for a university system, tested Chabot, done data gathering and analysis using UML, worked with the backend side using API, and made a website that enables students to join training courses offered for free or for a fee. And know about modern methods of testing the quality of services, I have attended more than one course and more than one exhibition. And attend a lot of meetings.

2. Glossary

Name	Description
Software	Software is set of instructions that used to operate computer and execute tasks.
USE CASE	A use case diagram is that show the how user interacts with system and main functions
DFD	DFD display the movement between data and process or systems
ERD	ERD describe classes and entities in systems .
Workflow	Work flow diagram show the process step by step from start to end.
Unified Modeling Language (UML)	UML is a general-purpose, developmental, modeling that is intended to make way to visualize the design of a system.
Agile software development	an iterative approach to project management and software development that helps teams deliver value to their customers faster
Database	A database is an organized collection of information stored and accessed electronically
Database schema	The database schema is the blueprint of data base that show how the data deals with
Canva	Canva is an online graphic design tools that allow you to make different design
Postman	Postman is an API(application programming interface) development tool which helps to build, test and modify APIs
intellij	Is Integrated Development Environment (IDE) that provided to make software that written with java
XAMPP server	is a cross-platform web server web server that allows programmers to write and test their code on a local webserver.
Spring tool	Is application framework that control containers of java

Table1 Glossary table

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4. Introduction

Field training is an essential component of software engineering education programs, as it allows students to apply the theoretical concepts they have learned in the classroom to real-world software projects. Field training allows students to improve their practical skills and learn how to deal with the real-world challenges that software engineers face in their work.

Through field training, students learn how to interact with teams, communicate effectively with colleagues and clients, work effectively in a team, and solve problems collectively. Field training can help students improve their planning, design, development, testing, and project management skills.

In addition to improving practical skills, field training can help students expand their professional networks and meet professionals and software engineers working in various fields. These opportunities can open opportunities for students to find employment in the software industry after graduation.

Overall, field training is a valuable opportunity for students to learn, grow, and develop practical software engineering skills, expand their professional networks, and increase job opportunities in the future.

5. Training Company

The Deanship of Information Technology and Distance Education (DITDE) at Prince Sattam bin Abdulaziz University (PSAU) oversees and manages the university's IT infrastructure and distance education programs. The deanship is committed to providing students access to the latest technology and innovative learning opportunities.

The DITDE offers a variety of services to students, faculty, and staff, including computer labs, wireless internet access, and technical support. The deanship also manages the university's learning management system, which is used to deliver online courses and resources to students.

In addition to managing the university's IT infrastructure, the DITDE also oversees the development and implementation of distance education programs. These programs are designed to provide students with flexible learning options that allow them to complete their studies from anywhere in the world. The DITDE works closely with faculty members to develop high-quality, engaging online courses that meet the needs of today's students.

Overall, the Deanship of Information Technology and Distance Education at PSAU plays a vital role in supporting the university's mission to provide students with a world-class education that prepares them for success in the global marketplace. Through its innovative use of technology and commitment to excellence, the DITDE is helping to shape the future of higher education in Saudi Arabia. [1]

6. The Training Plan

Week	Starting Date	Expiry Date	Tasks	Team members
Week one	16/12/1444	18/12/1444	**Induction meeting includes** familiarity with the working environment, departments Supervisors and instructions for trainees	Work individually
Week two	21/12/1444	25/12/1444	**Software Quality Assurance:** Testing of Prince Sattam bin Abdulaziz University Scholarship System Website. Testing of the Chat Bot service provided at Prince Sattam bin Abdulaziz University Website.	Work individually
Week three	28/12/1444	02/01/1445	**System analysis:** The idea of a system was chosen, gathering requirements, then the system requirements were analyzed through a UML diagrams: use case, workflow, DFD,ERD . write the software requirements specification (SRS) and initial UI design.	Work collectively
Week four	05/01/1445	09/01/1445	**E-Learning Department (Blackboard):** Learn about the Blackboard environment, discuss Database Administration, technical support, and statistics.	Work collectively
Week five	12/1/1445	16/1/1445	**Software development:** Learn about how to make a database with Java and the Spring Boot framework. Postman is a tool used to test APIs.	Work collectively
Week six	19/1/1445	23/1/1445	**Software quality assurance:** Search for modern methods of testing the quality of services and write a report on it. Vehicle maintenance service and testing the quality of services and write a report on it.	Work collectively
Week seven	26/1/1445	1/2/1445	**System analysis** : make SRS for application lost and found that provide missing items found in universities	Work collectively

Table 2 Training plan table

7 . Work and achievement

7.1 Scholarship System

Scholarship application service allows faculty and administrative staff to apply for external or internal missions and monitor their request. Link

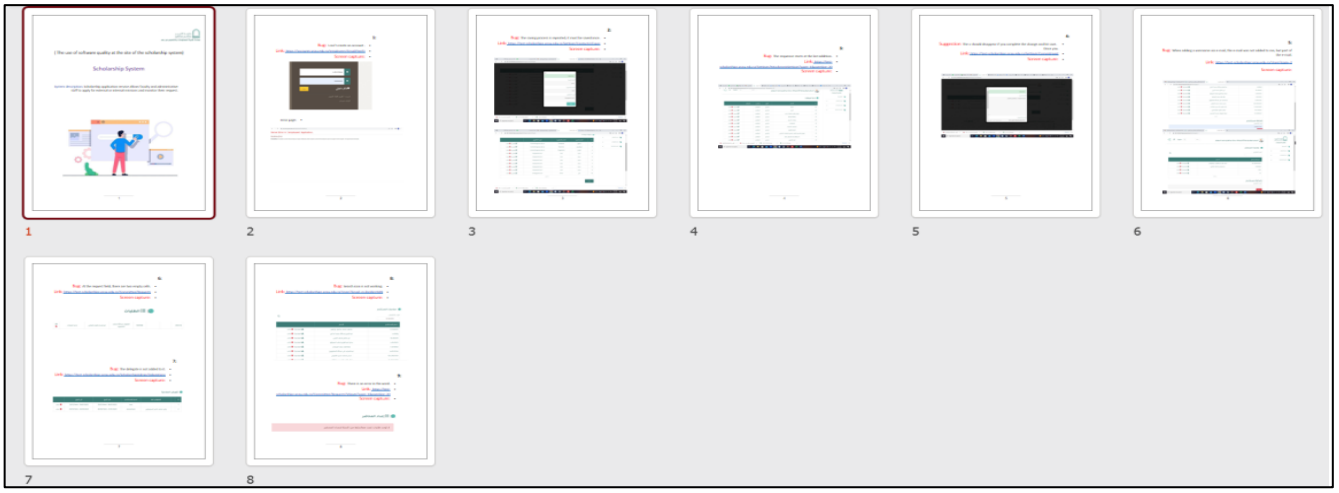


Figure 1 Scholarship system test report.

7.2 System Chabot

The Chat bot System uses artificial intelligence technology to provide visitors to the site with information and answers to questions about the university and its services. Link

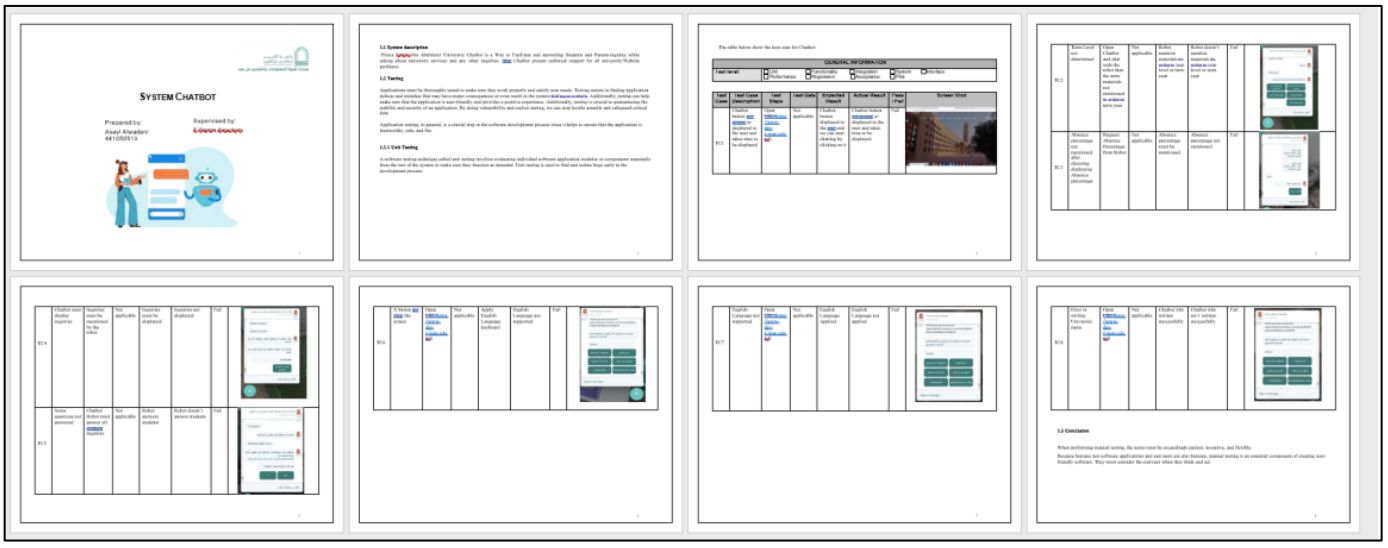


Figure 2 Chabot system test report

7.3 Training course system:

7.3.1 The idea of the system:

The creation of a website that enables students of the Faculty of Computer at Prince Sattam bin Abdulaziz University to join training courses that are offered free of charge or for a fee, as these courses will be held in person at the university or via the Internet through intermediate platforms for remote communication.

7.3.2 Problem:

Students and teaching staff seek to develop their skills and hobbies through training courses, but there needs to be a unified platform to register for and hold training courses. Instead, advertisements are sent through e-mail, in which you may lose the course announcement message among the enormous amount of advertising and warning messages. Because training courses are significant In the development of the individual, we seek, through the creation of a website specialized in training courses, to solve this Problem.

7.3.3 Methodology Agile:

Agile development methodology is software development that emphasizes collaboration, flexibility, and continuous improvement. It is based on the Agile Manifesto, which outlines guiding principles and values for software development, such as customer satisfaction, working software, and responding to change.so I use **Agile development methodology** to build the system to make .

In agile development, the software development process is typically broken down into a series of iterations or sprints, each involving stages or activities. Here are the typical stages in an agile development process that I have deploy in projects to facilitate it:

1. Planning
2. Development
3. Testing
4. Review
5. Deployment
6. Retrospective

7.3.4 Theoretical knowledge/courses used.

Knowledge and skills were used to implement and test websites effectively through my knowledge of programming languages, databases, web development technology, and testing methods to implement and test websites ; Finally, the practical skills were improved by applying the theoretical materials that were studied and making the most of them like: Software Requirements Analysis , Fundamentals of software engineering, dealing with data base , java and web design all of these help me to make project in a very professional way.

7.3.5 Equipment and Software

- ✓ visual paradigm software was used to design the analysis diagrams.
- ✓ The Canvas design program was used to visualize the system's initial interfaces (Prototype). [5]
- ✓ Microsoft SQL Server
- ✓ Intellij to write code in java
- ✓ XAMPP server to test code in webserver
- ✓ Postman to test api and make sure that is work

7.3.6 Data collection and analysis.:

In the data collection and analysis phase, we collected data on the project with the help of our supervisors in training and made data gathering on it to start in the analysis phases through software requirements specification and UML diagrams to make a visual representation of it through (use case, Workflow, DFD, ERD)

System Administrator:

1. Appointment of a training officer.
2. Acceptance of training courses.
3. Refusal of training courses.
4. Add evaluation question.

Entity responsible for the course:

1. Login.
2. Add a course.
3. Acceptance of those enrolled in the course.
4. Refusal to register for the course.
5. View the data of those registered in the session.
6. Preparing the trainees during the course.
7. View evaluation.
8. Notification of acceptance of the course.

Student:

1. Login using Nafath \ University Information.
2. View training courses.
3. View course details.
4. Register for a course.
5. Filter training courses: by selecting a specialization or college.
6. Assess the course by answering the survey questions.

7. Download the certificate.
8. Update profile data by adding skills and interests.

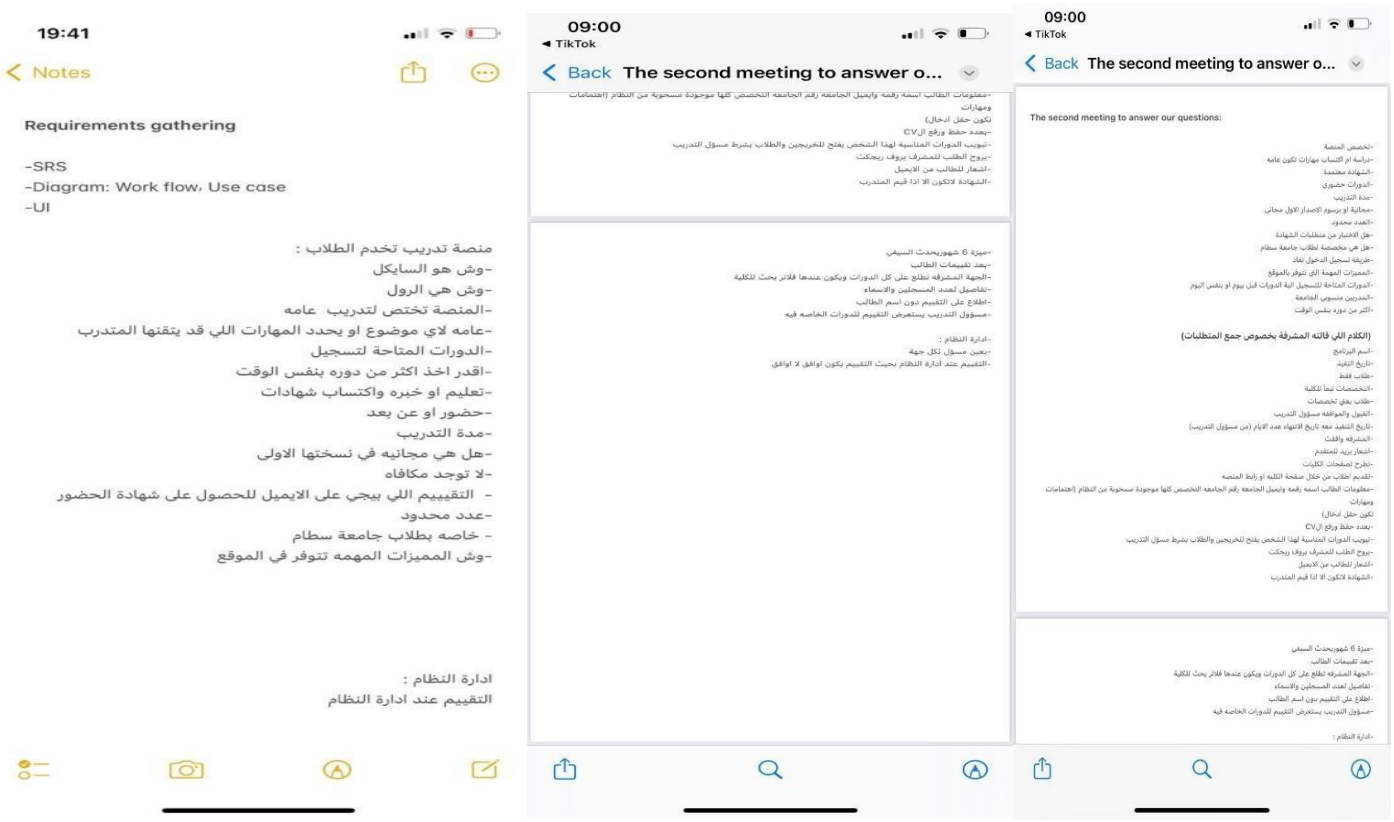
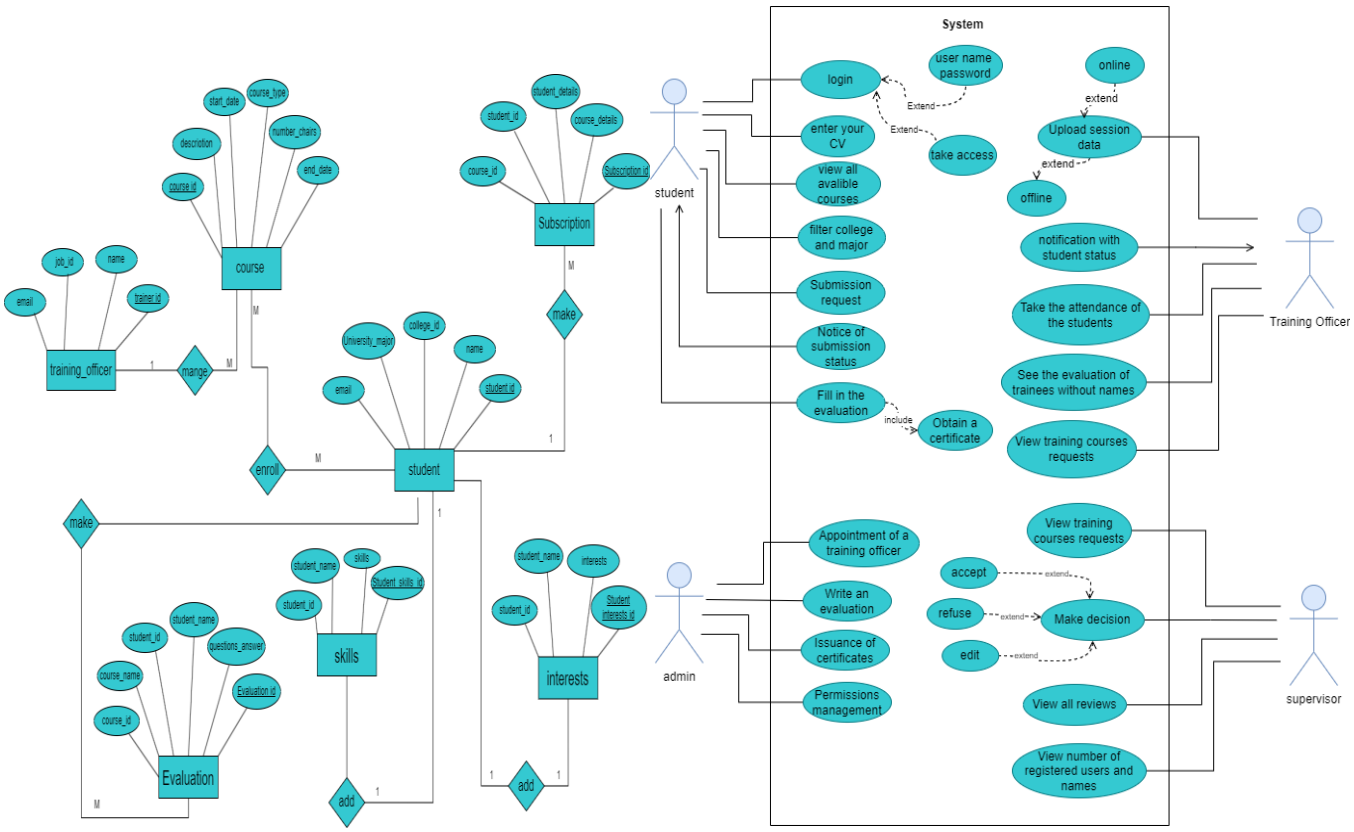


Figure 3 software requirements specification

Figure 4 Student training platform (SRS) [Link]

Figure 5 Change Request Student training platform [Link]

7.3.7 UML Diagrams :



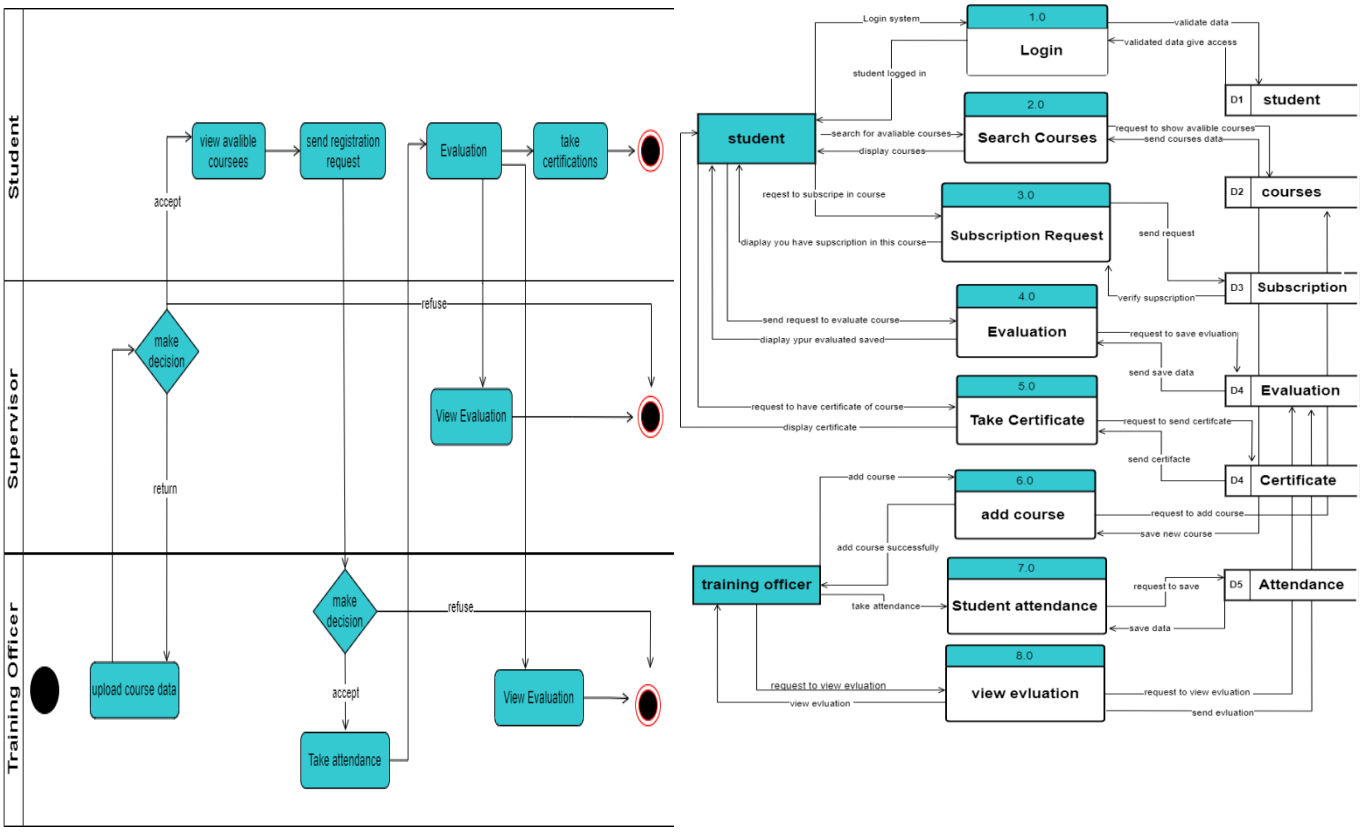


Figure 6 UML Diagrams (USE CASE , DFD , ERD , WORKFLOW)

7.3.8 Performance comparison between the proposed design and the previous designs:

7.3.8.1 Previous design:

Figure 7Snapshot of Previous design.

7.3.8.2 Proposed design:

Course Administrator Interfaces:

Figure 8 Interface to add an attendance training course.
Figure 9 The interface of adding an online training course.

Figure 10 Trainee attendance registration interface Student Interfaces
Figure 11 Login interface.

Figure 12 Profile view interface
Figure 13 Add skill interface.

Figure 14 Add hobby interface

Figure 15 Course display interface.

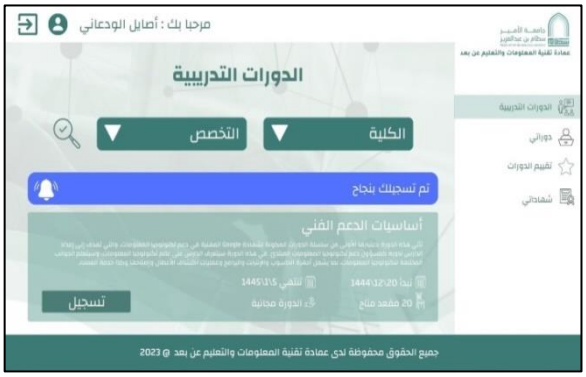


Figure 16 Course enrollment interface.

Figure 17 Interface displaying the courses registered in it.

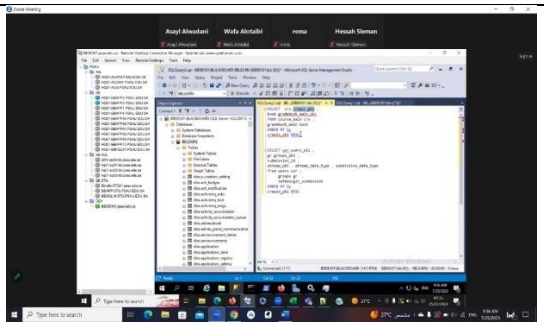
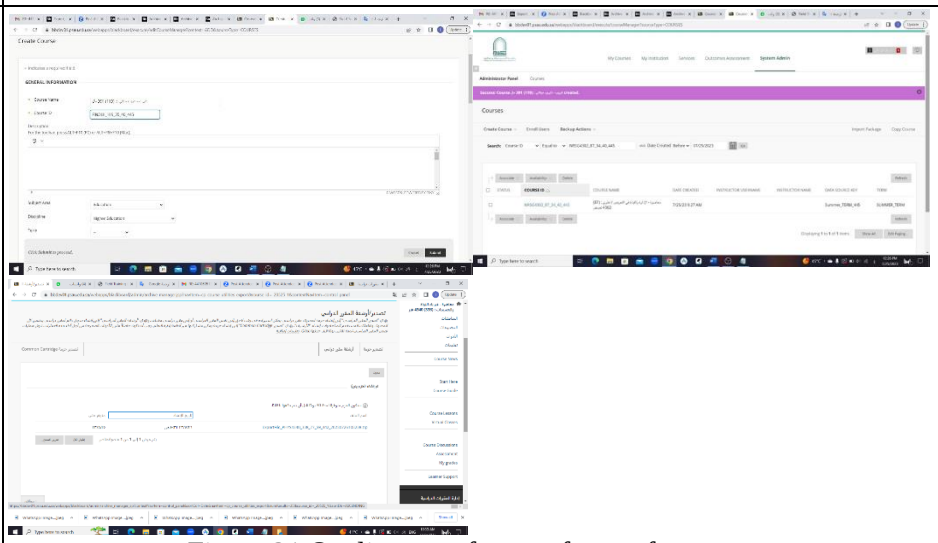
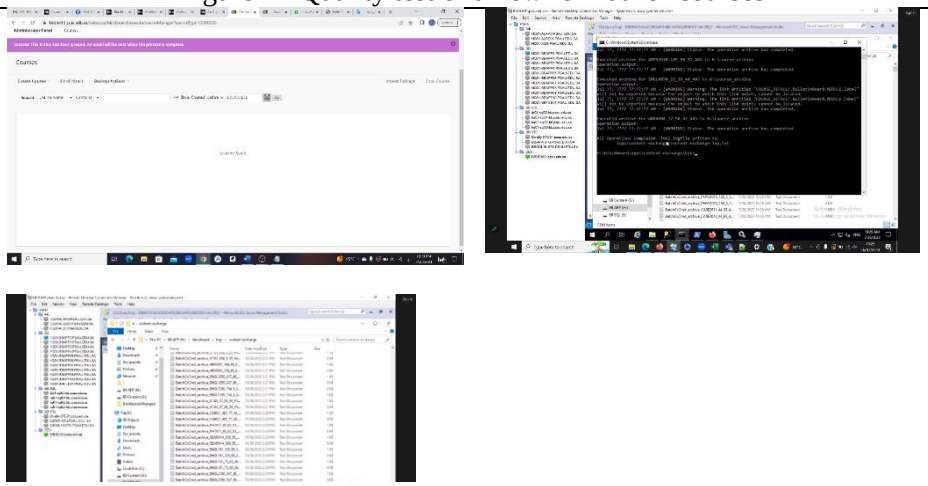
Figure 18 Course evaluation interface.

Figure 19 Certificate download interface.

7.4 E-Learning Department (Blackboard):

7.4.1 Database Administration

Table 3 Database Administration

Query: The process of retrieving data from the database, analyzing it, arranging it, and displaying it in a specific way. **Code 1**: Inquire about each course with its related materials in the system. **Code 2**: Query about all users and their submissions of duties on the system [7]	 Figure 20 Query code
Create a course. **Export and Import**: Operations convert data from one format to another. Users can export data from databases to files such as Excel or CSV, and data from such files can be imported into databases. [8]	 Figure 21 Quality test of a new format for courses
Archiving: the process of storing data and information in an organized manner suitable for future retrieval. Archiving is used in databases to keep old and essential data accessible at any time for review or use [9]	 Figure 22 Archive for the course

7.4.2 Statistics of the Saudi Electronic University

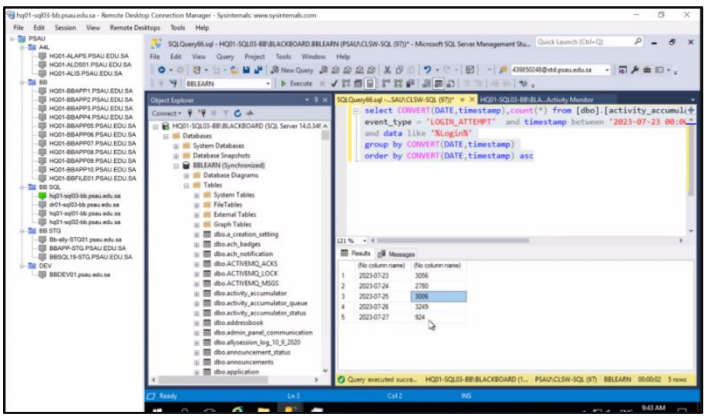


Figure 23 Questionnaire form
Figure 24 Login stats

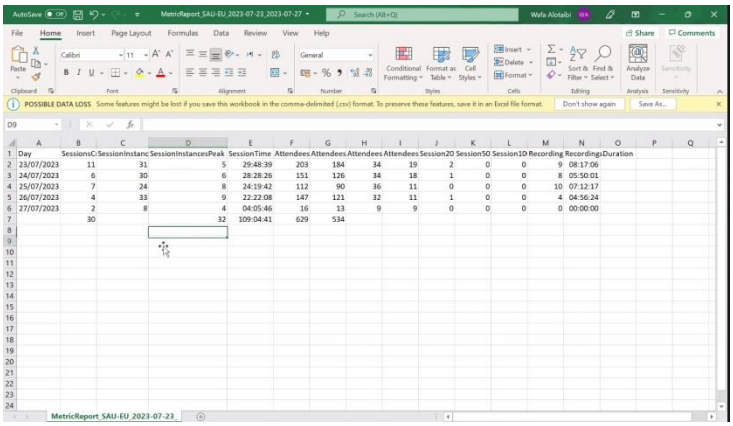


Figure 25 Blackboard session stats

7.4.3 technical support

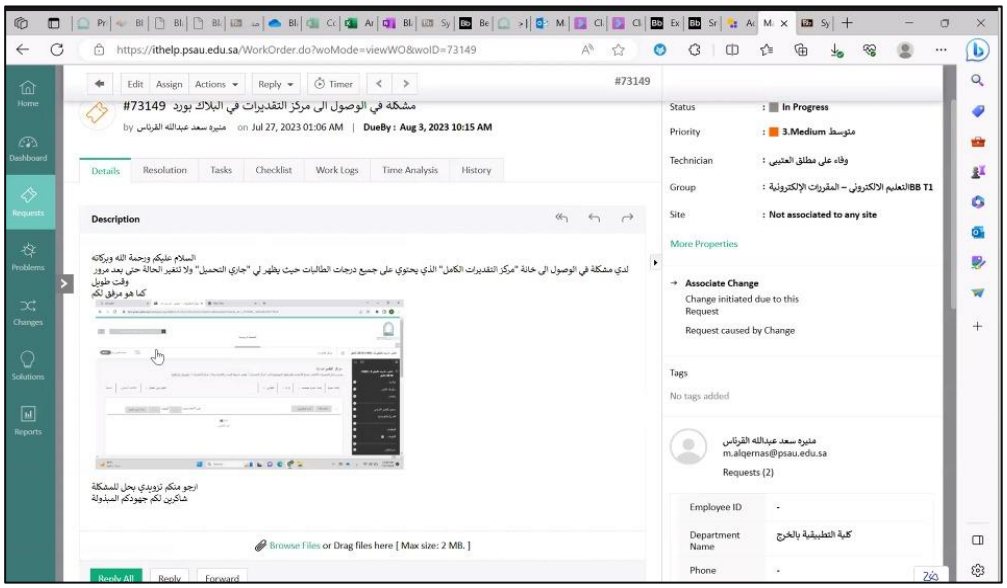


Figure 26 Problem messages across the Blackboard

Figure 27 Blackboard problem request:

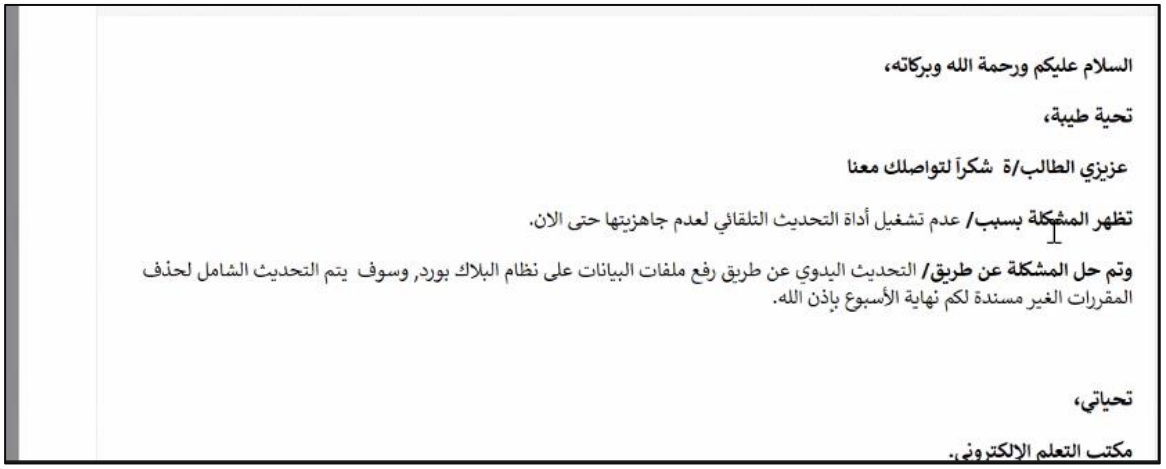


Figure 28 Answer and solve the problem

7.5 devices services management system:

A Controller that receives requests from the User has been created and several methods have been added to implement the required operations.

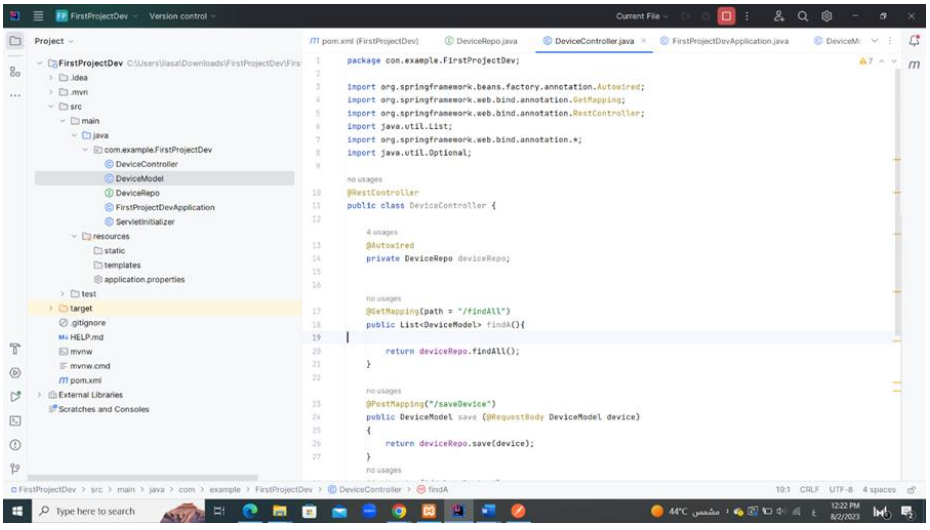


Figure 29 code 1 for controller

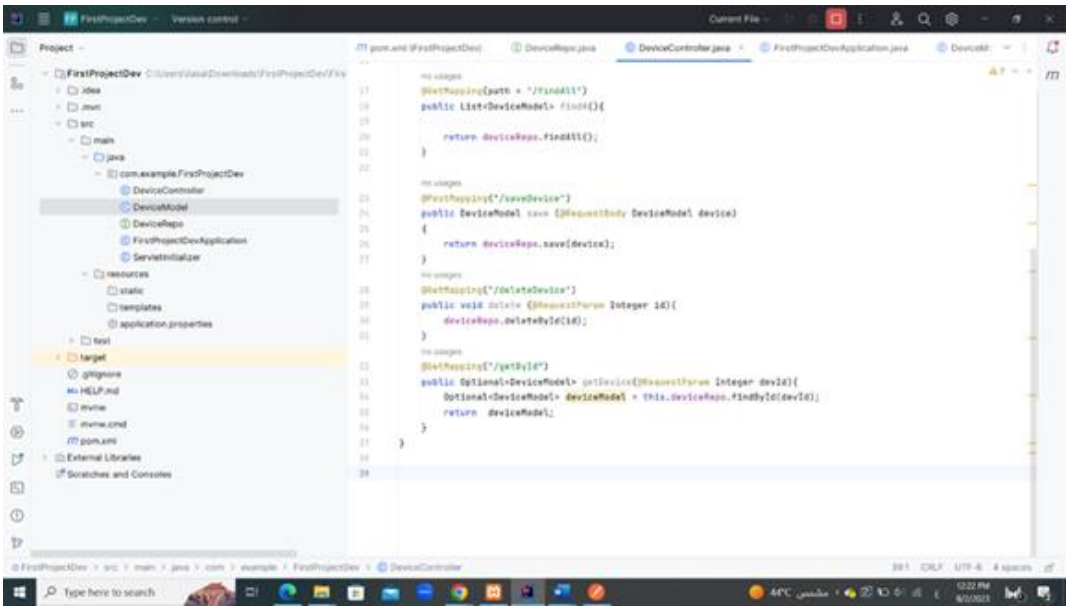


Figure 30 code 2 for controller

7.5.1 Findall:

All APIs have been tested using the Postman tool, and photos demonstrating their appropriate operation and proper interaction with database tables are included in each API test report.

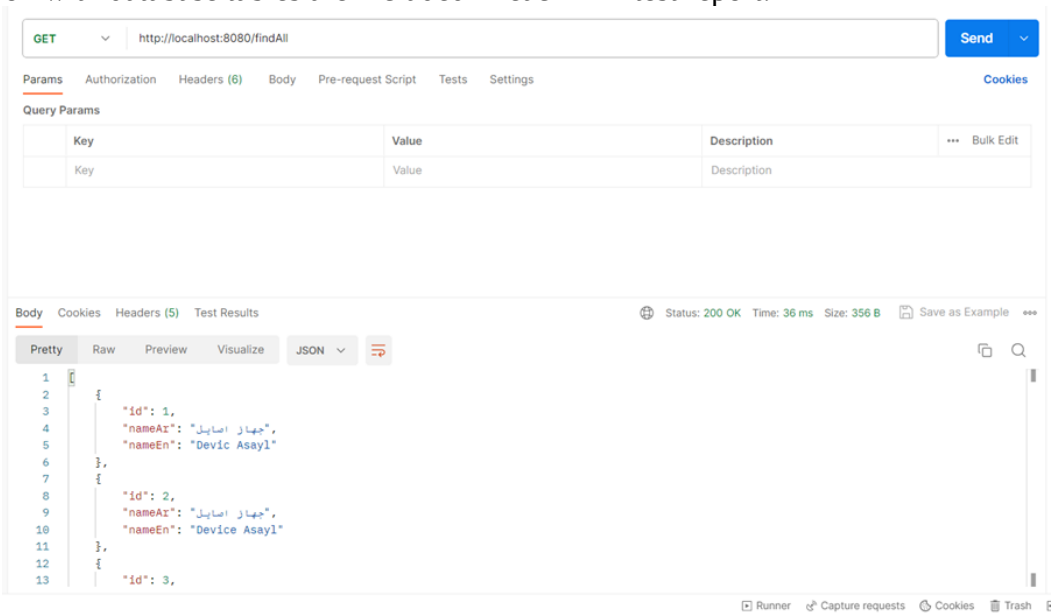


Figure 31 Postman

This is an overview of the Postman test, and the rest of the photos are the same way(findall,Save, GetById, Delete, Update).

7.5.2 employee management system:

In this report I have created a data base for employee and use all options available from find all ,add, delete ,

update and so on . Link

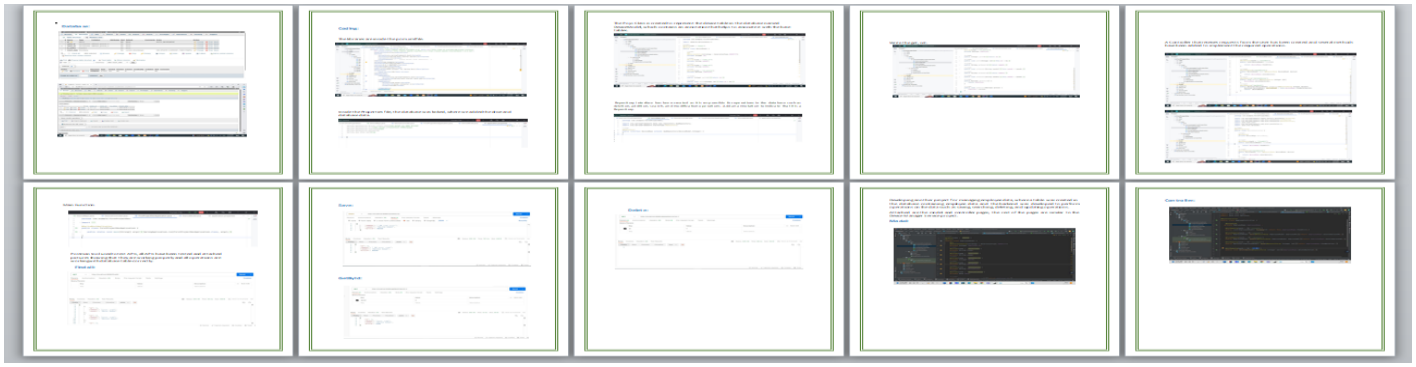


Figure 32 devices services management system and employee management system report

7.6 Vehicle maintenance service

It is for the upkeep of vehicles provided by the university to staff and faculty members. If this vehicle requires maintenance, they can enter the service center and make a request. Link

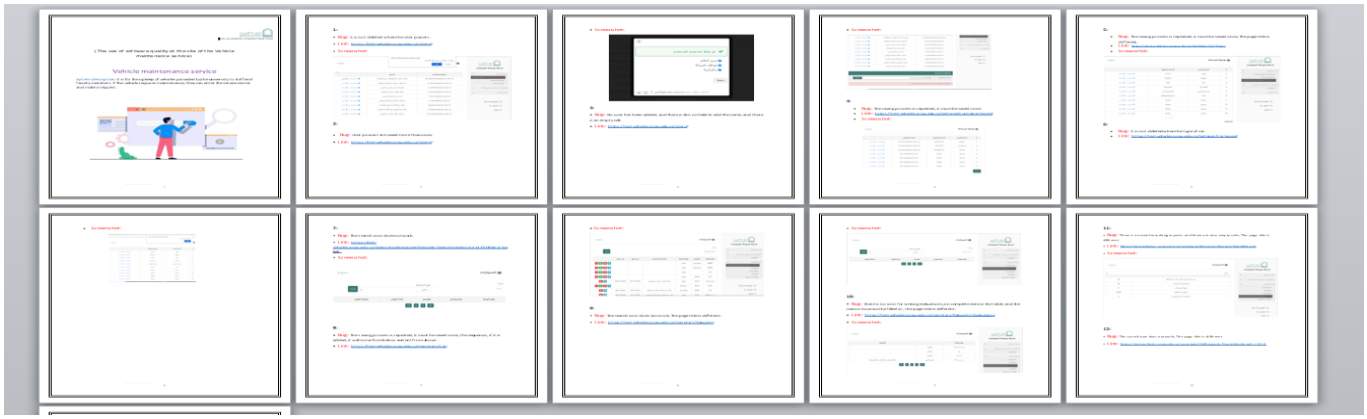


Figure 33 Vehicle maintenance service report

7.7 Modern methods of testing the quality of services

In this report, all modern methods of testing the quality of services have been studied as a result of the expansion of communications and the Internet.. Link

Figure 34 Modern methods of testing the quality of services report

7.8 System analysis for application(Lost and found)

An app that saves lost things at the university, because many students lose their stuff at the university, and that's will save them a lot of trouble. we will work on SRS (software requirement specification)for this project describing services and systems and defining users and their functions and functional and non-functional of the system. the application will provide the ability to upload lost things and search for lost things and ability to make chat with the admin.

الفكرة :

وجدتي

مشكلة: المشكلة التي يهدف هذا التطبيق إلى حلها هي مشكلة العناصر المفقودة والموجودة في الجامعات ، غالبًا ما يضيع الطلاب أو يفقدون متعلقاتهم ، وبدون وجود نظام مناسب ، قد يكون من الصعب إسترداد العناصر المفقودة. بالإضافة إلى ذلك ، قد يكون الأمر مضيعة للوقت ومرهقًا للمسؤولين لإدارة العناصر المفقودة والعثور عليها يدويًا.

الحل: يتمثل الحل المقترح في تطوير تطبيق جوال يعمل كمنصة للطلاب للإبلاغ عن العناصر التي تم العثور عليها وللمكتب المفقود والموجود لإدارة العناصر المفقودة والعثور عليها. سيكون للتطبيق

دورين رئيسيين للمستخدم:
الطالب والمسؤول. سيعمل موظفو المكتب المفقودون والموجودون كمسؤول عن التطبيق وسيتمكنون من الوصول إلى جميع وظائف التطبيق.

سمات:
تقرير العناصر التي تم العثور عليها: الشخص الوحيد الذي يمكنه تحميل عنصر مفقود هو المسؤول)موظفو المكتب المفقودون والموجودون(. يمكن للطلاب الإبلاغ عن العناصر التي تم العثور عليها عن طريق إحضارها إلى المكتب المفقود والعثور عليه. نشر العناصر

المفقودة والعثور عليه:
يمكن للمسؤول النشر عن العناصر المفقودة والعثور عليها على تطبيق الهاتف المحمول ، بما في ذلك وصف العنصر والموقع وتاريخ ووقت العثور عليه أو الإبلاغ عنه. عرض العناصر المفقودة والعثور عليها: يمكن للطلاب عرض العناصر المفقودة والعثور عليها على صفحتهم الرئيسية لتطبيق الهاتف المحمول.

Figure 35 lost and found application

الدردشة مع المسؤول:
يمكن للطلاب الدردشة مع المسؤول من خلال تطبيق الهاتف المحمول للاستعلام عن العناصر المفقودة أو لطلب مزيد من التفاصيل حول العناصر التي تم العثور عليها.

تحرير ملف التعريف: يمكن للطلاب تحرير ملفات التعريف الخاصة بهم وتحديث معلوماتهم الشخصية. عرض منشورات الأحداث: يمكن للمسؤول النشر حول أحداث المدرسة القادمة على تطبيق الهاتف المحمول ، والتي ستكون مرئية لجميع الطلاب.

في الختام ، سيوفر تطبيق الهاتف المحمول المقترح حلاً مناسبًا وفعالًا لإدارة العناصر المفقودة والعثور عليها في الجامعات ، حيث يعمل موظفو المكتب المفقودون والموجودون كمسؤول رئيسي. بالإضافة إلى ذلك ، سيبقي التطبيق الطلاب على اطلاع
بأحداث الجامعة ، ويسمح لهم بالتواصل بسهولة مع موظفي المكتب المفقودين والموجودين

Figure 36 lost and found application

8. Conclusion and Recommendations

In conclusion, through the training, I have learned a lot of things:

- know about software requirements and work with them through data analysis and gathering to make software requirements specifications functional and non-functional, and deal with UML diagrams(Use cases, workflows, DFD, ERD) , and database schemas and apply them to projects in order to improve the effectiveness and understanding of the project and to make it easier to do so.
- Dealing with Software Quality Assurance testing on the Prince Sattam bin Abdulaziz University Scholarship System website and Chabot service is provided on it.
- know about modern methods of testing the quality of services and Vehicle maintenance services and testing the quality of services.
- UI for the website.
- Make a website with Java and the Spring tool and test it with Postman.

In my opinion, the training at DITDE was a great choice, and I have to earn a lot of experience that will help me in my career. It definitely fulfilled the objective of training. Although we didn't finish the project because of the short time, but we learned a lot of things.

Throughout my journey, some strengths helped me: instructors who were friendly and helpful, tasks related to my major that helped me make it in the right way; daily follow-up to make sure that there was no confusion with us; team spirit among us was perfect. On the other hand, the weaknesses and difficulties were that the amount of work was to some extent large.

In my opinion, it is good that after graduation we take complementary training to help us enter the life of the process and the market and learn new things such as designing websites and applications using different languages.

Finally, I have learned a lot of things and gained new skills during training. how to search effectively, how to make tests of systems, how to end tasks on time, and how to work in a team.
My journey in the DITDE company was useful to me, and I learned a lot of things and improved my skills. I suggest it to students because it will help them learn new things and skills in their careers.

9.Appendices

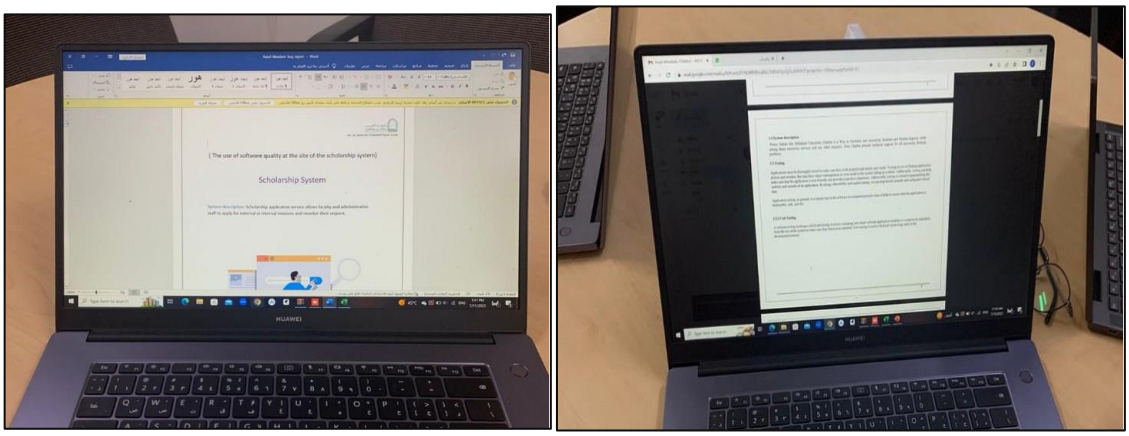


Figure 37 week2- Meeting with the administrator to talk about the website for Emission System of Prince Sattam bin Abdulaziz University. Meeting with the administrator to talk about the Chabot.

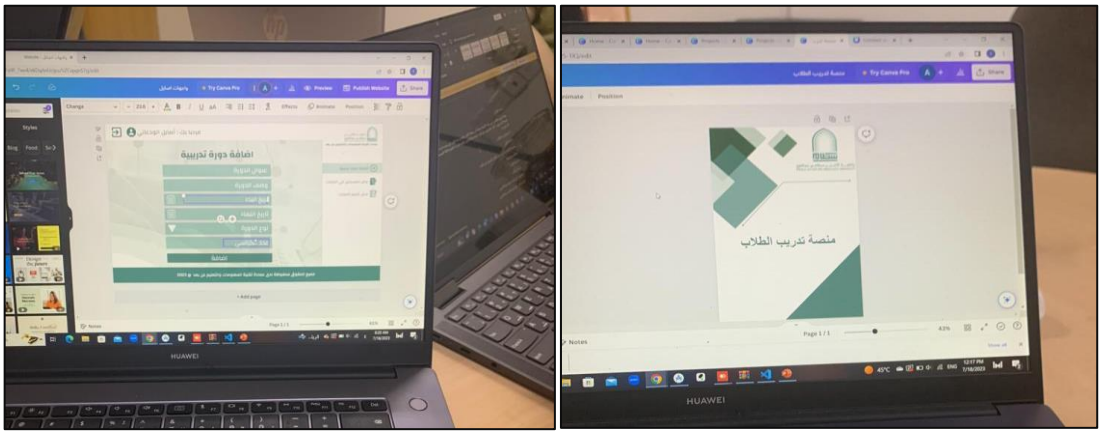


Figure 38 week3 - Wednesday meeting about SRS of system and design

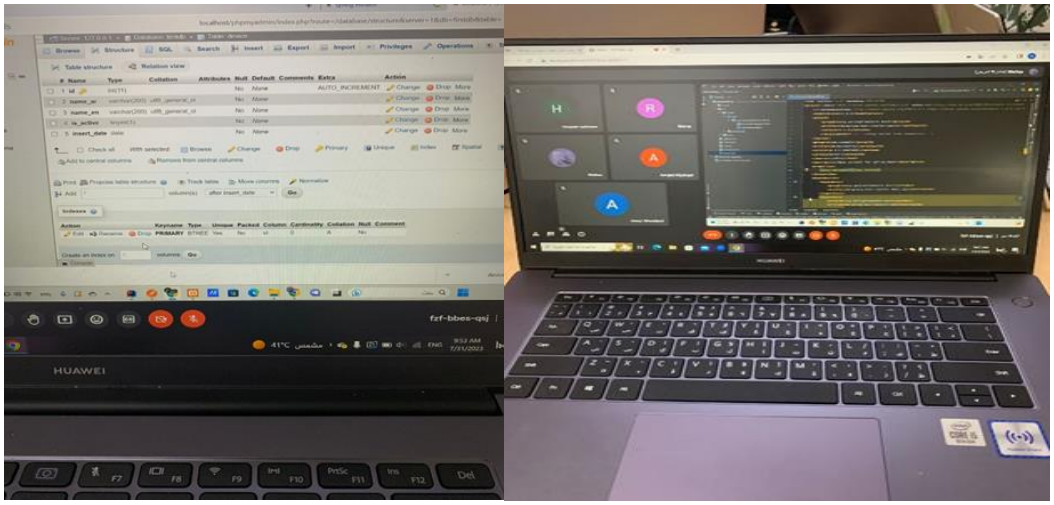


Figure 39 week 5 device and employee management

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