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College of Computer and Information Technology

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Automating Internship Management System for University Students

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Dedication

To those who have been the light in my path and the support in every step I take.

To those who planted the seeds of ambition in me, watering them with prayers, patience, and love.

To my dear parents, thank you for everything.

To my brothers and friends, you are an irreplaceable companion.

To my esteemed teachers, who have never held back their knowledge and guidance.

I dedicate this humble project, the fruit of hard work and sleepless nights, to everyone who has had an impact on my journey.

Abstract

Training internships are a crucial component of university education, providing students with practical experience and bridging the gap between theoretical knowledge and real-world applications. However, traditional internship management systems suffer from inefficiencies, including manual paperwork, communication gaps, and lack of real-time tracking.

This project proposes a web-based Automated Internship Management System to streamline the internship process for universities, students, and training organizations. The platform offers a centralized portal where students can register for internships, submit required documents, and track their progress. Supervisors and training institutions can monitor student performance, provide evaluations, and approve necessary documents digitally.

Key features include automated registration, real-time progress tracking, digital evaluation forms, electronic signatures, and smart notifications. Additionally, the system provides data analytics to help universities assess the overall effectiveness of their internship programs. By digitizing and optimizing the internship workflow, this project aims to enhance efficiency, improve communication, and ensure a seamless experience for all stakeholders.

الملخص

يغدّ التدريب العملي ركناً أساسياً من أركان التعليم الجامعي، إذ يزوّد الطلاب بالخبرة العملية ويسهّل التواصل بين المعرفة النظرية والتطبيقات العملية. ومع ذلك، تعاني أنظمة إدارة التدريب التقليدية من بعض أوجه القصور، بما في ذلك الأعمال الورقية اليدوية، وضعف التواصل، ونقص التتبع الفوري.

يقترح هذا المشروع نظاماً آلياً لإدارة التدريب عبر الإنترنت لتبسيط عملية التدريب للجامعات والطلاب ومؤسسات التدريب. تُوفّر المنصة بوابةً مركزيةً تمكّن الطلاب من التسجيل في التدريبات، وتقديم المستندات المطلوبة، ومتابعة تقدمهم. كما يمكن للمشرفين ومؤسسات التدريب متابعة أداء الطلاب، وتقديم التقييمات، واعتماد المستندات اللازمة رقمياً.

تشمل الميزات الرئيسية التسجيل الآلي، وتتبع التقدم الفوري، ونماذج التقييم الرقمية، والتوقعات الإلكترونية، والإشعارات الذكية. بالإضافة إلى ذلك، يُوفّر النظام تحليلات بيانات تساعد الجامعات على تقييم الفعالية العامة لبرامج التدريب الخاصة بها. من خلال رقمنة سير عمل التدريب وتحسينه، يهدف هذا المشروع إلى تعزيز الكفاءة، وتحسين التواصل، وضمان تجربة سلسة لجميع أصحاب المصلحة.

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List of Abbreviations

Word	Abbreviation
CSS	Cascading Style Sheet
HTML	Hyper Text Markup Language
DB	Database
PHP	Hypertext Processor
UML	Unified Modeling Language
SQL	Structured Query Language

Chapter One Introduction

1.1 Introduction

Internships are a fundamental component of university education, providing students with hands-on experience, enhancing their skills, and allowing them to interact with realworld work environments. Through internships, students can apply the theoretical knowledge they have gained in their academic studies, which helps develop their problem-solving abilities, decision-making skills, and adaptability to various professional settings. Additionally, internships offer students the opportunity to acquire essential soft skills such as communication, teamwork, and time management, making them more competitive in the job market.

Despite their importance, traditional internship management systems face numerous challenges that hinder their efficiency and effectiveness. Most universities still rely on manual processes and paperwork, which lead to delays in student registration, administrative approvals, and tracking student progress. Furthermore, communication between students, academic supervisors, and training institutions is often unstructured and inefficient, relying on outdated methods such as email and in-person meetings, which result in lost information and slow responses to critical inquiries. Additionally, universities struggle with assessing student performance due to the lack of standardized evaluation methods, leading to inconsistencies in assessment criteria and difficulties in extracting meaningful insights for improving internship programs.

On the other hand, training institutions also encounter difficulties in managing interns, as the process of onboarding, assigning tasks, and monitoring student performance requires significant time and effort. Without a streamlined system, organizations may struggle to optimize the internship experience for both students and mentors. Academic supervisors, too, face challenges in efficiently tracking student progress, providing feedback, and managing internship-related paperwork, which can be time-consuming and complex.

With the rapid advancement of digital transformation, there is an urgent need for modern technological solutions to overcome these challenges and enhance the internship experience for all stakeholders. This project aims to develop an Automated Internship Management System, a web-based platform that digitizes and streamlines all administrative processes related to internships. The system will enable students to register for internships easily, upload required documents, select suitable training institutions, and track their progress throughout the internship period. It will also provide academic supervisors and training organizations with smart tools to monitor student performance, send feedback, and conduct evaluations electronically, thus improving the quality of training, reducing administrative burdens, and ensuring a more efficient and seamless experience for all parties involved.

The system will incorporate features such as online registration, digital document management, smart evaluation tools, electronic signatures, automated notifications, and advanced analytics to help universities optimize their internship policies based on realtime data insights. By implementing these digital solutions, this project aims to revolutionize the internship management process, enhance the efficiency of academic

training, improve student employability, and foster stronger collaboration between universities and the job market.

1.2 Problem Definition

Internships play a crucial role in bridging the gap between academic learning and professional practice. However, traditional internship management systems suffer from several inefficiencies that hinder students, academic institutions, and training organizations from fully benefiting from the internship experience. The lack of automation, real-time tracking, and centralized communication leads to numerous challenges that affect the overall efficiency and effectiveness of the internship process.

One of the primary issues in traditional internship management is the heavy reliance on manual paperwork. Universities still require students to submit physical documents for registration, approvals, and evaluations, leading to delays, errors, and administrative burdens. Additionally, the absence of a centralized platform results in disorganized communication between students, academic supervisors, and training institutions, making it difficult to track student progress, provide timely feedback, and address issues effectively.

Another major challenge is the inefficient tracking and monitoring of student performance. Many universities lack structured evaluation methods, making it difficult to assess students consistently. Without an automated tracking system, supervisors and training institutions struggle to monitor students' attendance, task completion, and skill development. This results in inconsistent assessments and a lack of data-driven insights that could improve internship programs.

Furthermore, the coordination between universities and training institutions is often weak, leading to difficulties in internship placements. Students may face challenges in finding suitable internship opportunities due to a lack of integration between academic institutions and industry partners. Additionally, training organizations may find it difficult to manage and assess multiple interns simultaneously, especially without a digital system to facilitate the process.

Overall, the lack of a structured, automated, and transparent internship management system creates inefficiencies, increases the workload on academic and training staff, and reduces the effectiveness of the internship experience. This project aims to address these challenges by developing an Automated Internship Management System that will digitize the entire internship process, providing a centralized platform for students, universities, and training institutions to collaborate efficiently. Through automation, real-time tracking, and data-driven insights, the proposed system will streamline operations, enhance communication, and ensure a more structured, effective, and beneficial internship experience for all stakeholders.

1.3 Objectives

1.3.1 Main Objectives

- **Automate and manage the internship process:** Develop a comprehensive digital system to facilitate student registration, evaluation, and progress tracking.
- **Enhance communication and coordination:** Create a centralized platform that connects students, academic supervisors, and training organizations for seamless information exchange.
- **Improve student performance tracking:** Provide digital tools for supervisors to monitor student progress in real time and offer continuous feedback.
- **Ensure high-quality evaluation and supervision:** Implement a standardized and effective evaluation system based on academic and professional criteria to ensure fair and accurate assessments.
- **Reduce administrative and paperwork burdens:** Replace traditional paper-based processes with a fully integrated electronic system to save time and improve operational efficiency.

1.3.2 Specific Objectives

- Develop an online registration system that allows students to select suitable training organizations and apply easily.
- Create an interactive dashboard for academic supervisors to track student reports and engage with them effectively.
- Implement an automated notification system to remind students and supervisors of important deadlines and requirements.
- Design a digital evaluation system based on standardized performance reports and feedback from training organizations and academic supervisors.

1.4 Importance of the Project

This project is of great significance in improving the management of internships by automating and enhancing the traditional process, which heavily relies on paperwork and manual coordination. By developing a comprehensive digital system, the project helps reduce administrative burdens and saves time and effort, enabling universities and training institutions to organize processes more efficiently. It also enhances communication and coordination between students, academic supervisors, and training organizations through a centralized platform that ensures real-time availability of information, reducing issues related to delays and misunderstandings.

Furthermore, the project provides students with a structured and transparent training experience, helping them keep track of their progress through performance tracking tools and continuous feedback. It also ensures standardized and fair evaluation of

students through a digital evaluation system based on unified academic and professional criteria, ensuring that students are assessed on objective grounds.

On the other hand, the project strengthens collaboration between universities and training industries, making it easier for organizations to find and identify suitable talent through an organized database. It also provides data analytics to help universities improve internship programs based on accurate, actionable insights. Ultimately, this project contributes to increased transparency and accountability in all stages of the internship process, ensuring an effective and organized training experience for all stakeholders involved.

1.5 Scope & Limitation

1.5.1 Scope

- **Geographical Scope:**

The project is designed to be adaptable to universities and training organizations worldwide, with a focus on higher education institutions. Initially, the system may be piloted in specific regions or countries, but it has the potential for global scalability.

- **Target Users:**

The system is intended for use by **students, academic supervisors, and training organizations**. It will serve as a centralized platform for managing internships, tracking performance, and facilitating communication among all stakeholders.

Functional Scope:

- **Registration and Application:** Students will be able to apply for internships and select training organizations through an online system.
- **Progress Tracking:** Academic supervisors will have access to tools for monitoring student performance in realtime, providing feedback, and evaluating students based on predefined criteria.
- **Evaluation System:** A unified digital evaluation system will be implemented, where both supervisors and training organizations can assess students' progress and performance during their internships.
- **Communication Platform:** The system will provide a communication channel for students, supervisors, and training organizations to interact and share important updates, feedback, and reports.
- **Analytics and Reporting:** The system will generate reports and insights for universities to evaluate the effectiveness of internship programs and improve future offerings based on data-driven decisions.

- **Document Management:** The system will handle electronic approvals, signatures, and the storage of internship-related documents, making the entire process paperless and streamlined.

1.5.2 Limitation

- **Technological Barriers:**
While the system is designed to be user-friendly, there may be challenges in adoption by institutions with limited access to modern technology or poor internet infrastructure. Some users may face difficulties in navigating the platform, especially in less tech-savvy environments.
- **User Training and Support:**
Successful implementation will require comprehensive training for students, academic supervisors, and training organizations to ensure effective usage of the platform. Insufficient training may lead to underutilization of system features or incorrect data entry.
- **Limited Customization for Different Educational Systems:**
The system may need adjustments to suit different educational systems, grading standards, and internship requirements across regions. While the platform aims to be adaptable, there may be cases where specific requirements are not easily met, necessitating custom development.
- **Dependency on External Training Organizations:** The success of the system relies on active participation from external training organizations. If these organizations do not fully adopt or integrate the system into their processes, the overall impact may be limited.
- **Scalability and Performance:**
While the system is designed to scale, there may be performance challenges when dealing with large numbers of users (students, supervisors, training organizations). The infrastructure may need to be upgraded over time to accommodate growing user demand.

1.6 Report Structure

The rest of report structures as following:

Chapter One: Introduction.

Chapter Two: Background.

Chapter Three: Related Work.

Chapter Four: Methodology.

Chapter Five: Analysis.

Chapter Six: Proposed System.

Chapter Seven: Implementation.

Chapter Eight: Evaluation.

Chapter Nine: Conclusion & Future Work.

1.7 Summary

The first chapter present an introduction to the project, presentation of the problem, what the objectives of the project, so the importance of the project, the new Scope of the project.

Chapter Two

Background

2.1 Introduction

This chapter presents the idea of the project and what programming languages were used in the development of the website.

2.2 Project Idea

The project aims to develop an automated system for managing internships for university students. This system will replace the traditional, paper-based methods of tracking student progress, communicating with stakeholders, and managing data, which are often inefficient and prone to errors.

The proposed platform will provide a centralized digital solution where students can apply for internships, supervisors can track their progress in real-time, and institutions can manage all internship-related tasks seamlessly. The system will include features such as real-time updates, streamlined communication between students, academic advisors, and training organizations, and standardized evaluation tools.

By implementing this platform, the project seeks to improve the efficiency, transparency, and overall experience of internship management, benefiting students, universities, and training organizations alike.

2.3 Programming and Markup Language

To develop the automated internship management system, the following programming and markup languages will be used for front-end, back-end, and database development. These technologies will help ensure that the platform is efficient, scalable, and user-friendly.

Front-End Development (User Interface)

The front-end is responsible for the visual elements and interactivity of the platform. It is the part of the application that users (students, supervisors, and institutions) will directly interact with.

- **HTML (Hyper Text Markup Language):**
The fundamental language used to create the structure of the web pages, including elements like text, images, forms, buttons, and links.
It defines the structure of the user interface (UI).
- **CSS (Cascading Style Sheets):**
Used to style the web pages. It controls the layout, fonts, colors, and the overall look of the platform.
CSS ensures that the platform is responsive and adapts to different screen sizes (desktops, tablets, and smartphones).
- **JavaScript:**

A scripting language that enables interactive features such as form validation, dynamic content loading, and updates without needing to reload the page.

Used to improve the user experience by making the platform more engaging and responsive.

Back-End Development (Server-Side)

The back-end handles all the server-side logic, including processing data, managing user requests, and interacting with the database.

- **Laravel (PHP):**

Laravel is an elegant PHP framework that follows the Model-View-Controller (MVC) architecture. It simplifies web application development by providing tools for routing, database interaction, user authentication, and security features.

Laravel's Eloquent ORM will be used to interact with the database, providing a clean and easy-to-understand way to manage data related to students, internships, feedback, and more.

Laravel also provides built-in features like form validation, authentication, authorization, and task scheduling, making it a suitable choice for back-end development.

Database Management

Databases are essential for storing, retrieving, and managing the data related to students, supervisors, internships, and feedback.

- **MySQL:**

A widely-used relational database management system (RDBMS) that is well-suited for storing structured data, such as user profiles, internship applications, evaluations. MySQL works seamlessly with Laravel's Eloquent ORM, making it easy to interact with the database.

Version Control and Collaboration

- **Git:**

A version control system that allows developers to track changes in the codebase and collaborate with team members.

Git ensures that the project remains organized and allows for efficient collaboration between developers.

Hosting and Deployment

- **Amazon Web Services (AWS):**

A cloud platform that offers services like EC2 (for virtual servers), RDS (for database hosting), and S3 (for storage).

AWS ensures the platform is scalable and reliable.

2.4 Summary

The chapter presented the idea of the project what it consists of and talked about the programming language that were used in the development of the website.

Chapter Three

Related Work

3.1 Introduction

This chapter presents previous websites that have been searched for comparison with the site that is currently being worked on.

3.2 Case Study 1

Field Training System – College of Administrative Sciences and Information Systems, PPU Evaluation:

- **Performance:** The system performs well within its scope, especially for the local context at PPU. It provides useful tools for monitoring and evaluation, ensuring that students and supervisors stay on track.
- **Effectiveness:** It effectively addresses the needs of students and faculty in managing field training. However, its effectiveness is mostly limited to PPU, and it may not perform as well in a broader context.
- **Ease of Use:** The system appears user-friendly for the students and faculty at PPU, with its simple interface and well-defined functionalities.
- **Scalability:** Limited scalability as it is designed specifically for PPU. Extending it to other institutions would require significant modifications and adjustments.
- **Innovation:** The system offers basic functionalities that address core problems, but it lacks advanced features that could enhance user experience or efficiency in larger contexts.

Overall Rating: 7/10

While it serves its intended purpose well within PPU, it has limitations in terms of scalability and applicability to other institutions.

3.3 Case Study 2

Proposed Electronic Field Training System – University of Palestine Evaluation:

- **Performance:** The proposed system appears to offer a solid solution for managing and monitoring field training. It includes key features for tracking student progress and facilitating communication between involved parties.
- **Effectiveness:** If implemented properly, it can be highly effective for universities in Palestine. However, its effectiveness will depend on the level of customization required by individual universities.
- **Ease of Use:** The design and structure of the system might need further refinement to ensure it's as userfriendly as possible for all stakeholders.

- **Scalability:** The system appears to be more adaptable to different universities, particularly within Palestine, but extending it globally might be challenging without further development.
- **Innovation:** The system introduces digital monitoring and supervision, but it lacks innovative features that could make it stand out from other systems.

Overall Rating: 6.5/10

While the proposed system addresses key issues, its lack of advanced features and limited scalability restrict its potential for wider implementation.

3.4 Case Study 3

Field Training System – Prince Sattam Bin Abdulaziz University

Evaluation:

- **Performance:** This system provides an excellent platform for managing field training with a comprehensive set of features, such as job placement, progress tracking, and performance evaluation.
- **Effectiveness:** The system's interactivity and thorough approach to connecting students, academic supervisors, and companies make it a highly effective tool for field training management.
- **Ease of Use:** It may have a steep learning curve for new users due to its complexity, but it is likely intuitive once users become familiar with it.
- **Scalability:** This system seems to have strong potential for scalability, especially since it is designed to accommodate multiple institutions and stakeholders.
- **Innovation:** It offers a high level of innovation by integrating diverse functionalities for all parties involved in the training process. However, further enhancements could improve user experience.

Overall Rating: 8/10

This system is highly effective, scalable, and innovative, but it may need to simplify the user experience to cater to those unfamiliar with the technology.

3.5 Advantages and Disadvantages of Previous Field Training Systems.

System	Advantages	Disadvantages
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<p>Field Training System – College of Administrative Sciences and Information Systems, PPU</p>	<ul style="list-style-type: none"> • Localized Design: Tailored to the needs of students and supervisors at PPU. • Improved Interaction: Facilitates direct interaction between students, supervisors, and training institutions. 	<ul style="list-style-type: none"> • Limited Applicability: The system is designed specifically for PPU, limiting its scalability or adaptability to other institutions. • Dependence on Local Infrastructure: May not be suitable for environments lacking strong technological infrastructure.
<p>Proposed Electronic Field Training System – University of Palestine</p>	<ul style="list-style-type: none"> • Improved Management: Provides an organized way to document and manage training processes, reducing errors and increasing efficiency. • Digital Supervision: Allows for immediate monitoring of training status and student performance. 	<ul style="list-style-type: none"> • Limited Application Scope: Primarily for Palestinian academic environments, which may not easily adapt to international institutions. • Lack of Customization: May not offer extensive customization options to fit all universities or diverse training needs.

<p>Field Training System – Prince Sattam Bin Abdulaziz University</p>	<ul style="list-style-type: none"> • Interactive Environment: Provides an interactive platform for students, academic supervisors, and companies to communicate easily. • Effective Tracking: Facilitates job placement, progress monitoring, and performance evaluations, making the process smoother for all involved. 	<ul style="list-style-type: none"> • Complex for New Users: New users may find it difficult to adapt to the system initially. • High Dependence on Technology: If there are internet issues or technological failures, students' ability to interact with the system may be affected.
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Table 3.1: Comparison to Related Work

3.6 Summary

In this section, we discuss previous work and sites similar to the proposed system. After reviewing the sites, they were evaluated in terms of performance, effectiveness, ease of use, and scalability. After that, the three sites were compared, along with the advantages and disadvantages of each.

Chapter Four

Methodology

4.1 Introduction

This section presents the methodology used in this project.

4.2 Methodology

Usage of Hybrid Methodology (Waterfall and Agile) Methodology in the Project.

In this project, a hybrid approach combining both Waterfall and Agile methodologies is used to ensure the effective development of the Automated Internship Management System. Waterfall is used in the initial stages for structured planning, while Agile is applied during the development and implementation stages to ensure flexibility and responsiveness to user needs.

1. Planning Phase (Waterfall)

- **Requirements Gathering:**

- User requirements (students, academic supervisors, companies) are gathered through surveys and interviews.
- The requirements are clearly documented to avoid major changes during development.

- **System Analysis and Design:**

- Detailed planning documents are created to define how the system will operate.
- The system architecture, including the database, user

interfaces, and APIs, is designed. ○ Prototypes are developed and presented to users for feedback.

2. Development and Implementation Phase (Agile) ○ The project is divided into Sprint Cycles, each ranging from two to four weeks. ○ In each Sprint, part of the system is developed, tested, and user feedback is gathered.

- Iterative Development is used, where features are developed in iterations rather than building the system all at once.
- This approach allows for rapid adjustments based on evolving user needs.

Examples of Agile Application in the Project:

- **Sprint 1:** Develop the user registration and account management system.
- **Sprint 2:** Develop the student dashboard for managing internship files.
- **Sprint 3:** Develop the supervisor and company dashboard.
- **Sprint 4:** Improve integration between different modules and conduct performance testing.

3. Testing and Deployment (Agile & Waterfall) ○ Unit Testing is performed for each new feature developed. ○ Integration Testing is conducted to ensure smooth interaction between all system components.
 ○ After development, User Acceptance Testing (UAT) is performed with the target users. ○ The system is deployed in stages, starting with a Beta Version, followed by the full release after further improvements.

4. Maintenance and Updates (Agile) ○ User feedback is collected after the launch, and data is analyzed to identify any issues or areas for improvement. ○ Updates and new features are continuously added through additional Sprint Cycles. ○ Performance analysis and bug reports ensure that the user experience is continuously improved.

4.3 Summary

In Section, A hybrid methodology combining Waterfall and Agile was used. Initially, Waterfall was applied for detailed requirements gathering and system design. Then, Agile was implemented during the development and implementation phases through flexible Sprint cycles to develop features and gather user feedback. Multiple testing phases were conducted before launching the system in two stages (beta and official release). Finally, Agile is used for maintenance and updates based on user feedback to ensure continuous improvement.

Chapter Five Analysis

5.1 Introduction

This chapter displays analysis phase aims to understand user needs and precisely determine how the system will operate. The focus is on studying requirements and identifying key processes to ensure an integrated and effective system is built.

5.2 Problem Analysis

Problems faced by the traditional field training system:

- The lack of a central system that collects all student trainee data, leading to information loss and difficulty managing it.
- Limited communication between students, academic supervisors, and host companies, causing delays in evaluations and feedback.
- Paper-based documentation and evaluation procedures are time-consuming and can lead to errors in the retention of field training data.
- The inability to track student performance in real-time, as this requires lengthy manual reviews.
- The lack of comprehensive and analytical reports that enable universities to measure the effectiveness of field training programs.

Analysis System

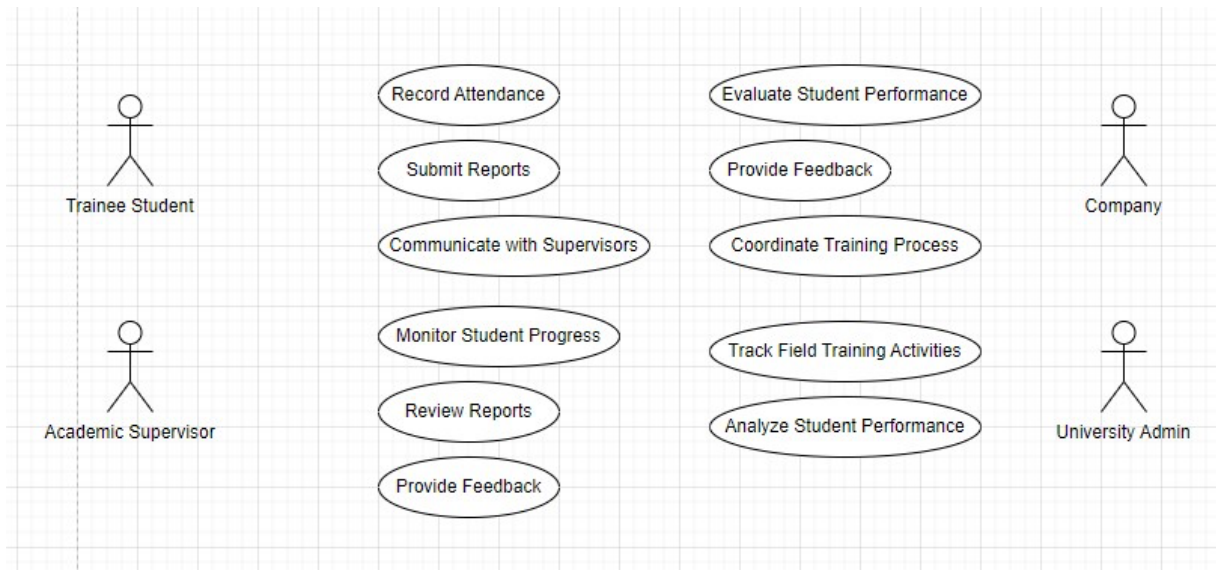


Figure 5.1: System Use Case Diagram

5.2.1 User Analysis Primary Users of the System:

- **Trainee Students:**
They need an easy-to-use system that allows them to record their attendance, submit reports, and communicate with supervisors.
- **Academic Supervisors:**
They need tools that allow them to monitor student progress, review reports, and provide feedback.
- **Hosts (companies):**
They need an effective way to evaluate student performance, provide feedback, and coordinate training processes.
- **University Administrations:**

They need a centralized system to track all field training activities and comprehensively analyze student performance.

5.2.2 Requirements Analysis

Functional Requirements

- Register students in the system and create personal profiles.
- Enabling students to submit field training reports electronically.
- Supporting supervisors in monitoring student progress and providing feedback.
- Providing a digital evaluation mechanism for host companies.
- Creating analytical reports on student and host company performance.

- Integrating with university learning management systems (LMS).

Non-Functional Requirements

- **Ease of Use:** The system must be easy to use for everyone.
- **Security:** User data must be protected using strong encryption standards.
- **Scalability:** The system must be able to support large numbers of students and universities.
- **Compatibility:** The system must be compatible with various devices (smartphones, computers).
- **Performance:** The system must operate quickly and efficiently under high data loads.

5.2.3 Current System Analysis

Weaknesses of the traditional field training system:

- Reliance on paper and manual documents, which results in data loss and difficulty accessing it.
- Lack of a central platform for exchanging information among all parties.
- Time-consuming review of paper reports and providing feedback.
- Weak evaluation systems and inability to effectively analyze student performance data.

How will the new system solve these problems?

- Provide a digital platform that facilitates all field training management processes.
- Enabling academic supervisors to track student performance in real-time.
- Improving communication between all parties through the system.
- Automating the reporting and evaluation process for student performance in a more efficient manner.

5.2.4 Gap Analysis

Element	Traditional System	Proposed Automated System
Student Data Management	Paper based, Random	Organized within the system

Report Submission	Manual and Delayed	Immediate electronic submission
Student communication with supervisor	Weak and is only via email	A unified platform for chat and feedback
Student performance analysis	Manual and TimeConsuming	Instant analytical reports
Integration with other system	Not available	Integrated with University system.

5.2.5 Solution Analysis Technologies Used:

- **Back-end:** Laravel (PHP) for data management and process processing.
- **Front-end:** HTML, CSS, JavaScript for creating an interactive user interface.
- **Database:** MySQL for storing student data, reports, and assessments.
- **Security:** Security standards are implemented to ensure user data is protected.

Integration with other systems:

- The system can be integrated with university management systems (such as LMS) to exchange training data.
- It can be integrated with data analysis systems to generate advanced reports.

5.3 Summary

The project to automate the field training process for university students aims to create a modern digital platform to solve problems within the traditional system. The project relies on developing a centralized system that helps manage training processes efficiently, track student performance, improve communication, and analyze data using modern technologies such as Laravel and PHP. Through this analysis, key problems, system requirements, gaps between traditional and proposed solutions, and the technologies that will be used to ensure the project's success were identified.

Chapter Six Proposed System

6.1 Introduction

This Chapter displays the use cases include in the app and display consist of two parts: Designing the Training System and Building The Database. The information will be presented in detail.

6.2 System Design

6.2.1 System Architecture Design

The system relies on a 3-Tier Architecture Model, a popular pattern for web applications, where the system is divided into three main layers:

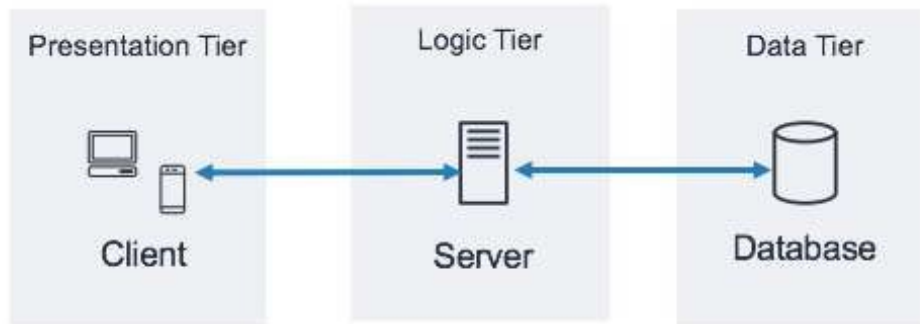


Figure 6.1: System Architecture Design

Presentation Layer (Front-End)

Technologies Used: HTML, CSS, JS (for web).

Description: This layer is responsible for user interaction, including:

- User login and registration (students, supervisors, companies, and administrators).
- Displaying available training programs, submitting reports, and evaluations.

A flexible and user-friendly interface that interacts with the API Gateway to fetch or submit data.

Business Logic Layer (Back-End)

Technologies Used: Laravel (PHP) with RESTful API.

Description:

- This layer acts as a mediator between the front-end and the database.
- It handles all the business logic such as:
 - Managing field training requests, approvals, and schedules.
 - Generating reports and analyzing student performance.
 - Managing users and roles.

It handles security operations like authentication using JWT Authentication or Oauth to ensure security.

6.3 System Design Interface

6.3.1 University training Interfaces

Home Page



Figure 6.2: Home Page

About Us Page



Figure 6.3: About Us Page

Contact Us Page



منصة التدريب الميداني

الرئيسية من نحن اتصل بنا دليل التدريب تسجيل الدخول

اتصل بنا

إذا كان لديك أي استفسار أو ترغب في الحصول على مزيد من المعلومات، يمكنك التواصل معنا عبر النموذج التالي.

الاسم الكامل

أدخل اسمك الكامل

البريد الإلكتروني

أدخل بريدك الإلكتروني

الرسالة

أكتب رسالتك هنا

إرسال الرسالة

Figure 6.4: Contact Us Page

Training Guide Page

منصة التدريب العملي

الرئيسية من نحن اتصل بنا دليل القواعد تسجيل الدخول

دليل التدريب العملي

في هذا الدليل، ستعرف على خطوات مهمة لتدريس التدريب العملي وتلبية الاستعدادات بـ شكل مثالي. إليك أهم المعلومات التي يجب عليك معرفتها:

1. خطوات التسجيل في التدريب العملي

- الخطوة الأولى: زيارة الموقع الإلكتروني للجامعة
- الخطوة الثانية: تسجيل الدخول باستخدام بروتوكول الجامعة
- الخطوة الثالثة: اختيار جهة التدريب المتاحة في النظام
- الخطوة الرابعة: إرسال طلب التسجيل مع إكمال الترميز التدريبي
- الخطوة الخامسة: إكمال الموافقة من قبل إدارة التدريب العملي

2. متطلبات التدريب العملي

- تسجيل في المواد الدراسية المطلوبة
- الحصول على موافقة المشرف الأكاديمي
- التأكد من مطابقة مكان التدريب مع تخصصه الأكاديمي
- التأكد من تقديم التقارير الأسبوعية والفصلية المطلوبة

3. كيفية تقييم التدريب العملي

يتم تقييم المشرف خلال فترة التدريب عبر نظام تقييم:

- التقييم من قبل المشرف الأكاديمي في التدريب
- التقييم من قبل جهة التدريب المستهدفة
- تقييم تقارير دورية حول سير التدريب
- القدرة على تطبيق المهارات التي تم تعلمها في التخصص الأكاديمي

4. الأسئلة الشائعة

- هل يمكنني اختيار جهة التدريب نفسي؟ نعم، لكن يجب أن تكون متعلقة من قبل الجامعة
- متى يجب أن أبدأ في التدريب العملي؟ يتم تحديد موعد التدريب حسب تقويم الجامعة
- هل يجب علي حضور جميع الاختبارات مع مشرفي التدريب؟ نعم، من المهم التفاعل مع المشرف للحصول على أفضل تجربة

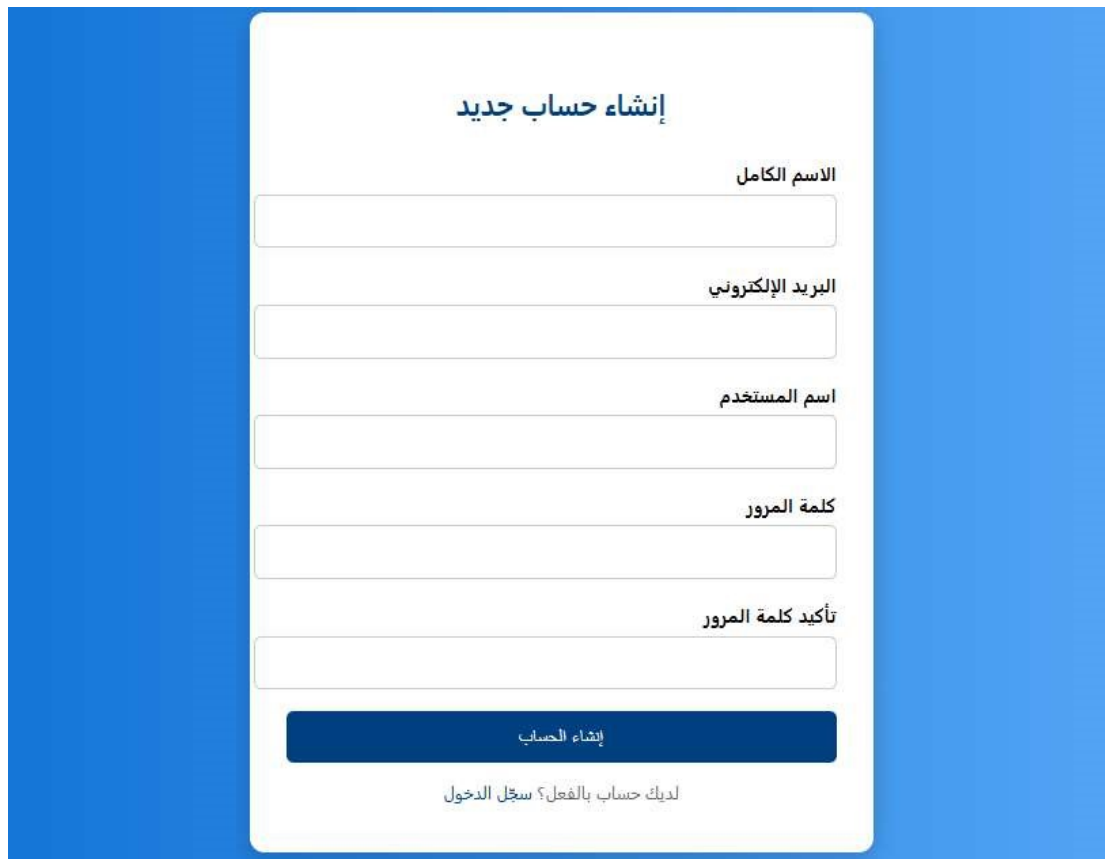
إذا كنت بحاجة إلى مزيد من المعلومات، اتصل بنا

© 2025 جميع الحقوق محفوظة - منصة التدريب العملي

Figure 6.5: Training Guide Page

6.3.2 Student Training Interfaces

Create Account



إنشاء حساب جديد

الاسم الكامل

البريد الإلكتروني

اسم المستخدم

كلمة المرور

تأكيد كلمة المرور

إنشاء الحساب

لديك حساب بالفعل؟ سجل الدخول

Figure 6.6: Create Account Page

Activation Account Page



تفعيل الحساب

تم إرسال رابط تفعيل إلى بريدك الإلكتروني.
الرجاء التحقق من البريد لتفعيل حسابك.

إعادة إرسال البريد

إذا لم يصلك البريد، تأكد من مجلد الرسائل غير المرغوب فيها (Spam).

Figure 6.7: Activation Account Page

Login Page

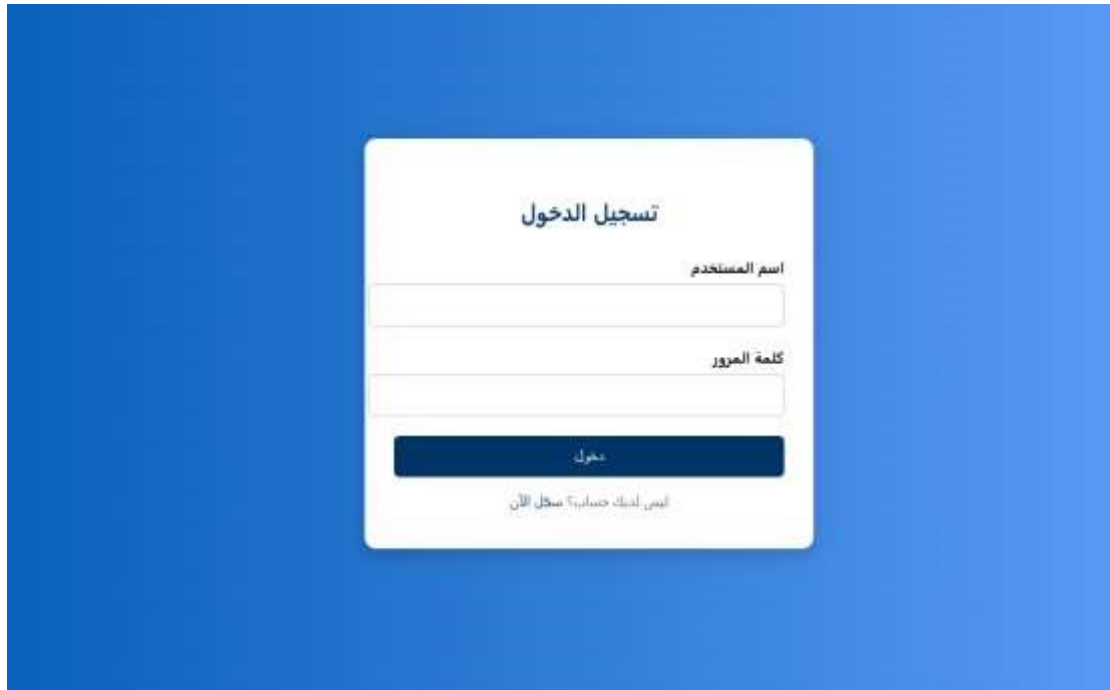


Figure 6.8: Login Page

Control Panel Student Page

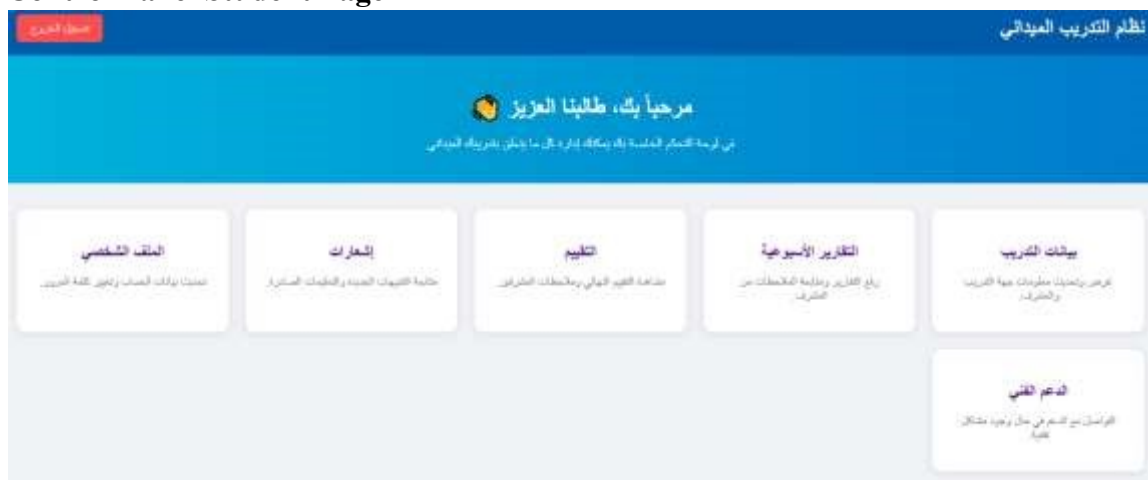


Figure 6.9: Control Panel Student Page

Training Data Student Page

بيانات التدريب الميداني
لم يحدد، لم تحدد بيانات التدريب الميداني الخاصة بك.

اسم جهة التدريب	أدخل اسم جهة التدريب
اسم المشرف	أدخل اسم المشرف
موقع التدريب	أدخل موقع التدريب
تاريخ بداية التدريب	yyyy / mm / dd
تاريخ نهاية التدريب	yyyy / mm / dd
وصف التدريب	أدخل وصف التدريب

Figure 6.10: Training Data Student Page

Weekly Report Page

نظام التدريب الميداني

رفع التقارير الأسبوعية
لم يتم تقديم التقارير الأسبوعية لطلبة التدريب الميداني.

رفع تقرير جديد

أضف تقريرًا جديدًا | أم يتم اختيار ملف

رفع التقرير

التقارير السابقة

تقرير الأسبوعي 1	رفع
تقرير الأسبوعي 2	رفع
تقرير الأسبوعي 3	رفع

Figure 6.11: Weekly Report Page

Evaluation Page

التقييم النهائي
 انظر على فريقك النهائي من قبل المشرف وأن ملاحظات إشرافك

التقييم العام:

أداء جيد جداً في التدريب الميداني مع ملاحظات من المشرف تلتزم بضرورة تحسين التفاعل مع الفرق وأعمال الجماعي. إجمالي التقييم: 85%

ملاحظات المشرف:

المشرف: الدكتور أحمد

تمت متابعة عملة بشكل جيد. انتداح إلى تحسين مهارات التواصل في المشاريع الجماعية. كما أن التفاعل مع العملاء كان جيداً ولكن هناك مجالاً للتحسين في تقديم الحلول بشكل أسرع.

إضافة تعليق:

اكتب ملاحظاتك أو تعليقاتك هنا ...

إرسال التعليق

Figure 6.12: Evaluation Page

Notification Page

الإشعارات
 انظر على أحدث الإشعارات والملاحظات الخاصة بفريقك النهائي

تم تحديث موعد الاجتماع مع المشرف

تم تغيير موعد الاجتماع مع مشرفك من يوم الخميس إلى يوم الأحد في الساعة 10:00 صباحاً.

من 3 مستند
عرض التفاصيل

تحديث في ملاحظات التقرير الأسبوعية

تم إرسال مشرف ملاحظات جديدة على تقريرك الأسبوعي. يرجى مراجعة

المشرفين
عرض التفاصيل

تذكير: موعد التسليم النهائي للتقرير

لا تقل أن الموعد النهائي لتقديم التقرير هو بعد أسبوع من اليوم.

من 3 أيام
عرض التفاصيل

Figure 6.13: Notification Page

Profile Page

Figure 6.14: Profile Page

Technical Support Page

Figure 6.15: Technical Support Page

6.3.3 Supervisor Interfaces

Control Panel Supervisor Page

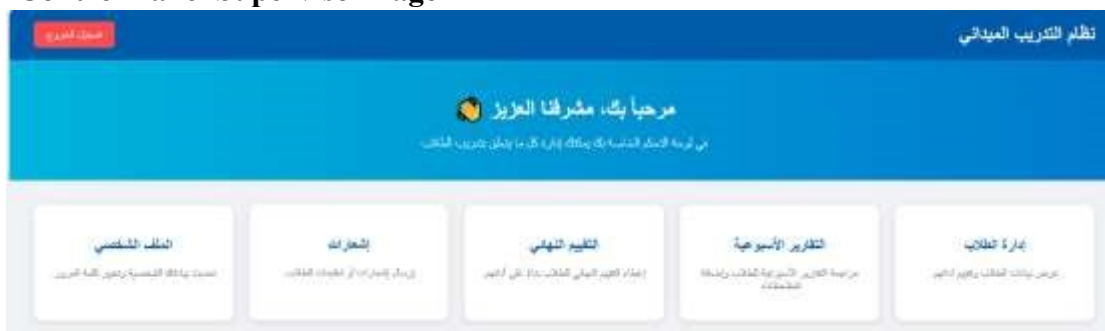


Figure 6.16: Control Panel Supervisor Page

Student Management Page



Figure 6.17: Student Management Page

Weekly Report Page

نظام التدريب الميداني			
التقارير الأسبوعية			
هذا يمكنك متابعة التقارير الأسبوعية للطلاب المرفوعين لك			
ابحث عن تقرير...			
الطالب	التاريخ	مدة التقرير	التفاصيل
أحمد محمد	15/04/2025	يوم التوجيه	عرض التقرير
سارة علي	14/04/2025	يوم التوجيه	عرض التقرير
ملاحظات المشرف			
يمكنك هنا كتابة ملاحظاتك عن هذا التقرير...			
حفظ الملاحظات			

Figure 6.18: Weekly Report Page

Final Evaluation Page

نظام التدريب الميداني	
التقييم النهائي للطلاب	
هذا يمكنك متابعة التقييمات النهائية للطلاب وتقديم ملاحظاتك	
<p>الطالب: أحمد محمد</p> <p>التقرير الأولي: مقبول</p> <p>التقرير من المشرف: أداء ممتاز على أن يركز التقرير على الملاحظات يحتاج للتصحيح، موزاناً للتقارير *</p> <p>عرض التقرير كامل</p>	
<p>الطالب: سارة علي</p> <p>التقرير الأولي: غير مقبول</p> <p>التقرير من المشرف: أداء جيد على أن يركز التقرير على الملاحظات يحتاج للتصحيح، أداء العمل الجيد *</p> <p>عرض التقرير كامل</p>	

Figure 6.19: Final Evaluation Page

Notification Page

نظام التوزيع الميداني

الإشعارات

هذا النظام يهدف إلى إخطار المستخدمين بالأنشطة القادمة.

إلغاء	عرض	تدريب: حرفة التوزيع تاريخ: 12/11/2025 (الوقت: 09:00 صباحاً)
إلغاء	عرض	تدريب: تقويم الطالب: أحمد محمد تاريخ: 12/11/2025
إلغاء	عرض	تدريب: تعديلات النظام تاريخ: 12/11/2025

Figure 6.20: Notification Page

Profile Page

نظام التوزيع الميداني

الملف الشخصي

هذا الملف الشخصي يهدف إلى إدارة المعلومات الشخصية للمستخدم.

معلومات شخصية

الاسم الكامل

البريد الإلكتروني

العنوان

معلومات التوزيع

نوع التوزيع

تاريخ التوزيع

وقت التوزيع

موقع التوزيع

حالة التوزيع

تاريخ التوزيع

وقت التوزيع

موقع التوزيع

حالة التوزيع

حفظ التغييرات

Figure 6.21: Profile Page

6.3.4 Company Interface

Relationship with the Student Interface:

- The company only sees its student interns.
- It reads their weekly reports.
- It writes their evaluations.
- It sends them personalized notifications.

Relationship with the Supervisor Interface:

- The supervisor sees the same students associated with the company they are following.
- The company and supervisor can exchange feedback on the student (each through their own platform).
- The company may approve the evaluation, and then the supervisor may approve it.

Control Panel Company Page



Figure 6.22: Control Panel Company Page

Training Application Page

طلبات التدريب الواردة من الطلاب					
اسم الطالب	الرقم الجامعي	التخصص	تاريخ البداية	الحالة	الإجراءات
أحمد محمد	12345678	علوم الحاسوب	2025-05-01	مستقبل القيد	تقديم مراجعة إصدار
سارة علي	87654321	إدارة أعمال	2025-06-10	مستقبل القيد	تقديم مراجعة إصدار

Figure 6.23: Training Application Page

Student Training in the Company Page

لوحة الشركة					
الطلاب المتدربون في الشركة					
الاسم	معدة	الجامعة	التقرير	التقييم	إشعار
محمد أحمد	علم الحاسوب	جامعة الإسكندرية	مقبول	جيد	إشعار
سارة علي	نظم المعلومات	جامعة الإسكندرية	مقبول	جيد	إشعار

Figure 6.24: Student Training in the Company

Weekly Report Page

نظام التدريب الميداني				
التقارير الأسبوعية للطلاب				
هذا يساكنه عرض تقرير الطلاب الأسبوعية والتفاصيل معها				
اسم الطالب	عنوان التقرير	التاريخ	حالة التقرير	المعدة
أحمد محمد	التقرير الأسبوعي الأول	12/04/2025	قيد المراجعة	مقبول قائمة بالمشاكل جيد
سارة علي	التقرير الأسبوعي الثاني	12/04/2025	تمت المراجعة	مقبول قائمة بالمشاكل جيد

Figure 6.25: Weekly Report Page

Evaluation Page

المعلم	التقييم النهائي	الامتحان	ملاحظات المشرف	تعليق التقييم
أحمد محمد	ممتاز	ممتاز	ممتاز	ممتاز
سارة علي	جيد	جيد	جيد	جيد

ملاحظات المشرف

أكتب ملاحظتك حول التقييم هنا...

حفظ الملاحظات

Figure 6.26: Evaluation Page

Notification Page

إشعارات الشركة

إشعار بخصوص تقرير طلب
2023-04-12
تم رفع تقرير طلب (إشعارات) (إشعارات) (إشعارات) (إشعارات) (إشعارات)

إشعار جديد من المشرف
2023-04-12
تم رفع تقرير طلب (إشعارات) (إشعارات) (إشعارات) (إشعارات) (إشعارات)

إشعار جديد من طلب
2023-04-12
تم رفع تقرير طلب (إشعارات) (إشعارات) (إشعارات) (إشعارات) (إشعارات)

Figure 6.27: Notification Page

6.4 Database Design

6.4.1 ER Diagram

The Figure presents the ER diagram of the DB that designed and implemented in this project. It contains the tables and the attributes for each table.

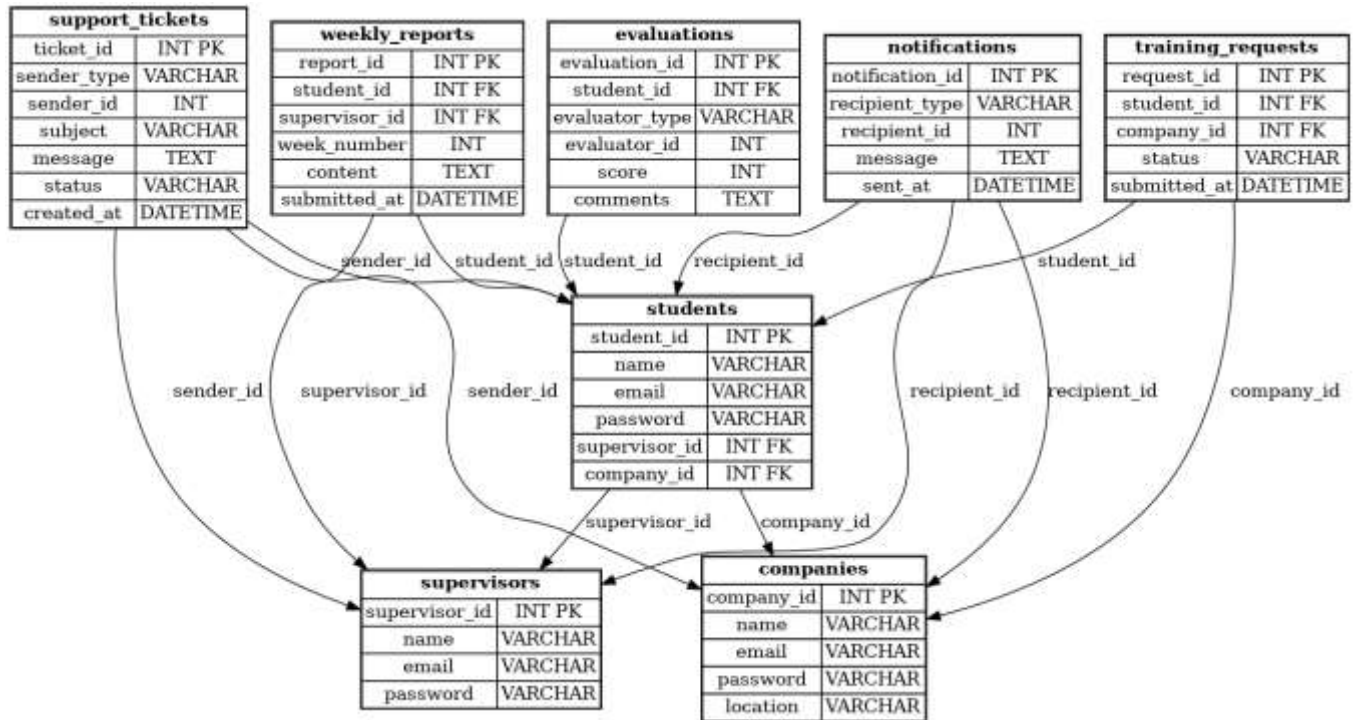


Figure 6.28: ER Diagram

6.4.2 Database Tables and Fields

The following table shows the DB tables and the number of fields for each table.

NO	Table Name	Number of Field
1	Student	6
2	Supervisor	4
3	Companies	5
4	Training Request	5
5	Notifications	5
6	Evaluations	6

7	Weekly Report	6
8	Support Tickets	7

Table 6.1: DB Table**Student Table**

Table 6.2 shows the student fields, data type and properties

Student Table		
Column Name	Data Type	Constraints
student_id	INT	PK
Name	Varchar(150)	NOT NULL
Email	Varchar(150)	NOT NULL
password	Varchar(150)	NOT NULL
Supervisor_id	INT	FK
Company_id	INT	FK

Table 6.2: Student Table**Supervisor Table**

Table 6.3 shows the supervisor fields, data type and properties

Supervisor Table		
Column Name	Data Type	Constraints
Supervisor_id	INT	PK
Name	Varchar(150)	NOT NULL
Email	Varchar(150)	NOT NULL
password	Varchar(150)	NOT NULL

Table 6.3: Supervisor Table**Companies Table**

Table 6.4 shows the Companies fields, data type and properties

Companies Table

Column Name	Data Type	Constraints
Company_id	INT	PK
Name	Varchar(150)	NOT NULL
Email	Varchar(150)	NOT NULL
password	Varchar(150)	NOT NULL
location	Varchar(150)	NOT NULL

Table 6.4: Companies Table

Training Request Table

Table 6.5 shows the Training Request fields, data type and properties

Training Request Table		
Column Name	Data Type	Constraints
request_id	INT	PK
student_id	INT	FK
Company_id	INT	FK
status	Varchar(150)	NOT NULL
Submitted_at	DATETIME	NOT NULL

Table 6.5: Training Request Table

Notification Table

Table 6.6 shows the Training Request fields, data type and properties

Notifications Table		
Column Name	Data Type	Constraints
notification_id	INT	PK
recipient_id	INT	
Recipient_type	INT	FK
message	TEXT	NOT NULL
Sent_at	DATETIME	NOT NULL

Table 6.6: Notification Table

Evaluation Table

Table 6.7 shows the Training Request fields, data type and properties.

Evaluations Table

Column Name	Data Type	Constraints
evaluation_id	INT	PK
student_id	INT	FK
evaluator_type	Varchar(150)	NOT NULL
Evaluator_id	INT	-
Score	INT	-
comment	Varchar(150)	NOT NULL

Table 6.7: Evaluation Table

Weekly Report Table

Table 6.8 shows the Training Request fields, data type and properties.

Weekly Report Table		
Column Name	Data Type	Constraints
report_id	INT	PK
student_id	INT	FK
Supervisor_id	INT	FK
Week_number	INT	-
content	TEXT	-
Submitted_at	DATETIME	NOT NULL

Table 6.8: Weekly Report Table

Support Tickets Table

Table 6.9 shows the Training Request fields, data type and properties.

Support Tickets Table		
Column Name	Data Type	Constraints
ticket_id	INT	PK
Sender_type	Varchar(150)	NOT NULL
sender_id	INT	-
subject	Varchar(150)	-
message	TEXT	-

created_at	DATETIME	NOT NULL
status	Varchar(150)	NOT NULL

Table 6.9: Support Tickets Table

6.5 Summary

In the section, provides a comprehensive overview of the application's primary use cases. It is structured into two main sections to ensure clarity and depth of explanation. The first section focuses on the design of the training system, detailing the conceptual framework, functional components, and user interaction pathways. The second section is dedicated to the construction of the database, highlighting the data structure, relationships between entities, and the methods used to ensure data integrity and efficient retrieval. Each part will be thoroughly elaborated to offer a clear understanding of the system's architecture and operational logic.

Chapter Seven Implementation

7.1 Introduction

This chapter will explain basic information about the basic function of this website such as login, student registration, evaluation.

7.2 Implementation from Student Side

The student interfaces are designed to be easy to use and cover all student needs during the training period. The steps for using the system include the following:

1. Login to the system:

- The student logs in using their university information.
- Their permissions are verified and they are directed to the student's control panel.

2. View training information:

- The student's training status is displayed (not started, in progress, completed).
- They can view the training provider and their assigned supervisor from the university.

3. Submitting the training request to the company:

- The student fills out the training request form and sends it to the company (previously selected).
- The request contains information about the student, university, specialization, and training duration.

4. Monitoring the request status:

- After submitting the request, the status will appear as "Under Review" / "Accepted" / "Rejected."
- The student receives an automatic notification of any changes to the request status.

5. Submitting weekly reports:

- The student uploads their training report each week using the designated form.
- The report includes completed tasks, notes, and outcomes.

6. Viewing Feedback:

- The student can view the feedback added by their university or company supervisor.
- This feedback helps improve the quality of work.

7. Final Evaluation:

- After the training is over, the student will receive their final evaluation from their academic supervisor and company.
- They can download a copy of the evaluation for future reference.

8. Accessing Technical Support:

- If the student encounters a problem, they can use the "Technical Support" page to submit a ticket.
- The technical team will respond within a specified timeframe.

9. Managing Their Personal Account:

The student can edit their basic information or change their password from the "Profile" page.

7.3 Implementation from Supervisor & Companies Side To ensure the efficient running of the training process:

1. Approval of training requests:

- **Student:** Submits the training request to the host company via the system.
- **Academic supervisor:** Reviews the requests and approves or rejects them based on the details provided by the student.
- **Host company:** After the request is accepted by the academic supervisor, the company must confirm the student's acceptance or provide any comments related to the training.

Steps:

- Student completes the application form.
- Academic supervisor reviews the application and accepts or rejects it.
- If accepted, the host company confirms or rejects the student's acceptance based on dates and availability.

2. Training follow-up:

- **Academic supervisor:** Monitors student progress through weekly reports submitted by the student.
- **Host company:** Provides regular feedback to the academic supervisor on the student's performance, such as weekly evaluations and notes.
- **Cooperation:** Coordinates between the two parties regarding the student's progress and ensures that the training aligns with the university's goals and the company's requirements.

Steps:

- Student submits weekly reports.
- The academic supervisor monitors the reports and adds their comments.
- The host company provides feedback on the student's performance, and the academic supervisor is notified.

3. Ongoing Communication:

- The academic supervisor communicates periodically with the host company to review the student's performance and ensure that the training meets academic standards.
- The host company provides periodic reports to the academic supervisor and keeps them informed of all student performance details.

Steps:

- Regular meetings take place between the academic supervisor and the company's training officer to review student performance.
- The system is used to send notifications between the two parties to exchange information and evaluation updates.

4. Final Evaluation:

- The academic supervisor evaluates the student's performance based on weekly reports and feedback from the company.
- The host company provides feedback on the student's final performance, including punctuality and the quality of the tasks completed.
- Cooperation: The academic supervisor evaluates the student, and the company's feedback is incorporated into the final evaluation.

Steps:

- Upon completion of the training, the academic supervisor evaluates the student.
- The host company submits its final evaluation of the student.
- The two evaluations (from the academic and the company) are compared to determine the final score.

5. Managing Problems and Challenges:

- Academic Supervisor: If any problems arise with the student or the company, the academic supervisor coordinates with the company to resolve them.
- Host Company: If the company encounters any problems related to the training, it notifies the academic supervisor for assistance in resolving the issue.

Steps:

- Coordination between the two parties to resolve any problems that may arise.
- In the event of technical problems or discrepancies in the student's performance, the academic supervisor and the company communicate to provide appropriate solutions.

7.4 Summary

The system was implemented in an integrated manner to suit the needs of the student, the academic supervisor, and the host company. The student begins by logging in, submitting the training application, uploading weekly reports, and monitoring the final evaluation. In turn, the academic supervisor reviews the applications, monitors the student's progress, and evaluates their performance in coordination with the company. Collaboration also takes place between the academic supervisor and the host company to ensure consistent evaluation and resolve issues, ensuring the training runs smoothly and effectively for all parties.

Chapter Eight

Evaluation

8.1 Introduction

After project implementation is complete, a comprehensive evaluation of the system is conducted based on a set of predefined criteria to ensure that the system meets the needs of all users (students, academic supervisors, and hosting companies) and operates efficiently and securely. The evaluation measures its performance in multiple areas related to quality, security, and the ability to handle data properly.

8.2 Evaluation System

Criterion	Objective	Evaluation	Result
Functional Evaluation	Check the core functions of the system	All functions like login, report upload, and request submission were tested.	All functions work efficiently without major issues.

Data Accuracy	Ensure accurate data processing	Test data was entered and compared to the final results.	Data is processed and stored accurately, no errors.
System Performance	Measure system responsiveness	The system was tested under heavy loads to check response time.	The system performs well under medium and heavy loads.
System Security	Ensure protection of personal data	Security tests were conducted to check the system's resistance to breaches.	The system is wellprotected against attacks and encrypts data.

System Stability	Ensure the system is stable without crashes	System stability was monitored over different periods of use.	No crashes or unexpected downtimes were observed.
Usability	Ensure the user interface is intuitive	The user interface was tested by a group of users.	The UI is clear and easy to use.
User Interaction	Test the effectiveness of user interaction	Buttons and menus were tested for proper functioning.	Interaction with the system is easy, all buttons work properly.
Multitasking Support	Ensure the system supports different types of users	Accounts for different roles (Students, Academic Supervisors, Companies) were tested.	The system effectively supports multiple roles.

Data Protection	Ensure the protection of personal data	Registration processes were tested and data encryption was verified.	Data is securely protected using encryption techniques.
Access Management	Ensure proper rolebased access control	Access privileges across different roles (Student, Supervisor, Company) were tested.	Access control is properly implemented without bypassing.
User Acceptance	Ensure user satisfaction with the system	Feedback was collected from students, supervisors, and companies.	All users expressed satisfaction with the system.
Required Improvements	Identify areas for system improvement	User feedback on button usability and interface tweaks was collected.	Some improvements will be made based on user feedback.

Table 8.1: Evaluation System

8.3 Summary

The system has shown great success in all key aspects, including functionality, security, performance, and ease of use. No major issues were found, but some enhancements were identified based on user feedback.

Chapter Nine Conclusion & Future Work

9.1 Conclusion

Field training is one of the fundamental pillars that contribute to preparing students for the job market and enhancing their practical skills by linking theoretical aspects

with practical experience. From this perspective, this project designed and developed an integrated electronic system to manage field training between its various parties: the student, the academic supervisor, and the host company.

This project identified basic requirements and designed appropriate user interfaces for each category, ensuring a smooth and easy user experience. A database was also created to link various entities, such as students, companies, supervisors, and reports, taking into account the logical and functional relationships between them.

The results of the analysis of the system and its interfaces showed that the project addresses several current challenges, such as poor coordination, delayed follow-up, and the difficulty of standardized assessment. By employing modern technical tools, supervisors were enabled to track student reports, evaluate them fairly, and provide effective communication channels between all parties.

The system's design also lays a solid foundation upon which to build in the future, utilizing artificial intelligence and smart analytics technologies to personalize the training experience for each student and improve the quality of academic outcomes.

In conclusion, this system contributes to enhancing the efficiency of collaborative training and achieving integration between educational institutions and companies, enhancing students' chances of professional success after graduation and supporting educational institutions' vision for effective digital transformation.

9.2 Future Work

With the advancement of artificial intelligence and data analysis technologies, it has become possible to employ these tools to enhance the effectiveness of the system, transforming them from mere regulatory tools into intelligent platforms that support decision-making. Accordingly, in future work phases, it is proposed to develop an independent unit within the system dedicated to smart analytics and artificial intelligence, including the following:

Smart Analytics & AI

Analyzing Student Performance and Predicting Final Achievement

Using machine learning algorithms, the system can analyze student data during training, such as:

- Number of reports submitted.
- Supervisor evaluations.
- Level of engagement with assigned tasks.
- Attendance or dropout rate.

Based on this data, the system creates a predictive model of the student's final achievement level, helping academic institutions:

- Provide early intervention in cases of declining performance.
- Allocate additional support to students with fluctuating performance.

- Improve the accuracy and reliability of assessments.

Suggesting Suitable Training Places

By analyzing a student's major, academic record, past interests, and even commitment, the system can use recommendation systems to provide a personalized list of training opportunities that:

- match their skills and level;
- provide them with a practical development environment;
- balance their training requirements and future career interests.

For example, a computer science student who repeatedly shows an interest in programming and submits applications-related projects will be recommended by the system to technology companies or software development departments. **Detecting Behavioral Patterns During Training**

Thanks to behavioral analytics, the system can monitor and interpret student behavior during the training period, extracting patterns such as:

- The student's adherence to reporting deadlines.
- The speed of their response to feedback from their academic supervisor or company.
- The frequency of requests for modification or reevaluation.
- The quality of the content provided in their reports.

Benefits of Implementing Artificial Intelligence in the System

- **Improved decision-making:** for supervisors and companies when accepting or evaluating students.
- **Intelligent personalization:** tailoring the training experience to the student's abilities.
- **Improved academic efficiency:** through early monitoring and correcting behavior.
- **Enhancing confidence in data:** because the system provides accurate analyses based on real behavior.

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