



**College of Computing and Informatics**

**Computer Science Department**

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## **Web-Based Student Internship and Placement Tracking System**

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## **UNDERTAKING**

*In partial fulfillment of the requirements for the Bachelor of IT Multimedia degree at the Computer Science Department, College of Computing and Informatics, University of Sharjah, United Arab Emirates, the undersigned currently confirms that the project, "Web-Based Student Internship and Placement Tracking System," is an original work. The project team has completed all analysis, design, and system development. No other institution has received this proposal submission.*

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## **ABSTRACT**

*An important way to link academic learning with practical work experience is through internships. However, supervising internships continues to be a challenging procedure involving many different parties such as companies, university coordinators, and students. Many organizations use manual, paper-based processes that are inefficient, unstructured, and difficult to trace.*

*This project presents InterTrack, a centralized web-based system for tracking internships and placements that aims to better monitoring throughout the whole internship process, optimize workflows, and improve communication. The system enables role-based access, secure authentication, internship posting, application management, academic evaluations, and progress tracking.*

*InterTrack offers a scalable, user-friendly, and secure solution that facilitates future system improvements and keeps in line with modern educational requirements by digitizing the complete internship lifecycle. At the University of Sharjah, this platform is a big step toward organized and automated internship management.*

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# CHAPTER 1: Introduction

## 1.1 Overview

Internships give students practical experience to supplement their academic studies. Despite its importance, a lot of organizations continue to handle internships through disjointed, manual procedures. These approaches frequently result in delays, misunderstandings, and challenges in tracking students' progress. InterTrack, a centralized web-based system, is featured in this project. It oversees the entire internship lifecycle, from posting opportunities to monitoring progress and generating reports.

## 1.2 Project Motivation

The project is motivated by issues with conventional internship management processes, such as:

- Coordination issues between universities, employers, and students
- Lack of easily accessible centralized data
- Danger of data loss or confusion
- Slow approval and communication

By providing an organized, effective, and automated digital platform, InterTrack seeks to solve these problems.

## 1.3 Problem Statement

To handle internships, universities frequently use paper forms, scattered emails, and manual tracking. These traditional methods result in:

- Ineffective communication
- Low insight of students' progress
- High chance of missing deadlines or papers
- Workflows that take a long time for coordinators

To guarantee accuracy, accessibility, and transparency while simplifying the process, a centralized digital system is a must.

## 1.4 Project Aim and Objectives

The goal of this project is to create an internship tracking platform that is safe, scalable, and easy to use. Some of the goals are:

- Allow students to monitor their progress and apply for internships.
- Allow employers to submit evaluations and publish opportunities.
- Give coordinators the tools they need to examine, authorize, and oversee internships.

- Assure user-specific dashboards and safe authentication
- Assist with creating reports and managing paperwork

## 1.5 Project Scope

There are four user roles in InterTrack:  
Administrator, University Coordinator, Employer, and Student

The system offers modules for:

- Management of internship applications
- Opportunities for posting
- Submitting assessments
- Monitoring the creation of reports
- Uploading documents
- Alerts and notifications

## 1.6 Software and Hardware Requirements

- **Software:** HTML, CSS, JavaScript, MySQL
- **Tools:** VS Code, XAMPP, GitHub
- **Hardware:** Standard web server, database server, client devices (PC, tablets)

## 1.7 Project Limitations

- Only web-based (no mobile version)
- Limited to University of Sharjah
- Automatic techniques for matching internships are not supported.

## 1.8 Expected Output

The project produces a fully operational web-based solution with the following features:

- Customized dashboards
- Simplified application process
- Role-based access control and secure login
- Tools for coordinators to monitor
- Features for file submission and reporting

## 1.9 Project Schedule

Activities	Start Date	End Date	Deliverables
Requirements Gathering	Sep 01, 2025	Sep 07, 2025	Requirements Document, Stakeholder Analysis
System Design & Modeling	Sep 08, 2025	Seb 22, 2025	Use Case, Activity, Sequence, and Class Diagrams
Interface Design (Wireframes & UI Prototypes)	Seb 23, 2025	Oct 3, 2025	Dashboard Wireframes for Each Role
Backend and Front-End Implementation	Oct 4, 2025	Oct 23, 2025	Basic System Features (Login, Dashboard, etc.)
Final Report Writing & Presentation Preparation	Oct 24, 2025	Nov 09, 2025	Final Report, Presentation Slides

## 1.10 Project, Product, and Schedule Risks

There will likely be some difficulties as the system is developed. Among the risks are:

- Delays in gathering required
- Technical difficulties such incorrect authentication
- Integrating many modules is challenging.
- Opposition to altering current processes

Mitigation strategies include early planning, progressive development, and continuous testing.

## CHAPTER 2: Related Existing System

### 2.1 Introduction

This chapter reviews existing internship management systems to better understand their capabilities, limitations, and how they relate to InterTrack. Analyzing comparable systems makes it easier to spot weaknesses and make sure the suggested fix offers better functionality.

### 2.2 Existing System

Universities and organizations currently utilize various platforms to manage internship and placement programs. Here are some of the most pertinent systems:

#### 2.2.1 PlacePro

PlacePro is a popular software for coordinating student internships and job placements.

##### **Advantages:**

- Centralized communication between employers and students
- Automation of the application and job posting processes
- Supports several institutions

##### **Limitations:**

- Complicated user interface for beginners
- Does not provide workflows that can be modified to meet university needs.
- Weak backing for academic assessments

#### 2.2.2 TaskStream

Many institutions use Taskstream, as an academic assessment management tool.

##### **Advantages:**

- Designed for fieldwork and academic programs
- Supports supervisor evaluations, documentation submission, and evaluation
- Incorporates learning outcomes tracking and course assessments

##### **Limitations:**

- It is more involved in academic evaluation than it is with internship

- Complicated structure that requires institutional design
- Costly for long-term institutional use and subscription-based

### 2.2.3 GradLeadears

GradLeaders IMS is an integrated platform for managing, expanding, and improving internship programs for organizations and companies.

#### **Advantages:**

- Provides unified communication platforms that connect managers, HR, mentors, and interns.
- Offers real-time reporting and analytics, surveys and feedback, and task management.
- Extremely flexible and capable of connecting several enterprise platforms, including Workday, Outlook, Salesforce, and more.

#### **Limitations:**

- Primarily focused on employer-driven internship programs and major companies rather than university-centered processes.
- Focuses less on academic supervisor tracking and faculty evaluation and more on intern productivity, conversion to full-time hire, and enterprise scalability.
- Higher subscription or licensing fees are probably involved, which makes it less practical for internal university deployment without funding.

## 2.3 Overall Problems of Existing Systems

Feature	InterTrack	Taskstream	PlacePro	GradLeaders IMS
Purpose	University internship tracking	Academic assessment & field experience	Internship & job placement	Enterprise internship program management
Application Management	Supported	Not Supported	Supported	Supported
Progress Tracking	Supported	Supported	Partial	Supported
Employer Evaluation	Supported	Supported	Supported	Supported
Coordinator Dashboard	Supported	Supported	Supported	Not Supported (HR focused)
Customization	High (UOS specific)	Low	Limited	High (enterprise)
Reporting	Basic	Strong	Standard	Advanced
Cost	Free	Paid	Paid	High (enterprise)

## 2.4 Summary

While the majority of current systems offer powerful job placement features, they do not offer customized support for internship processes unique to universities. By creating features that are especially in line with the University of Sharjah's internship structure, InterTrack fills this gap and guarantees more efficient communication, monitoring, and documentation.

# CHAPTER 3: Requirement Engineering and Analysis

## 3.1 Stakeholders

- Students (Primary)
- Employers (Primary)
- University Coordinators (Primary)

## 3.2 Functional Requirements:

### 1. Student

- 1.1 Register and Log In
- 1.2 View available internships
- 1.3 Apply for internship opportunities
- 1.4 Track application status
- 1.5 Upload required documents
- 1.6 View coordinator feedback

### 2. Employer

- 2.1 Register company account
- 2.2 Post internship opportunities
- 2.3 Review student applications
- 2.4 Submit internship opportunities

### 3. Coordinator

- 3.1 Approve or reject student application
- 3.2 Track students progress
- 3.3 Access submitted reports and evaluations

### 3.3 Non-Functional Requirements:

Execution Qualities
<b>4. Usability</b> 1.1 Features a user-friendly interface. 1.2 Supports intuitive navigation and consistent layout across all modules.
<b>5. Performance</b> 2.1 The system is set up to support several users at once with minimal delay.
<b>6. Security</b> 3.1 Secure authentication with hashed passwords and MFA 3.2 Session management (auto-logout, token-based authentication)

Evolution Qualities
<b>1. Reliability</b> 1.1 24/7 ability to support more users in future versions
<b>2. Scalability</b> 2.1 System support future features and expansion 2.2 Handle increasing numbers of users and data

### 3.4 User Stories

Roles	Story
Student	"As a student, I would like to apply for an internship in order to obtain real-world experience."
Employer	"As an employer, I would like to promote internship positions in order to identify possible applicants."
Coordinator	"As a coordinator, I have to monitor student progress to make sure internship requirements are fulfilled."

## CHAPTER 4: Architecture and Design

### 4.1 System Architecture

InterTrack follows a three-tier architecture:

1. **Presentation Layer:** HTML, CSS, JavaScript
2. **Application Layer:** PHP backend logic
3. **Data Layer:** MySQL database

### 4.2 Database Design

#### Main Tables:

- Users
- Student Profiles
- Employer Profiles
- Internship Postings
- Applications
- Evaluations
- Reports

Accurate performances are guaranteed by database normalization.

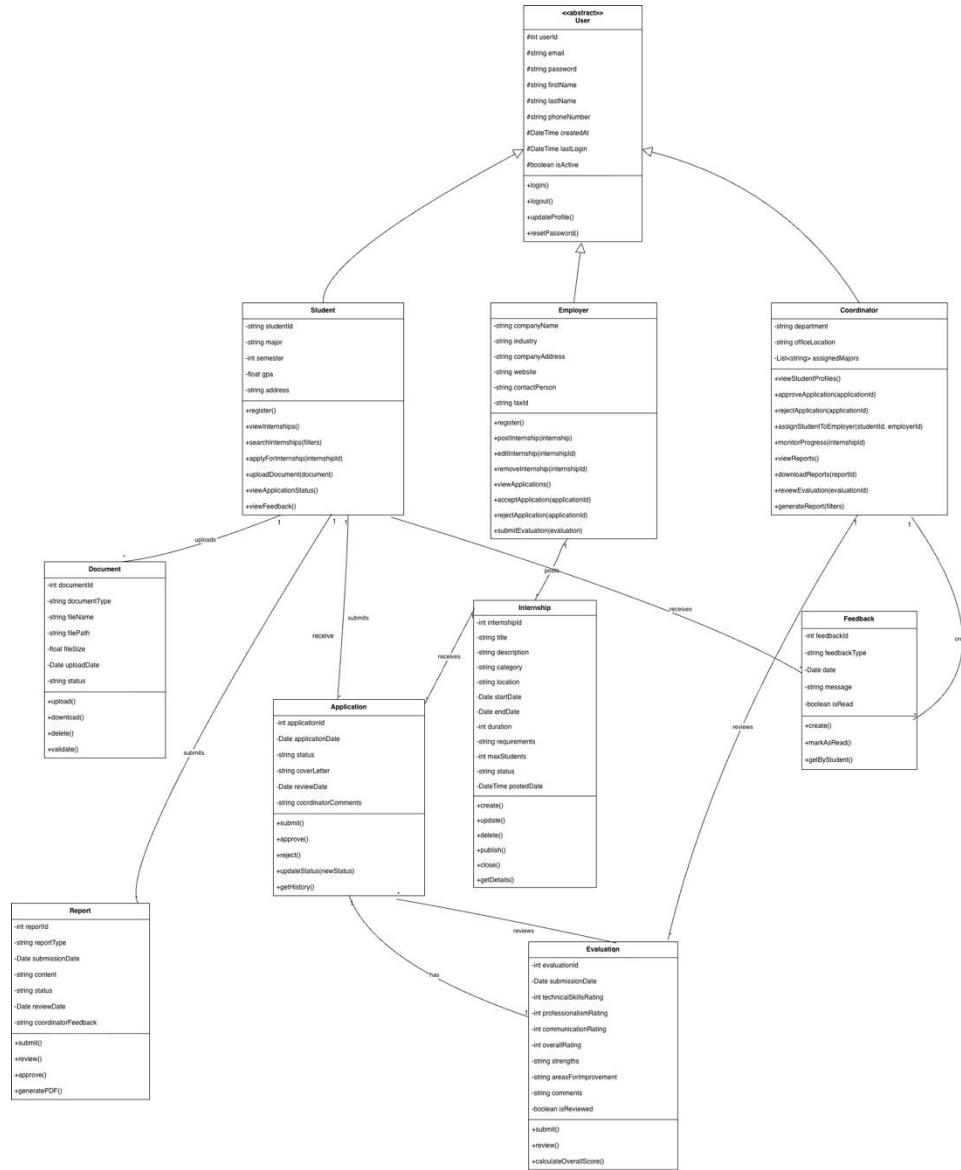
#### 4.2.1 User Table:

Field Name	Data Type	Description
<b>_id</b>	ObjectId / INT	Primary key (unique user identifier)
<b>name</b>	VARCHAR / String	Full name of the user
<b>email</b>	VARCHAR / String	User's email address (unique)
<b>password</b>	VARCHAR / String	Hashed password
<b>userType</b>	VARCHAR / String	Role (student / employer / coordinator / admin)
<b>createdAt</b>	DATETIME	Timestamp of account creation
<b>updatedAt</b>	DATETIME	Last update timestamp

All system users, including administrators, coordinators, employers, and students, are recorded in this table. Every user has a unique identity and an assigned role.

## 4.3 UML Diagrams

### 4.3.1 Use Case Diagram



Each user's interaction with InterTrack is shown in the use case diagram.

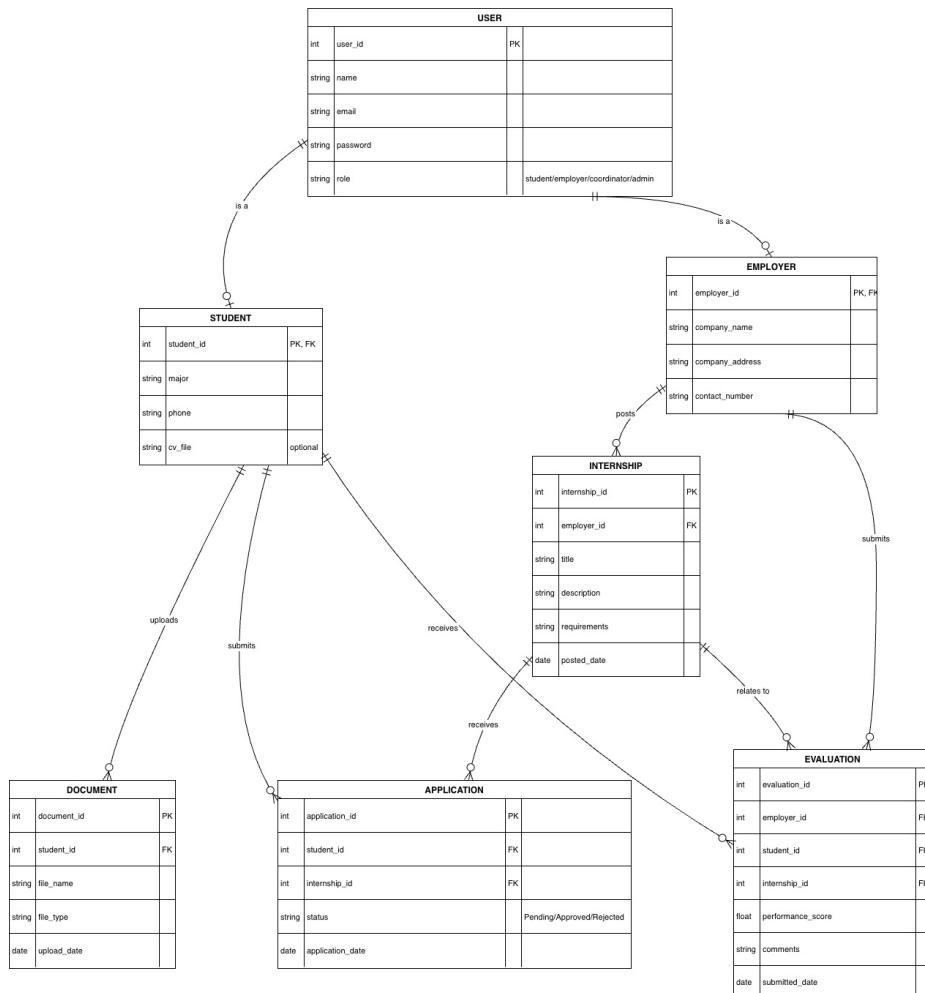
**Students:** Internship applications, document uploads, status updates, and comments.

**Companies:** Offering internships, evaluate applications, and offer comments.

**Coordinators:** Tracked applications progress.

By managing data processing, notifications, and authentication, the system supports all roles.

### 4.3.2 ER Diagram



This is an application tracking system entity-relationship diagram. It displays the connections between different entities:

User (with attributes such as user\_id, name, email, password, and role)

Student (student\_id, major, phone, CV\_file, linked to a User account)

Employer (employer\_id, company\_name, company\_address, contact\_number)

Internship (internship\_id, employer\_id, title, description, requirements, posted\_date)

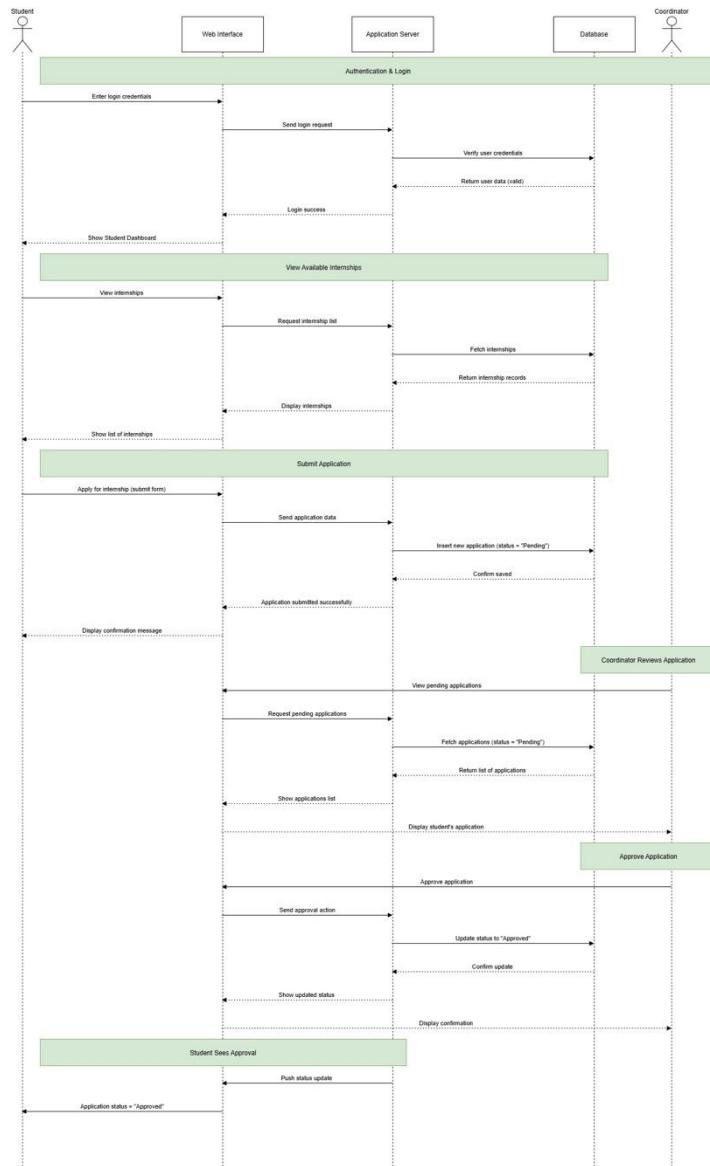
Application (application\_id, student\_id, internship\_id, status, application\_date)

Document (document\_id, student\_id, file\_name, file\_type, upload\_date)

Evaluation (evaluation\_id, employer\_id, student\_id, internship\_id, comments, submitted\_date)

Relationships like "User Submits Application," "Monitors" that link UserID to MonitoringSession, and "Assigns" that link MonitoringSession to Coordinator are all represented in the diagram. A hierarchical relationship known as "Assigns Department" exists between Coordinators as well.

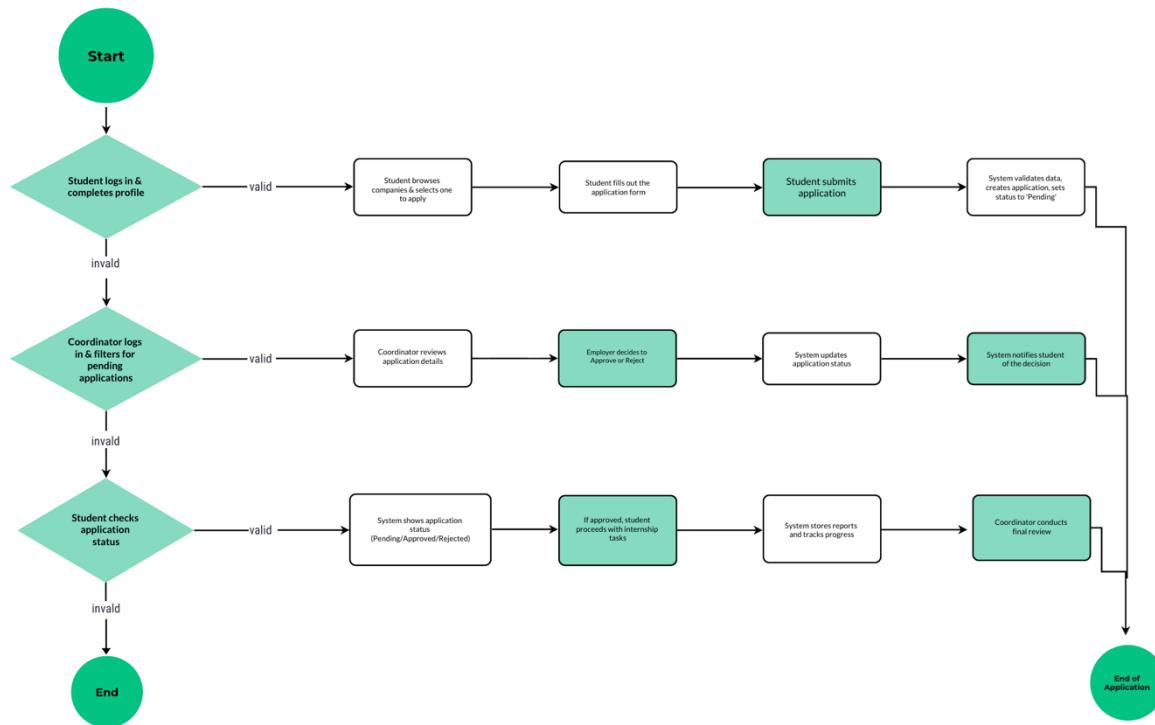
### 4.3.3 Sequence Diagram



1. The sequence diagram demonstrates how a student applies for an internship and a coordinator approves it.
2. The student logs in, reviews the available internships, and applies.

3. The system saves the application as "pending."
4. The coordinator then views the pending applications, approves one, and the system changes the status to "Approved."
5. Finally, the student can see the revised approval status on their dashboard.

#### 4.3.4 Workflow Diagram



The entire internship application procedure is displayed in this workflow:

After logging in, the student fills up their profile, chooses a company, and applies. It is noted by the system as Pending. The system notifies the student when the coordinator evaluates the application and decides whether to accept or reject it. After checking their status, the student proceeds with internship tasks till the coordinator finishes the final review if they are accepted.

## 4.4 User interface design (prototype)

### 4.4.1 Sign-up Page:

The image shows a wireframe prototype of a 'Create an Account' sign-up page. The page has a light grey background with a central white rectangular card. The card features a title 'Create an Account' at the top. Below the title are three input fields: 'Full Name', 'Email', and 'Password', each enclosed in a separate box. Underneath these fields is a dropdown menu labeled 'Registering As'. The dropdown menu has four options: 'Student', 'Employer', 'Advisor', and 'Student' again. The 'Employer' option is highlighted with a blue background. At the bottom right of the card, there is a small link that says 'Already have an account? [Login](#)'.

When entering the website, users will be directed to the page where they must choose which role they would want to act as, being either a Student, Employer, or an Advisor and enter their full name, email address, and password on the Sign in or Sign-Up page. A simple white card on a light grey background ensures clarity, simplicity, and ease of use for new users joining the system.

#### 4.4.2 Advisor Page:

The screenshot shows the InternTrack Placement Management system's Academic Advisor Dashboard. On the left, a sidebar navigation includes links for Dashboard, Advisor (which is highlighted in green), All Students, Internships, and Notifications. A user profile for 'Mashaer' is shown with the email 'MashaerAlAli@sharjah.ac.ae'. A red 'Logout' button is at the bottom of the sidebar.

The main dashboard features three colored summary boxes: a blue box for 'Total Students' (7), a green box for 'Active Internships' (1), and a purple box for 'Pending Approvals' (0). Below these are six individual student cards arranged in two rows of three. Each card displays the student's name, ID, department, year, GPA, and internship status. The first student, Ayesha Alzarooni, is listed as 'placed'. The second student, Fatima Al Ketbi, is also listed as 'placed'. The third student, Maryam Al Kamali, is listed as 'U22100987'. The fourth student, Aaliyah Al Falasi, is listed as 'U22104567'. The fifth student, Mashaer Ahmed, is listed as 'U22100100'. The sixth student, Hessa Al Suwaidi, is listed as 'U22099888'.

Provides a clear view of all assigned students by displaying colored summary cards that highlight the total number of students, active internships, and outstanding permits. Advisors can monitor and support students by searching for students under the statistics and examining individual student cards that include position status, department, GPA, and academic year.

#### 4.4.3 Internships Page:

The screenshot shows the InternTrack Placement Management system's Student Internship Requests page. The sidebar navigation is identical to the Advisor page, with 'Internships' highlighted in green. The user profile for 'Mashaer' and the red 'Logout' button are present.

The main content area is titled 'Student Internship Requests' with the sub-instruction 'These are ALL applications coming directly from your API.' It displays four application cards, each representing an internship request with specific details:

- Internship ID: int1**  
Student ID: 6921686bba216be142f5cd98  
Company ID: cmp1  
Message: —  
Status: approved  
Applied on: 11/23/2025
- Internship ID: int1**  
Student ID: 6921686bba216be142f5cd98  
Company ID: cmp1  
Message: hello world  
Status: rejected  
Applied on: 11/23/2025
- Internship ID: int1**  
Student ID: 6921686bba216be142f5cd98  
Company ID: cmp1  
Message: hello world  
Status: approved  
Applied on: 11/23/2025
- Internship ID: int1**  
Student ID: 6921686bba216be142f5cd98  
Company ID: cmp1  
Message: —  
Status: rejected  
Applied on: 11/23/2025

All student internship applications will be published on the Internship Requests page as a collection of properly organized cards with the internship ID, student academic and personal details, application status, company ID, message, and the date of submission on each card. This design will allow advisors and coordinators to quickly assess and compare several requests at once in an organized and very clear format.

#### 4.4.4 Notification Center Page:

The Notification Center displays system notifications on a bright summary card that will highlight the totals, unread notifications, urgent issues, and the required actions. Users may handle all system warnings in a comprehensible and structured manner by searching, filtering, and viewing complete notification cards with message content, labels, timestamps, and due dates.

#### 4.4.5 Companies Page:

The Companies tab displays all partner organizations in structured cards that include industry, contact information, open internship slots, and a company description. Users can search, filter by industry or size, and apply straight to organizations using clearly defined action buttons, making internship exploration simple and organized.

#### 4.4.6 Upload Documents Page:

The screenshot shows the 'Upload Your Documents' section of the InternTrack platform. On the left, there's a navigation sidebar with links for Dashboard, Companies, Upload Documents (which is highlighted in green), Internships, My Profile, and Notifications. Below the sidebar is a user profile box for 'Mashaer' with the email 'U22100345@sharjah.ac.ae'. At the bottom of the sidebar is a 'Logout' button. The main content area has a title 'Upload Your Documents' and two sections: 'Weekly Reports' and 'Final Internship Report', each with a large upload box containing an upward arrow icon and the text 'Upload Document Here'.

It has two clear distinct upload sections which are the Weekly and Final Internship Reports, both represented by a large, basic upload box with an icon and very clear instructions. The simple layout style will guarantee that the students can submit essential papers without confusion.

#### 4.4.7 Student Profile Page:

The screenshot shows the 'Student Profile' page. The navigation sidebar includes links for Dashboard, Companies, Upload Documents, Internships, My Profile (highlighted in green), and Notifications. It also shows the user profile 'Mashaer' with the email 'U22100345@sharjah.ac.ae' and a 'Logout' button. The main form area is titled 'Student Profile' and 'Manage your student information'. It contains fields for Full Name (\*), Email (\*), Phone (\*), Department (\*), Academic Year (\*), GPA, Skills (with a list including '2D & 3D Unity game development'), and an 'Upload Resume' section with a 'Choose Resume (PDF/DOCX)' button and an 'Upload Resume' button. A large green 'Save Changes' button is at the bottom right.

Users can access and edit their CV, skills, academic and personal information on the Student Profile page in a well-organized design and simple layout. The large "Save Changes" button makes it quick to submit changes, and the input fields and skill categories are clearly marked, making editing simple.

#### 4.4.8 Employer Dashboard Page:

The screenshot shows the InternTrack Employer Dashboard. At the top, there's a navigation bar with links for 'Employer Dashboard', 'Internships', 'My Profile', and 'Notifications'. On the left, a sidebar shows a profile picture for 'Mashaeer' and the email 'MashaeerAlAli@gmail.com', with a 'Logout' button below it. The main area is titled 'Employer Dashboard' with the subtitle 'Review and manage internship applications.' It features three summary cards: 'Pending Applications' (13), 'Approved' (4), and 'Rejected' (2). Below these, under 'Internship Applications', there are two entries for 'Unknown Student' with student ID, position, and company all listed as 'N/A'. Each entry has 'Accept' and 'Reject' buttons and a timestamp '11/23/2025'.

Presents a very clear view of all internship applications by displaying colored summary cards with a status that shows either of the following: "pending, approved, and rejected". Each application is presented in a simple card structure with student information and huge Accept/Reject buttons, allowing employers to manage applications quickly and effectively.

## CHAPTER 5: Implementation Plan

### 5.1 Description of Implementation

This chapter covers the implementation strategy used to develop InterTrack, including the technologies used, system architecture, development phases, and integration process. The aim is to guarantee that the system is constructed effectively, with the given requirements.

### 5.2 Technologies Used

The following technologies and tools will be used in the implementation of the system:

#### Frontend Technologies:

- **HTML5:** Web page structure and layout
- **CSS3:** Responsive design, formatting, and style
- **JavaScript:** Interactive elements and client-side features

## Backend Technologies:

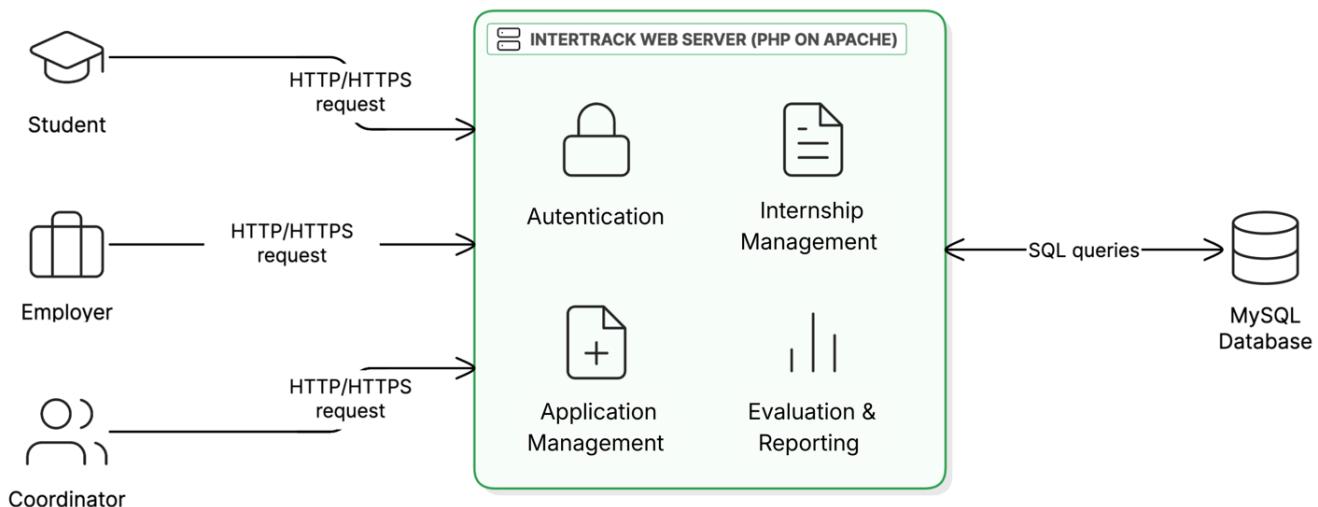
- **PHP:** Secure processing, form handling, and server-side logic
- **MySQL:** Data storage, queries, and management of databases

## Development Tools:

- **Visual Studio Code:** Main code editor
- **XAMPP:** MySQL and Apache local server environment
- **GitHub:** Collaboration, version control, and repository management

These technologies were chosen for their efficiency, and convenience of use in developing a responsive and adaptable web-based system.

## 5.3 System Architecture



1. The architecture uses a web-based, client-server format to show how the InterTrack system functions. HTTP/HTTPS requests are used by coordinators, employers, and students to

communicate with the system. These requests are handled by the InterTrack Web Server, which is developed with PHP and runs on an Apache server.

2. Inside the web server, different modules handle essential functions:
  - Authentication controls secure login and role-based access.
  - Internship Management handles the creation, posting, and viewing of internship listings.
  - Application Management handles student applications and tracks their status
  - Evaluation & Reporting creates performance insights and oversees employer evaluations.
3. The web server and MySQL database exchange SQL queries for all data operations. Secure data flow, centralized storage, and seamless communication between all user roles and system components are guaranteed by this framework.

## 5.4 Implementation Phases

### Phase 1: Preparing the Database

- Creating ER diagrams
- Making tables for roles, internships, applications, evaluations, and users
- Adding foreign and primary keys
- Setting up secure connections with MySQL

### Phase 2: Business Logic

- Placing user authentication to use (login & registration)
- Creating CRUD (create, read, update, and delete) operations
- Connecting the admin, employer, student, and coordinator modules
- Form validation and user input security (password hashing, SQL injection prevention)

### Phase 3: Frontend Development

- Using the given wireframes as a starting point for user interface design
- Dashboard creation for every user role

- Including tables, forms, and navigation menus
- Making the user interface responsive on all devices

#### **Phase 4: Integration of Modules**

- Connecting front-end pages to Business logic
- Ensuring smooth data transfer between components
- Connecting the submission, posting, assessment, and tracking of applications

#### **Phase 5: Testing & Debugging**

- Fixing mistakes in checking forms
- Verifying database connectivity
- Fixing UI alignment problems
- Conducting cross-browser testing

#### **5.5 Part of Implementation (Authorization Code):**

```

const router = require("express").Router();
const User = require("../models/User");
const bcrypt = require("bcryptjs");

// -----
// User Registration (Signup)
// -----
router.post("/signup", async (req, res) => {
    try {
        const { name, email, password, userType } = req.body;

        // Check if user already exists
        const existingUser = await User.findOne({ email });
        if (existingUser) {
            return res.json({ success: false, message: "Email already registered" });
        }

        // Hash the user's password
        const hashedPassword = await bcrypt.hash(password, 10);

        // Create new user object
        const newUser = new User({
            name,
            email,
            password: hashedPassword,
            userType
        });

        await newUser.save();
    } catch (error) {
        res.status(500).json({ error: "Internal Server Error" });
    }
});

```

The user registration endpoint's implementation is shown in the code below. It securely hashes the password using bcrypt, verifies incoming data, looks for existing accounts, and adds the new user to the database.

## 5.6 Summary

The implementation strategy ensured a structured and efficient development process. The team created a functional and reliable internship management system that meets user and university criteria by breaking it down into steps, using modern technology, and implementing secure coding methods.

# CHAPTER 6: Experiments

## 6.1 Introduction

This chapter presents the testing and evaluation procedures conducted to ensure that InterTrack functions correctly, efficiently, and according to the defined requirements. Multiple testing methods were performed, including functional testing, usability assessment, security validation, and performance observations. These experiments aimed to verify system stability and identify any necessary improvements before deployment.

## 6.2 Testing Approach

The following testing techniques were applied to validate the system:

### 6.2.1 Functional Testing

Guarantees the correct operation of every system's functionality.

- Verifying registration and login
- Document uploading
- Applying for internships

- Submitting assessments
- Tracking the status of applications

Using various roles (student, coordinator, employer, admin), each feature was tried several times.

### **6.2.2 Usability Testing**

Focuses on how people engage with technology.

- Assessing how simple it is to navigate and verify that forms and labels are clear.
- Creating incredibly user-friendly dashboards
- Make sure every page has the same layout.

The user interface and user experience were enhanced via tester input.

### **6.2.3 Performance Testing**

Evaluate the system's performance in typical conditions.

- Verify page load speed and track the database response time.
- Ensuring fast files are uploaded.
- Confirming seamless module navigation.

Throughout the tests, the system demonstrated consistency

### **6.2.4 Assessment Outcome**

The testing strategy ensured that:

- All critical functionality is performed as expected.
- The system is simple to use and navigate.
- Unauthorized actions are strictly prohibited under secure access control.
- The database manages all operations effectively.
- The user interface has been maintained for all user roles.

Minor issues, like button spacing and text alignment, were fixed during the debugging process.

## **6.3 Test Cases**

Test Case	Description	Expected Result	Status
<b>Login with Valid Credentials</b>	User enters correct email and password	Redirect to dashboard	Passed
<b>Apply for Internship</b>	Student submits application form	Application stored in database	Passed
<b>Post Internship</b>	Employer posts opportunity	Visible on student dashboard	Passed

<b>Coordinator Approval</b>	Coordinator approves student	Status updates to “Approved”	Passed
<b>File Upload</b>	Student uploads report	File saved and viewable	Passed
<b>Unauthorized Access</b>	Student tries to open coordinator page	Access denied	Passed

## 6.4 Summary

This chapter showed how functional, usability, security, and performance testing were used to extensively evaluate InterTrack. The outcomes demonstrate that the system achieves its goals and is prepared for implementation. The usefulness and dependability of the implemented features are confirmed by successful experiments.

# CHAPTER 7: Conclusion and Results

## 7.1 Introduction

This chapter shows how the InterTrack system will enhance the internship administration and highlight its key accomplishments. It also states the challenges and issues that are faced during development and advises recommendations for future developments.

## 7.2 Project Achievements

Among the project's major achievements are:

### 1. Implementation of a Functional System:

- Role-based access for administrators, employers, coordinators, and students
- Safe signup and login
- Posting and managing internships
- Submission and monitoring of student applications
- Submission of an employer evaluation
- Features for coordinator approval and monitoring

- 2. Enhanced Efficiency of Workflow:** By digitizing the entire internship cycle, the system minimizes errors and delays that may result from manual operations.
- 3. Easy to use Interface:** Dashboards are made to be understandable, straightforward, and simple to use for all kinds of people.
- 4. Organized and Safe Data Management:** Documents, applications, and assessments are safely stored by the system in a MySQL database with user role-based access limitations.
- 5. Effective Testing:** Black-box tests verified that the primary functions satisfy the functional criteria outlined in previous chapters and operate as expected.

### 7.3 Limitations

Although achieving its primary objectives, InterTrack still has a few limitations:

- There is no mobile application for the system; it is completely web-based.
- There is no automated internship matching or recommendation system in place.
- Analytics tools are limited and can only produce basic reports.

These limitations offer chances for future iterations to be even better.

### 7.4 Conclusion

InterTrack: The Web-Based Student Internship and Placement Tracking System is developed to effectively address the issues with the traditional internship management procedures. Manual monitoring methods like email exchanges, paper-based forms, and dispersed information were replaced by a platform that is simple to use, well organized, and well structured.

InterTrack makes it easier for administrators, Instructors, employers, and students to communicate effectively by using a single system. Throughout the internship process, this approach improves transparency, teamwork, and documentation from posting to evaluation. The project shows how a well-designed online application may improve academic processes, user experience, and administrative efficacy within the university.

### 7.5 Summary

The University of Sharjah's internship administration has been improved and enhanced through the InterTrack system. It guarantees a correct recording of internships, easier communication among all users, and offers a straightforward and easy approach. The system may develop into a comprehensive platform that facilitates professional and academic work with further development.

## CHAPTER 8: References

[1] Task Stream

[https://www.taskstream.com/Main/main\\_frame.asp](https://www.taskstream.com/Main/main_frame.asp)

[2] PlacePro

<https://www.placepro.com>

[3] GradLeaders

<https://www.gradleaders.com/internship-management-system/>

[5] Al-Hamid, A., & Al-Rawajbeh, M. (2021). A Web-Based Internship Management System for Academic Institutions. International Journal of Advanced Computer Science and Applications.

[6] Booch, G., Rumbaugh, J., & Jacobson, I. (2005). The Unified Modeling Language User Guide (2nd ed.). Addison-Wesley.

[7] Provos, N., & Mazières, D. (1999). A Future-Adaptable Password Scheme. USENIX Annual Technical Conference.

[8] Sommerville, I. (2016). Software Engineering (10th ed.). Pearson.

Connolly, T., & Begg, C. (2015). Database Systems: A Practical Approach to Design, Implementation, and Management (6th ed.). Pearson.