INTERNSHIP APPLICATION SYSTEM

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This report is submitted in partial fulfillment of the requirements for the
Bachelor of [Computer Science (Software Development)] with Honours.

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY UNIVERSITI
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DECLARATION

I hereby declare that this project report entitled

INTERNSHIP APPLICATION SYSTEM

is written by me and is my own effort and that no part has been plagiarized

without citations.

STUDENT   :_____ Date : 2/9/2021

NOR HANIS AFIFAH BINTI HARUN

I hereby declare that I have read this project report and found

this project report is sufficient in term of the scope and quality for the award of

Bachelor of [Computer Science (Software Development)] with Honours.

SUPERVISOR   :_____ Date : 2/9/2021

TS. DR. UMMI RABAAH BINTI HASHIM

DEDICATION

To my beloved parents, Harun Bin Mohamed and Nor Ruzita Binti Yusof, thank you for all your support that you gave throughout this project. To my siblings, thank you for understanding and giving me space and time.

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ABSTRACT

For Internship Application System, this report studies cover five (5) chapter, which are Introduction, Literal Review and Project Methodology, Analysis, Design and Implementation. The problems to be solved are the difficulties of the student to apply for their internship and sometimes the company lost track of the applicants. The solutions are developing a system that will connect the student and company in a website called Internship Application System. Many researches have been done and throughout the research processes, many results have been obtained.

ABSTRAK

Untuk Sistem Permohonan Pelatih, kajian laporan merangkumi lima (5) bab, iaitu Pengenalan, Kajian Literasi dan Metodologi Projek, Analisis, Reka Bentuk dan Implementasi. Masalah yang harus diselesaikan adalah kesukaran pelajar untuk memohon latihan dan kadang-kadang syarikat kehilangan jejak pemohon-pemohon. Penyelesaiannya adalah membina sebuah sistem yang akan menghubungkan pelajar dan syarikat di laman web iaitu Sistem Permohonan Pelatih. Banyak kajian telah dilakukan dan sepanjang proses penyelidikan, banyak hasil telah diperoleh.

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6. Data Definition Language – DDL

7. Data Manipulation Language – DML

8. Functional Requirements – FR

9. Integrated Development Environment – IDE

10. Hyper Text Markup Language – HTML

CHAPTER 1: INTRODUCTION

1.1   Introduction

Internship program is one of the concern for any internship applicant. It will be a waste for both companies and applicants if their skills are not used properly. Therefore, there will be a need to have a smart internship application system. There are two users for this system. From this system applicants will be able to upload their resume to be reviewed by companies that are available in the system once the applicants applied for the particular position. Not only that, the applicants will be able to view a list of companies that are looking for intern in their dashboard suitable with their qulifications as stated in their resume. Besides, the company will get notified through email when any applicants applied for the company.

1.2   Problem Statement

Some of the problem statements that has been identified are:

1. Applicants have problem to identify positions that are suitable with their qualifications. Some of the students are confuse if they are qualified enough to apply for the internship place.
2. Applicants need to browse through various positions instead of a specific position. Since the existing system is focusing on permanent job rather than internship, students will waste their time browsing the positions.
3. The company sometimes lost track of the applicants that applied as there are no proper database system to save the data. There will be a lot of students that will apply for internship, thus it will make the choosing proces harder for the company.

1.3 Objective

This system is focused to achieve some of the objectives:

1. To build a system that can help applicants to search for particular internship position as some students having difficulties to find internship places.
2. To build a system that will produce a list of available internship positions for applicants every day that is suitable with their qualifications.
3. To build a system that will notify the company if there are any applicant that applied for that company.

1.4 Scope

Scope has been divided into two categories, which are:

1. Module to be developed

   a. Registration and authentication
      - Registration is needed to use the system for the first time. Student will need to register using name, contact number, gender, email and password while the company need to register using company name, contact person name, contact number, email and password. After registration is successful, user need to authenticate themselves. For authentication, user need to login using their respective email and password.
   b. Search
      - Students are able to search by job name, field, salary, place and company name.
   c. View intern position
      - Once a job is posted, it will be displayed in the student's dashboard. Therefore, this module allows student to view a list of intern positions in their dashboard.
   d. Apply internship
      - The main objective of developing this system is to allow students to apply for internship. Thus, students will be able to apply for their suitable internship position.
   e. Manage profile
      - Students and the company are able to view and update their profile.

f. View applicant

- The company will be able to view applicants that applied to a particular internship position. The person in charge also will be able to update the status of application from "Pending" to " "Viewed" or "Accepted" or "Rejected".

2. Targeted user

a. Internship applicant

- Internship applicant is the student that will applied the internship places for their industrial training.

b. Company

- The registered company will post available internship spot for the students.

1.5 Project Significance

The significance of this project are:

1. Able to help internship students to find their internship place.

2. Able to help company to view and sort out the internship student.

1.6 Expected Output

The companies will not miss the opportunity to recruit a great intern for their internship program while the applicants will not miss the opportunity to choose a great company suitable with their qualifications and gain experience to improve themselves. This would increase the profitability of a company if they were able to hire the qualified internship student.

1.7 Conclusion

Overall, this chapter summarizes the introduction and the output of the system to be developed. For the next chapter, we will be discussing about literature review and project methodology.

CHAPTER 2: LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1   Introduction

For a software project to be developed, it must go through some stages. In this chapter, we will be discussing about literature review and project methodology.

2.2   Facts and Findings

Facts and findings are important in carrying out a research before starting to develop a software project. Internship Application System are based on the website named 'Jobstreet.com'. In Jobstreet.com, we can see that there are many features that were build, such as the search function and the analytical data after a search has been done.

After a search has been done, Jobstreet.com will give some recommendations to user about related topic and based on their last search. For example, if a user search a job related to Information Technology (IT) field, it will suggests the jobs that is related to IT field and the next time the user visit the website, it will suggests the related job.

Jobstreet.com also gather all position whether it is a permanent job or an internship position. They enable the filter search for the field, salary, job type and date posted. User are able to choose from the filter given and search accordingly.

2.2.1   Domain

Internship Application System (IAS) is a web-based system that is built using a source scripting language, which is PHP. IAS also built using a markup language (HTML) and JavaScript. For database, IAS used MySQL and it is stored in phpMyAdmin. To run the system, we will be using Xampp as it is a free and open-source cross-platform web server.

2.2.2 Existing System

Student need to find their own internship place by visiting a lot of companies' website. They will spend a lot of time searching and sometimes it will lead them to confusion. This is because, they ponder whether they are qualified enough or not to be accepted for a particular company. For companies, it is harder to get an intern as they post in their own website. The student sometimes overlooked the internship offer made by the company as they go through the company's website. Thus, this will cause a great loss to both parties.

2.2.3 Technique

Research techniques are the strategies, processes or methods utilized in the collection of data or evidence for analysis in order to uncover new information or create better understanding of a topic. The technique that were used in this report is research. One of the research has been done through 'Jobstreet.com' website and there are a lot of facts and findings that have been found.

2.3 Project Methodology

For project methodology, agile type has been used in developing this system. Agile methodology meaning a practice that promotes continuous iteration of development and testing throughout the software development lifecycle of the project. In the Agile model in software testing, both development and testing activities are concurrent.

Agile software development methodology is one of the simplest and effective processes. Agile is a term used to describe software development approaches that employ continual planning, learning, improvement, team collaboration, evolutionary development, and early delivery. It encourages flexible responses to change. When there are any changes to be made in the system, agile are flexible enough to make sure that we can turn back to first step of development and review it again.

2.4 Project Requirements

2.4.1 Software Requirement

The software that are required for this project are:

1. Xampp

2. Sublime Text 3

3. MySQL

4. phpMyAdmin

2.4.2   Hardware Requirement

The hardware that are required for this project is:

1. Computer

2.4.3   Other Requirements

There are no other requirements needed to develop this system

2.5   Project Schedule and Milestones

In total, there are 14 weeks given to finish this system. During week one (1), there has been a meeting held with the supervisor to discuss about the title of the project. For week two (2) and three (3), student starts to do the proposal and submit it to be verified by the final year project's committee. Once the proposal has been accepted, student starts to discuss the problem analysis. On week four (4), student starts working on the design of solution. From week five (5) until seven (7), student has been doing the first progress for project implementation. The implementation continued until week 13 where student has final meeting with supervisor to check on the project progress. On week 14, the final presentation are held and the final report are to be submitted.

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Meet the supervisor	■													
Discussion / verification of title and synopsis	■													
Student submits proposal to Supervisor & Committee		■	■											
Discussion with Supervisor on analysis of problem			■											
Discussion with Supervisor on design of solution				■										
Project implementation (Progress 1)					■	■	■							
Project implementation (Progress 2)								■	■	■	■			
Project implementation (Progress 3)												■	■	
Final presentation &submission of final report														■

Figure 1: Gantt Chart

2.6   Conclusion

Identifying facts and findings are important in continuing to develop a system as it can helps with data accuracy and it is the basis of developing a high quality system. For the next chapter, we will be discussing about analysis.

CHAPTER 3: ANALYSIS

3.1   Introduction

Requirement analysis is the process of determining user expectations for new or changed software. It is sometimes referred to as requirements gathering or requirements capture in the context of software engineering. The tasks that go into defining the needs or conditions to meet for a new or altered system are referred to as requirements analysis.

3.2   Problem Analysis
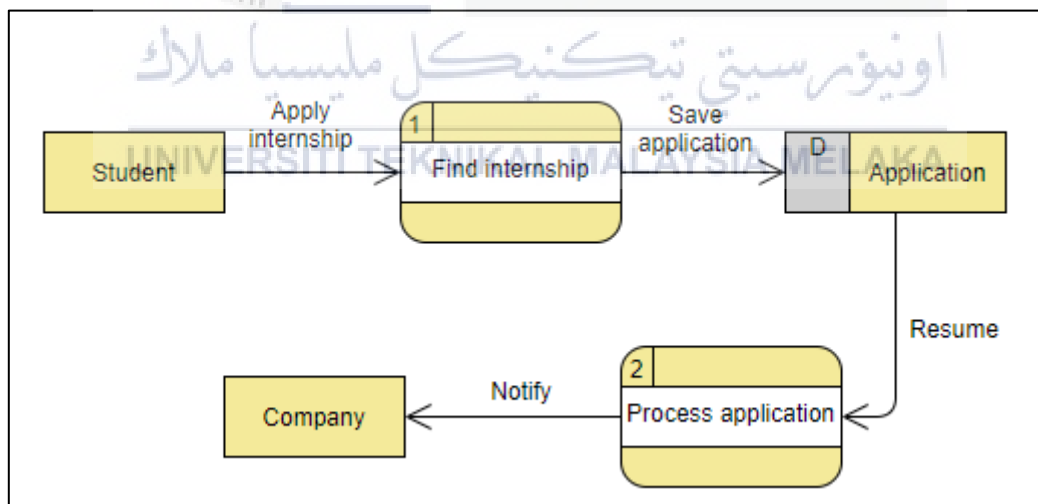
Figure 2: Data Flow Diagram for IAS

For this system, students want to find internship suitable with their own level. Therefore, they need to apply for an internship. The application will be saved in a database and the resume will be processed before it is send to company to be notified. The problem arises when student had a hard time choosing the internship place because they are unsure of their qualification. Company also will be facing problem if they were to lose a qualified candidate.

3.3 Requirement Analysis

3.3.1 Data Requirement

Table 1: Data Dictionary for Student

No.	Name	Data Type	Description	Null	Example Data
1.	studentID (PK)	Int (11)	A unique student's identification number for IAS	No	1
2.	firstName	Varchar (255)	The first name of the student	No	Nor Hanis
3.	lastName	Varchar (255)	The last name of the student	No	Harun
4.	gender	Char (1)	The gender of the student	No	f
5.	contactNumber	Int (11)	The contact number of the student	No	0102484969
6.	Email	Varchar (255)	The student's email used to register and login for IAS	No	hanis71s99@gmail.com
7.	password	Varchar (255)	The student's password used to register and login for IAS	No	hanis712

Table 2: Data Dictionary for Company

No.	Name	Data Type	Description	Null	Example Data
1.	companyID (PK)	Int (11)	A unique company's identification number for IAS	No	3
2.	companyName	Varchar (255)	The company's name	No	Maju Jaya Sdn. Bhd.
3.	companyAddress	Varchar (255)	The company's address	No	No.17, Jalan Plumbum Q7/Q, Seksyen 7, 40000 Shah Alam, Selangor
4.	companyBackground	Char (1)	The background of the company	No	Hi! We are Maju Jaya Sdn. Bhd.
5.	contactPersonName	Varchar (255)	The company's representative	No	Ariff bin Ismail

5.	contactNumber	Int (11)	The contact number of the company	No	0361809900
6.	Email	Varchar (255)	The email used to register and login for IAS	No	ariff.majujaya@gmail.com
7.	password	Varchar (255)	The password used to register and login for IAS	No	ariff@majujaya

Table 3: Data Dictionary for Job

No.	Name	Data Type	Description	Null	Example Data
1.	jobID (PK)	Int (11)	A unique job's identification number for IAS	No	1
2.	jobName	Varchar (255)	The first name of the student	No	Lawyer
3.	field	Varchar (255)	The last name of the student	No	Legal Services
4.	salary	Varchar (255)	The gender of the student	No	1000
5.	datePosted	date	The contact number of the student	No	21-06-24
6.	place	Varchar (255)	The student's email used to register and login for IAS	No	Shah Alam, Selangor
7.	jobDescription	text	The student's password used to register and login for IAS	No	Student will learn how to manage client's cases
8.	duration	int	The duration for the internship	No	3
9.	startDate	date	The start date of internship	No	21-09-27
10.	companyID (FK)	Int (11)	A unique company's identification number for IAS	No	3

Table 4: Data Dictionary for Application

No.	Name	Data Type	Description	Null	Example Data
1.	applicationID (PK)	Int (11)	A unique application identification number for IAS	No	1
2.	companyID	Int (11)	A unique company's identification number for IAS	No	3
3.	jobID	Int (11)	A unique job's identification number for IAS	No	1
4.	resume	text	The gender of the student	No	Nor Hanis_resume.pdf
5.	status	Varchar (255)	The status of application	No	Accepted

3.3.2   Functional Requirement

Functional requirement is a description of the service that the software must offer. It describes how the system should behave when user react to the system. The functional requirements for Smart Internship Application System are:

Table 5: Functional Requirement for IAS

Functional Requirement	Requirement	FR No.	Description
Authentication	Register	FR_01	The system should allow users to register into the system.
		FR_02	The system should validate format using the format given
		FR_03	The system should remind users not to leave any empty field
		FR_04	The system should notify user if they has successfully or unsuccessfully registered
	Login	FR_05	The system should allow user to access their own account
		FR_06	The system should verify the email entered according to the format
		FR_07	The system should check for correct password

		FR_08	The system should notify user if they have login into the system
Authorization Level	Student	FR_09	Student should be able to view their profile
		FR_10	Student should be able to update their profile
	Company	FR_11	Company should be able to view their profile
		FR_12	Company should be able to update their profile
		FR_13	Company should be able to view student who applied for internship
Business Rules	Student	FR_14	Student should be able to apply for internship
		FR_15	Student should be able to cancel application
		FR_16	Student should be able to view internship spots
	Company	FR_17	Company should be able to add internship position
		FR_18	Company should be able to update the status of application

3.3.3 Non-functional Requirement

Non-functional requirement describes the quality attributes of a software system. Some of the attributes that are looked for were scalability, usability, security, portability and many others. The non-functional requirements for this system are:

Table 6: Non-functional Requirement for IAS

Aspect	Requirements
Scalability	The system should be able to expand the system if necessary
Portability	The system should be able to run on various operating system, which are Mac OS, Windows and Android
Availability	The system will be able to operate normally during its operating hours
Usability	The system should be easy for user to navigate and use

3.3.4   Others Requirements

For software requirements, Xampp is needed as a cross-platform web server for Apache server, MySQL, PHP and Perl. MySQL is needed as the database management. For PHP text editor, Sublime Text 3 is used.

3.4   Conclusion

The outcome from this chapter is that we are able to get a grasp on what and how to build IAS. For the next chapter, we will be discussing about design phase.

CHAPTER 4: DESIGN

4.1 Introduction

This chapter defined the design stage of software development. Design stage is a vital part in developing a software project as it makes the software project easier to work on when it has been segmented into small pieces.

4.2 High-Level Design

High-level design contains both system architecture of the developed system and the user interface of the system.

4.2.1 System Architecture

Figure 3: System Architecture for IAS

User will access this system through a web browser. The transaction and business processes that happen when user is login into the system will be kept in the database and can be used for the next session if necessary.

4.2.2 User Interface Design

a) Navigation Design
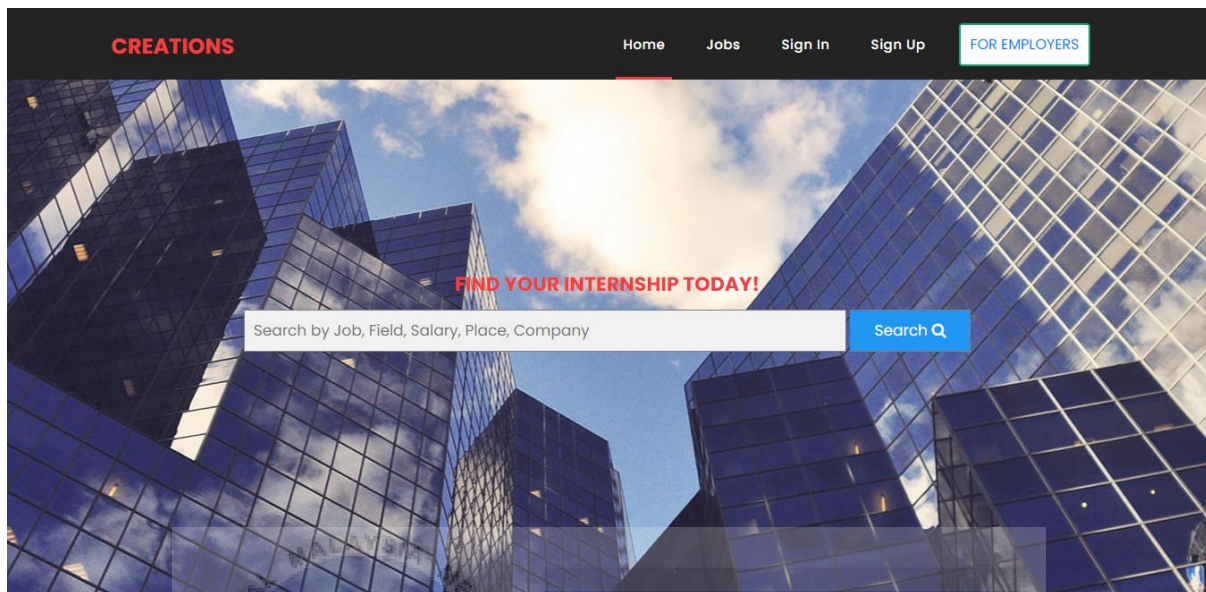
Figure 4: UI design for student main page

This is the main page of the student site. The type of navigation controls that are being used is menu bar and button. Menu bar allows user to navigate using category and sub-categories. The categories are 'Home', which will navigate users to home page. Next, 'Job' category is to navigate users to browse through available jobs. 'Sign In' category will navigate users to login while 'Sign Up' will navigate users to register an account. The 'For Employers' button will navigate users to the company's site. For search function, student are able to search by job name, field, salary, place and company.
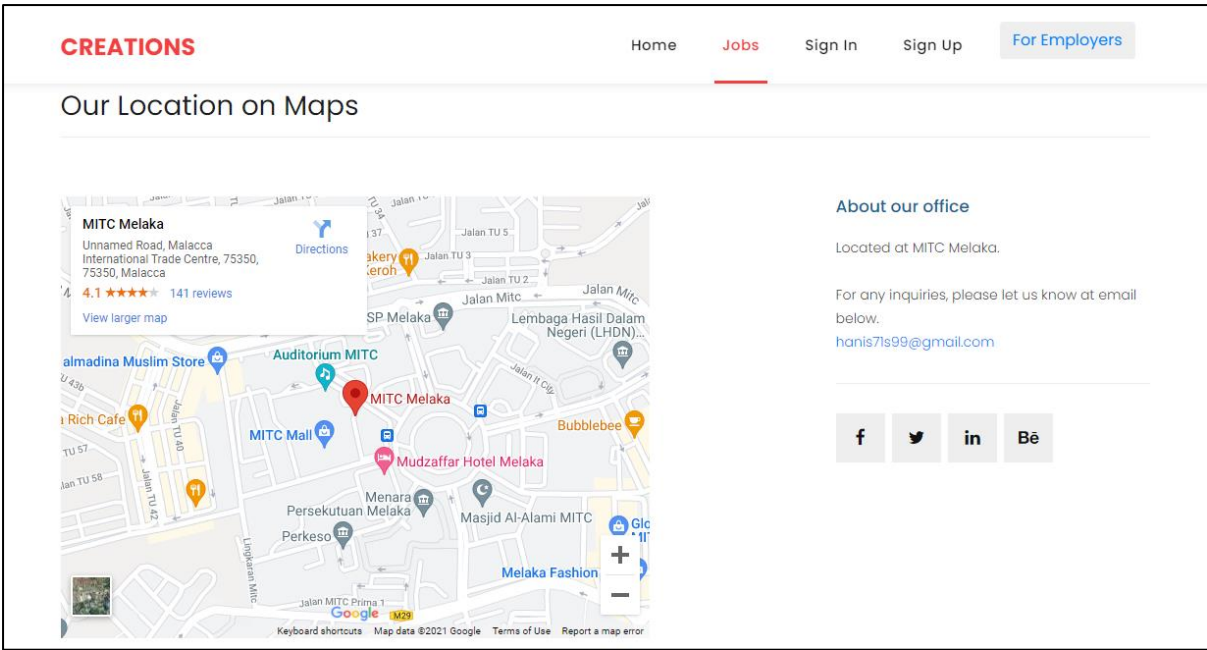
Figure 5: UI design for Contact Us page

This is the contact page. If user have any inquiries, user can email to the email given directly. The navigation controls that are used were link. User also will be able to view the location on the map.

Figure 6: UI design for View Internship Position

Figure 11 shows the available intern position. Student will be able to view the available position before choosing the position.
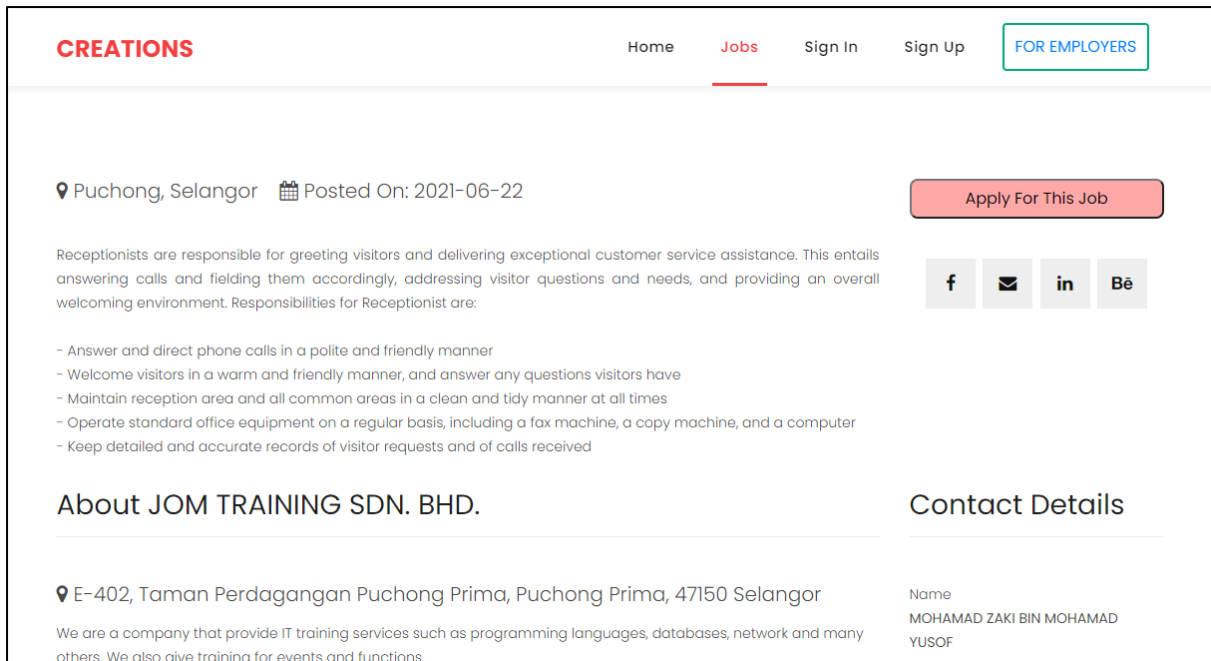
Figure 7: UI design for View Job Detail page

Student able to view the detail of the job chosen. If student is not login into the system, they will need to login to apply for the job.
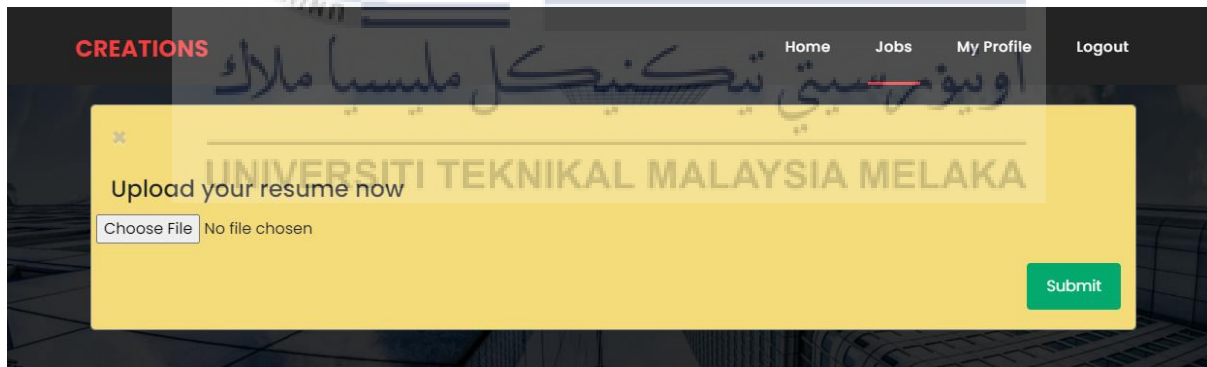
Figure 8: UI design for uploading resume

Student who wish to apply for job, they will need to upload their resume so that companies will be able to view the resume.
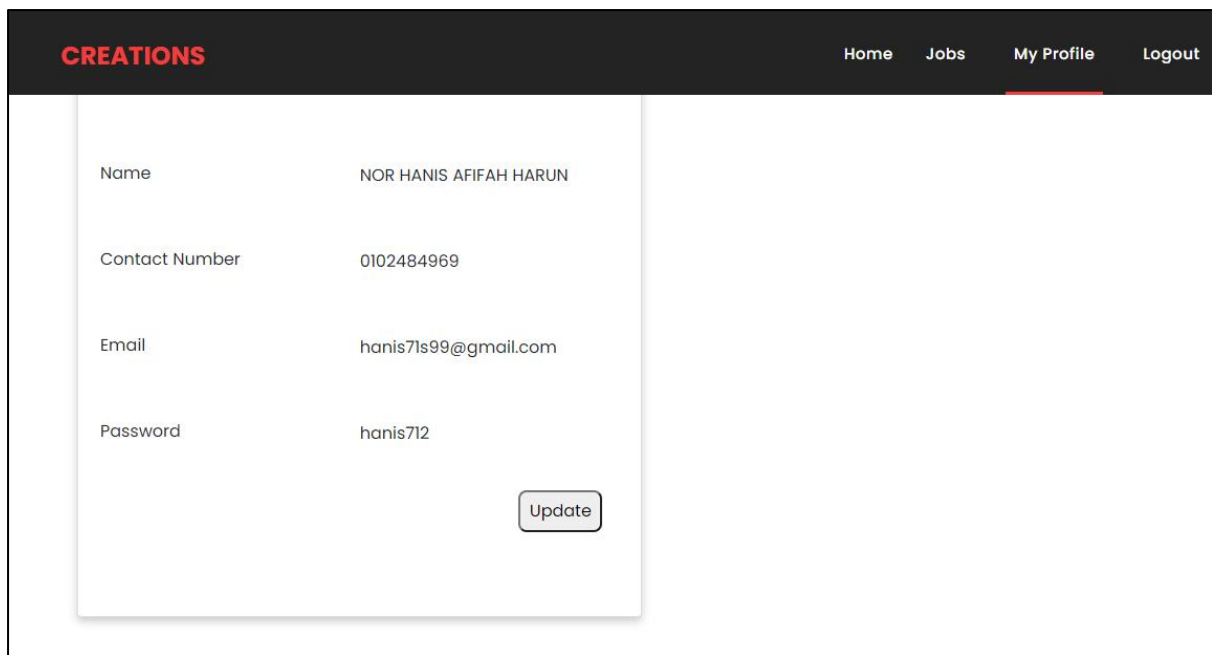
Figure 9: UI design for View Profile

Student will be able to view their own profile and they are able to update their profile.

Figure 10: UI design for View Company's Profile

The company also will be able to view their own profile and update them.

Figure 11: UI design for Post a Job page

For the company who wish to post their job, they can do that at this page. They just need to input job Name, field, the job description, salary, and date posted and place. Once they click post button, the job will appear at student's site.

b) Input Design

Figure 12: UI design for student's registration

This is the sign up page, where users register for their account. For students, they must register using their names, gender, contact number, email and password. While all fields are required,

students must enter alphabet only in 'First Name' and 'Last Name' text field. For 'Contact Number' field, students must enter numeric only and for 'Email' field, students must enter the correct email format, which should contain '@' and '.com'. For 'Password' field, students need to enter at least eight (8) characters as it is set to have a minimum length of eight (8) characters.

Figure 13: UI design for company's registration

This is the sign up page for the company. For company, they must register the full company name, which have to be the same as business registration documents. They also need to input their contact person name, contact number, email and password. For 'Contact Person Name' field, they need to enter alphabet only and for 'Contact Number' field, they need to enter only numeric. For 'Email' field, they must ensure that the email registered is in valid format, which must contain '@' and '.com'. There is no minimum length required for 'Password' field.

4.2.3   Database Design

4.2.3.1 Conceptual and Logical Database Design
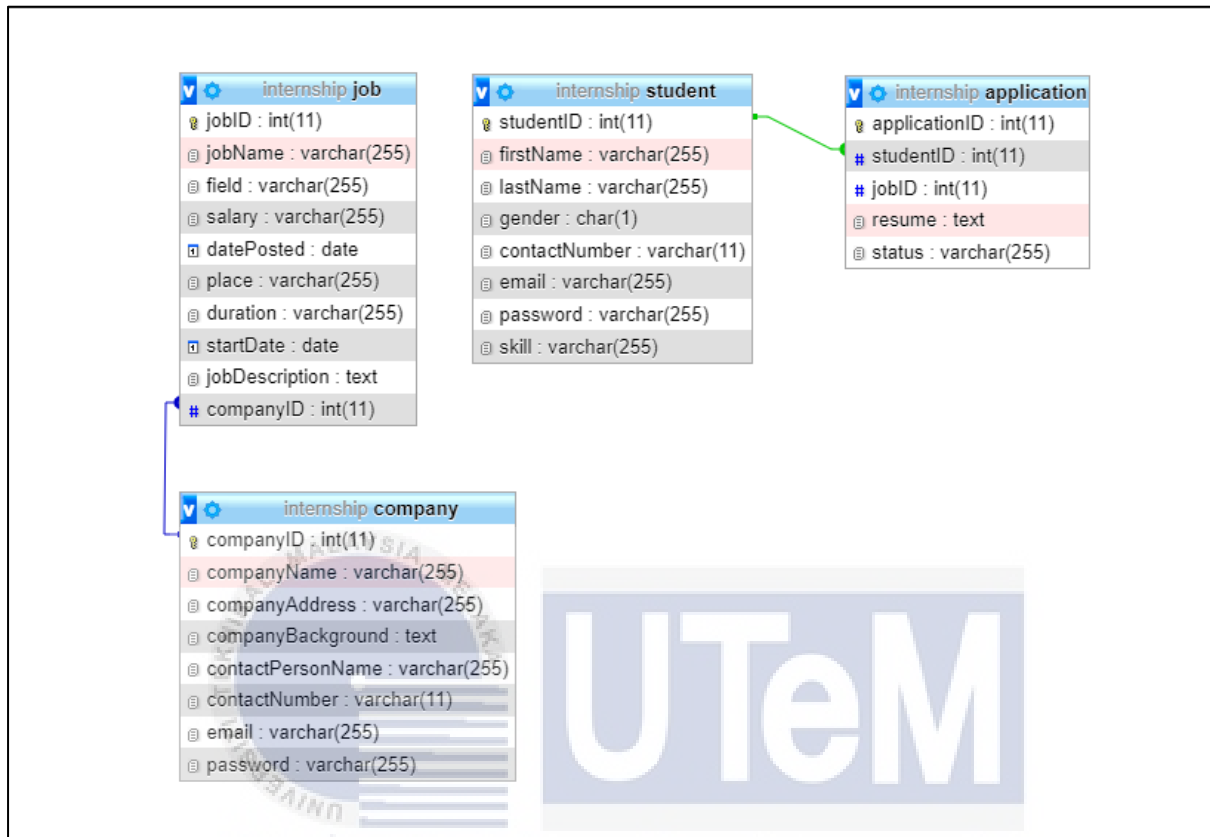
Figure 14: Entity Relationship Diagram for IAS

In figure 14, there are four entities, which are student, company, job and application. The company will post at least a job. Student will apply for the job at least once.

Data dictionary

student

Column	Type	Null	Default	Comments
studentID *(Primary)*	int(11)	No		
firstName	varchar(255)	No		
lastName	varchar(255)	No		
gender	char(1)	No		
contactNumber	varchar(11)	No		
email	varchar(255)	No		
password	varchar(255)	No		

Figure 15: Data dictionary for student

company

Column	Type	Null	Default	Comments
companyID *(Primary)*	int(11)	No		
companyName	varchar(255)	No		
companyAddress	varchar(255)	No		
companyBackground	text	No		
contactPersonName	varchar(255)	No		
contactNumber	varchar(11)	No		
email	varchar(255)	No		
password	varchar(255)	No		

Figure 16: Data dictionary for company

job

Column	Type	Null	Default	Comments
jobID *(Primary)*	int(11)	No		
jobName	varchar(255)	No		

field	varchar(255)	No		
salary	varchar(255)	No		
datePosted	date	No		
place	varchar(255)	No		
duration	varchar(255)	No		
startDate	date	No		
jobDescription	text	No		
companyID	int(11)	No		

Figure 17: Data dictionary for job

application

Column	Type	Null	Default	Comments
applicationID *(Primary)*	int(11)	No		
studentID	int(11)	No		
jobID	int(11)	No		
resume	text	No		
status	varchar(255)	No		

Figure 18: Data dictionary for application

4.3   Detailed Design

In detailed design, there are two (2) components, which are software design and physical design. The designated software product will be further elaborated below.

4.3.1   Software Design

The first function that is available is for students to apply for internship. The processes start when student register and login into the system. After student input the information, the output will be that the students are able to find and apply for internship. The result of the application will be stored in the database.

From the database, it will give input to the companies to view the applicant's resume and the output will be the notification that was send to student.

4.3.2   Physical Database Design
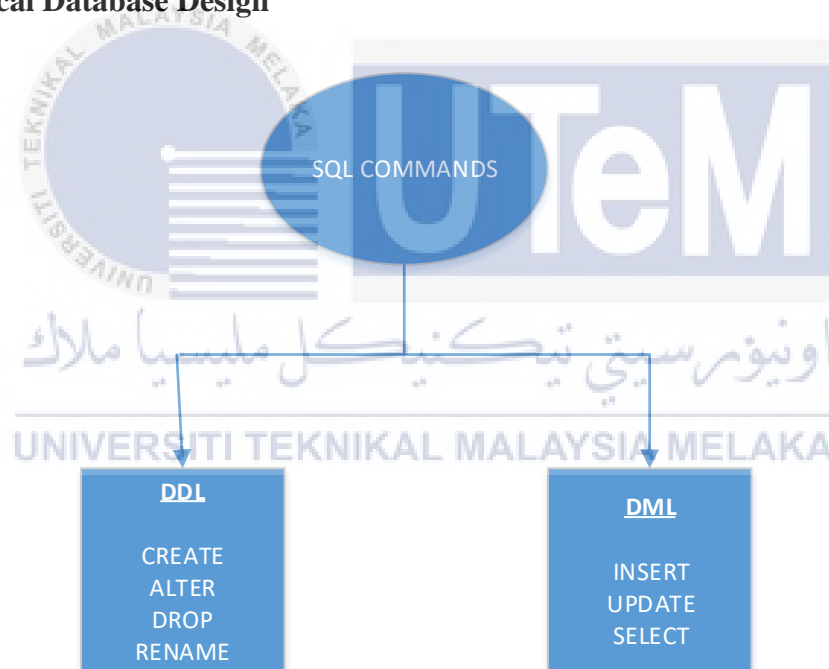
Figure 19: Data Definition Language (DDL)

For Data Definition Language (DDL), we used it mostly when we want to create a table. For IAS, there are four (4) tables created, therefore there are four (4) CREATE statements that have been executed. Besides, a lot of ALTER, DROP and RENAME statements been done.

For Data Manipulation Language (DML), we used INSERT to insert something into the database. In this case, we insert the data when student and companies register and login. For

UPDATE statement, we used when user want to update their profile and for SELECT statement, we used it when we want to display a list of available internship.

4.4 Conclusion

This chapter discuss the design phase, which consists of high- level design and detailed design. For the next chapter, we will be discussing about implementation phase.

CHAPTER 5: IMPLEMENTATION

5.1 Introduction

For this chapter, we will discuss about the implementation of the system. Implementation is the stage in the software engineering process at which an executable software system is developed.

5.2 Software Development Environment Setup

In software and online development, a development environment is a workspace where developers may make changes without damaging anything in a live environment. An integrated development environment (IDE) is a programming tool that helps programmers. Developers use an integrated development environment (IDE), which is a software suite meant to increase productivity and efficiency.
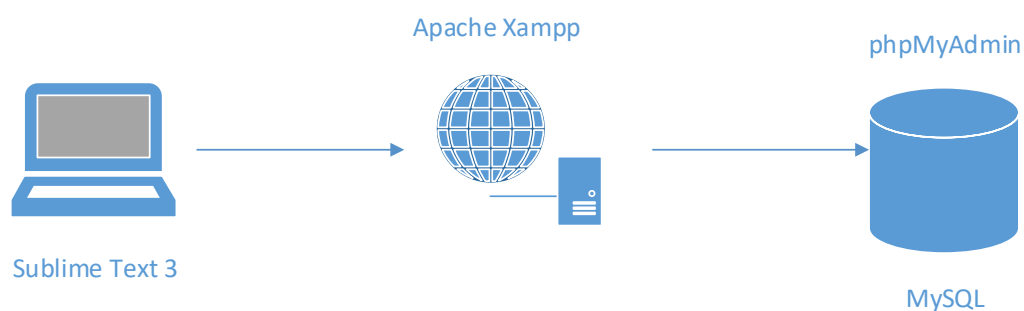
Figure 20: Software Development Environment Setup

We will use the Sublime Text 3 editor in which we will write the source code using PHP, HTML and CSS. It will be connected to web server which, we will use Apache Xampp. This will enable the system to run on localhost. For database, we use phpMyAdmin and MySQL. All the data will be stored here.

5.3 Software Configuration Management

5.3.1 Configuration Environment Setup

For configuration, we will be using a Sublime Text 3 to code, phpMyAdmin to have access to the web server and database, which will be available to all user. For the operating system, we will be using Windows 10.

5.3.2 Version Control Procedure

Version control, also known as source control, is the practice of tracking and managing changes to software code. Version control systems are software tools that help software teams manage changes to source code over time. As development environments have accelerated, version control systems help the software teams work faster and smarter.

For IAS, this is the version two (2) since there are major changes in the first version of IAS. In second version, a framework has been used in developing the system.

5.4 Implementation Status

Table 7: Status of project

Module Name	Description	Duration to Complete
Authentication	Authentication module consists of registration and login	2 weeks
Search	User can search for any available internship position	2 weeks
View intern position	Student able to view the internship position	2 weeks
Apply internship	Student able to apply for the internship	2 weeks

5.5 Conclusion

The implementation stage summarizes overall software environment that is needed in order to develop a system. The use of web server is very important to make sure that the system could run properly.

CHAPTER 6: TESTING

6.1   Introduction

Throughout this chapter, the testing process for IAS will be discussed. Testing phase is done to test whether the build system is conformed to user's requirement or otherwise. Testing phase is an important phase in software development before the software product is released to the clients since it can discovers bugs and defects for that reason, it can reduces loss for the particular individuals and organizations.

6.2   Test Plan

Test plan describes the testing scopes and activities that consists of test organization, test environment and test schedule. It is a basis for testing activities to ensure that it will achieve its requirements and objectives. Test plan documented the features that need to be tested, the tester, the method used to test IAS and the timeline for IAS to be tested.

6.2.1   Test Organizations

Test organizations describe the personnel involved in testing IAS. Each of the test is tested by different personnel as shown in table below.

Table 8: Test Organizations

Testing Activity	Testing Member
Unit Testing	Dr. Ummi Raba'ah
Integration Testing	Dr. Ummi Raba'ah
System Testing	Dr. Ummi Raba'ah
User Acceptance Testing	Nurhidayah Binti Mohd Lazim

6.2.2 Test Environment

Test environment is the setup of hardware and software that is used to execute the test case.

Table 9: Test Environment

Software and Hardware Tools	Specifications
Operating system	Windows 10 Pro
Memory capacity	4.0 GB RAM
Processor type and speed	Intel(R) Celeron(R) CPU N3060 @ 1.60GHz
Web server	Xampp
Web browser	Google Chrome
Database	MySQL

6.2.3 Test Schedule

All testing activities that has been done or will be done must be recorded for reference purposes in the future.

Table 10: Test Schedule

Testing type	Description	Start date	End date
Unit Testing	Determine the functionality of the system by units	02 / 08 / 2021	05 / 08 / 2021
Integration Testing	Determine the functionality of the system once it is integrated module by module	06 / 08 / 2021	09 / 08 / 2021
System Testing	Determine the system and its quality as a full, integrated system	10 / 08 / 2021	13 / 08 / 2021
User Acceptance Testing	Determine that the system is perfect and ready to be used by users	14 / 08 / 2021	17 / 08 / 2021

6.3   Test Strategy

Test strategy will give an overview of how a software product is tested. It will also shows the testing approach in order to meet the objectives of the testing activities.

For IAS, black box testing has been used. Black box testing is a software testing method in which the internal structure and design of the item being tested is not known to the tester. For this project, there are two scenarios, which are positive test case and negative test case. Positive test cases occurred when user inputs the valid value and test whether the system behaves correctly, while negative test cases occurred when user inputs an invalid value to check if the system gives an expected output.

6.3.1   Classes of Test

There are four classes of test that will be done, which consists of unit testing, integration testing, system testing and user acceptance testing. Each of the test are explain as below.

For unit testing, testing will be done as a unit starting from registration and authentication module. The login and register process will be tested and checked whether it is comply with what user has requested. Next, the search module will be tested to check if it displays the expected output when user try to search. Next, the view internship position will be tested and lastly the apply internship module.

In integration testing, all the module will be integrated one by one to test whether there are any error or unexpected output when integrated. For system testing, the system will be fully integrated and tested as a whole to check whether the system has any compilation error or system crash. If there are any error, it will be fixed before we continue to user acceptance testing.

In user acceptance testing, the end user or client will verify or accept the software product before moving it to production environment. The main purpose of this testing is to validate end to end business flow. For this testing, two or more users will be involved.

6.4 Test Design

For test design, it will consists of two (2) sections, which are the test description where the test cases are drafted and test data, where the result from the testing activities being discussed.

6.4.1 Test description

Identified test cases and expected results are designed and documented as shown in table 11 below.

Table 11: Test Description

Test Case ID	TC001		
Description	To evaluate registration functionality		
Module	Registration and Authentication		
Prepared By	Nor Hanis Afifah Binti Harun	Date Prepared	30 / 07 / 2021

Tested By				Date Tested	
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	**Status**
TC001_01	Field in all fields in the student's sign up form	First name: Nurhidayah Last name: Mohd Lazim Gender: Female Contact number: 0162334554 Email: hidayahlazim@gmail.com Password: dayah123	An alert message "Nurhidayah you are Successfully Registered in this system" will be displayed		
TC001_02	Field in all fields in the student's sign up form except one field	First name: **(Null)** Last name: Mohd Lazim Gender: Female Contact number: 0162334554 Email: hidayahlazim@gmail.com Password: dayah123	A popup message "Please fill out this field" will be displayed		
TC001_03	Field in all fields in the student's sign up form with invalid format	First name: (Null) Last name: Mohd Lazim Gender: Female Contact number: **dayah** Email: hidayahlazim@gmail.com Password: dayah123	A popup message "Please match the requested format" will be displayed		

TC001_04	Field in all fields in the company's sign up form	Full company name: Puas Hati Sdn. Bhd. Contact person name: Muhd Akmal Contact number: 0361788865 Email: akmal.puashati@gmail.com Password: akmal123	An alert message "Puas Hati Sdn. Bhd. you are Successfully Registered in this system" will be displayed		
TC001_05	Field in all fields in the company's sign up form except one field	Full company name: **(Null)** Contact person name: Muhd Akmal Contact number: 0361788865 Email: akmal.puashati@gmail.com Password: akmal123	A popup message "Please fill out this field" will be displayed		
TC001_06	Field in all fields in the student's sign up form with invalid format	Full company name: Puas Hati Sdn. Bhd. Contact person name: **012A99** Contact number: 0361788865 Email: akmal.puashati@gmail.com Password: akmal123	A popup message "Please match the requested format" will be displayed		

Test Case ID	TC002		
Description	To evaluate login functionality		
Module	Registration and Authentication		
Prepared By	Nor Hanis Afifah Binti Harun	Date Prepared	30 / 07 / 2021

Tested By				Date Tested	
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	**Status**
TC002_01	Enter a valid student's email and password	Email: hidayahlazim@gmail.com Password: dayah123	An alert message "Welcome to CREATIONS!" will be displayed		
TC002_02	Enter a valid student's email and invalid password	Email: hidayahlazim@gmail.com Password: dayah12345	A popup message "Either your email or password is wrong. Please login again." will be displayed		
TC002_03	Enter an invalid student's email and a valid password	Email: nurhidayahlazim@gmail.com Password: dayah123	A popup message "Either your email or password is wrong. Please login again." will be displayed		
TC002_04	Enter an invalid student's email and invalid password	Email: nurhidayahlazim@gmail.com Password: dayah12345	A popup message "Either your email or password is wrong. Please login again." will be displayed		

Test Case ID	TC003			
Description	To evaluate search functionality			
Module	Search			
Prepared By	Nor Hanis Afifah Binti Harun	Date Prepared	30 / 07 / 2021	

Tested By				Date Tested	
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	**Status**
TC003_01	Search using job name	Search: web designer	All result that related to web designer will be shown		
TC003_02	Search using field	Search: computer	All result that related to computer will be shown		
TC003_03	Search using salary	Search: 1000	All result that related to 1000 will be shown		
TC003_04	Search using place	Search: Kuala Lumpur	All result that related to Kuala Lumpur will be shown		
TC003_05	Search using company name	Search: Megah Holding Sdn. Bhd.	All result that related to Megah Holding Sdn. Bhd. will be shown		
TC003_06	Search for job name / field / salary / place / company name	Search: Perak	There is no result will be displayed		

Test Case ID	TC004		
Description	To evaluate manage job functionality		
Module	Manage Job		
Prepared By	Nor Hanis Afifah Binti Harun	Date Prepared	30 / 07 / 2021

Tested By				Date Tested	
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	**Status**
TC004_01	Add a job with data	Job name: Accountant Field: Accounting / Finance Job description: Accountant provide financial advice to client Salary: 1000 Date posted: 2021-06-23 Place: Kuala Lumpur Duration: 3 Start date: 2021-09-27	An alert message "The job has successfully posted" will be displayed		
TC004_02	Add a job without any data	Job name: Field: Job description: Salary: Date posted: Place: Duration: Start date:	A popup message "Please fill out this field" will be shown		
TC004_03	Delete a job when there is none applicant applied	The job is not being applied by any applicant	An alert message "This job has been deleted" will be displayed		
TC004_04	Delete a job when there is an applicant applied	The job is being applied by any applicant	An alert message "Pending job cannot be deleted." will be displayed		

Test Case ID	TC005		
Description	To evaluate apply internship functionality		
Module	Apply internship		
Prepared By	Nor Hanis Afifah Binti Harun	Date Prepared	30 / 07 / 2021

Tested By				Date Tested	
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	**Status**
TC005_01	Not sign in into the system	User did not sign in into the system	User will be redirected to sign in page		
TC005_02	Sign in into the system	User sign in into the system	User will need to upload their resume		
TC005_03	Upload the resume	User upload their resume	An alert message "Resume has been uploaded" will be displayed		
TC005_04	Upload the resume	User did not upload their resume	An error message should be displayed		

Test Case ID	TC006		
Description	To evaluate manage profile functionality		
Module	Manage profile		
Prepared By	Nor Hanis Afifah Binti Harun	Date Prepared	30 / 07 / 2021

Tested By				Date Tested	
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	**Status**
TC006_01	View profile	User did not sign in into the system	Users are unable to view their profile		

TC006_02	Sign in into the system	User sign in into the system	User will be able to view their profile		
TC006_03	Student edit the profile	Name: Hafiz Contact Number: 0102484969 Email: hafiz@gmail.com Password: hafiz123 Skill: communication skill	An alert message "Successfully Update!" will be displayed		
TC006_04	Student does not edit the profile	User did not edit anything on the profile	An alert message "Successfully Update!" will be displayed		
TC006_05	Company edit the profile	ID: 1 Company Name: Megah Holding Sdn. Bhd. Company Address: Kuala Lumpur Company Background: transact business of housing developers Contact Person Name: Ashraf bin Malik Contact Number: 0361800078 Email: ashraf.mh@gmail.com Password: ashraf_mh123	An alert message "Successfully Update!" will be displayed		
TC006_06	Company did not edit the profile	User did not edit anything on the profile	An alert message "Successfully Update!" will be displayed		

Test Case ID	TC007		
Description	To evaluate view internship functionality		
Module	View internship		
Prepared By	Nor Hanis Afifah Binti Harun	Date Prepared	30 / 07 / 2021

Tested By				Date Tested	
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	**Status**
TC007_01	Not sign in into the system	User did not sign in into the system	User are able to view available internship position		
TC007_02	Sign in into the system	User sign in into the system	User are able to view available internship position		

6.4.2 Test Data

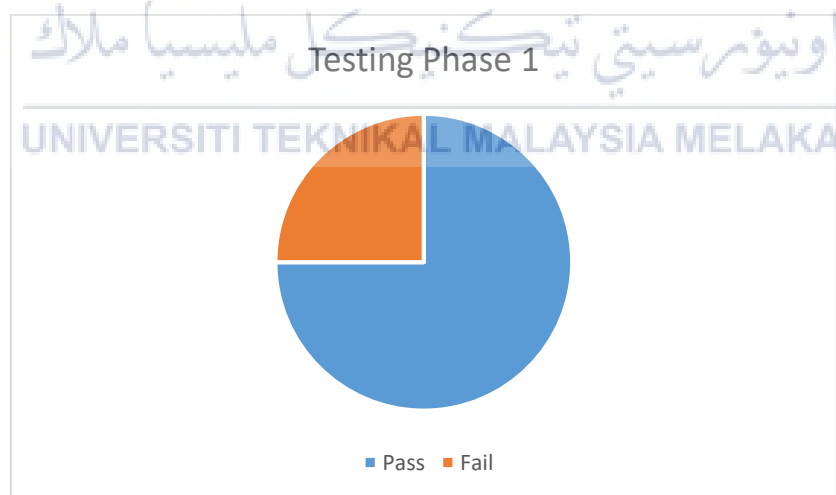The summary of testing phase 1 and phase 2 are shown as below.

Figure 21: Testing Phase 1

Figure 21 represents the result of testing phase 1. On this phase, 75% of the test is considered pass whereas another 25% is considered as fail. The system is improved and second testing is run.
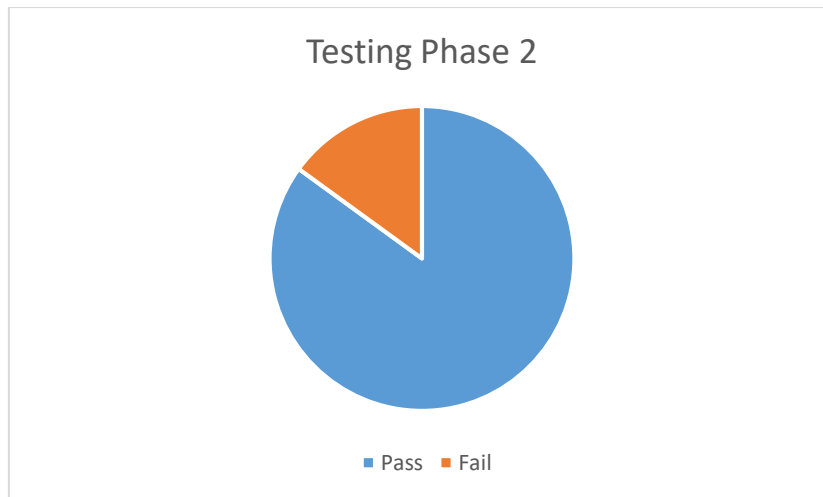
Figure 22: Testing Phase 2

Figure 22 represents the result of the testing phase 2. For second phase, 85% of the test has passed the test while 15% has failed. The problems found are fixed and system has been improved.

6.5 Test Results and Analysis

In this section, the test result and analysis will be described in details and documented as shown in table 12 below.

Table 12: Test Results

Test Case ID	TC001		
Description	To evaluate registration functionality		
Module	Registration and Authentication		
Prepared By	Nor Hanis Afifah Binti Harun	Date Prepared	30 / 07 / 2021

Tested By	Muhammad Hafiz Abd Razak			Date Tested	25/8/2021
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	**Status**
TC001_01	Field in all fields in the student's sign up form	First name: Nurhidayah Last name: Mohd Lazim Gender: Female Contact number: 0162334554 Email: hidayahlazim@gmail.com Password: dayah123	An alert message "Nurhidayah you are Successfully Registered in this system" will be displayed	An alert message "Nurhidayah you are Successfully Registered in this system" are displayed	Pass
TC001_02	Field in all fields in the	First name: **(Null)** Last name: Mohd Lazim Gender: Female	A popup message "Please fill	A popup message "Please fill	Pass

		Contact number: 0162334554 Email: hidayahlazim@gmail.com Password: dayah123	out this field" will be displayed	out this field" are displayed	
TC001_03	Field in all fields in the student's sign up form with invalid format	First name: (Null) Last name: Mohd Lazim Gender: Female Contact number: **dayah** Email: hidayahlazim@gmail.com Password: dayah123	A popup message "Please match the requested format" will be displayed	A popup message "Please match the requested format" are displayed	Pass
TC001_04	Field in all fields in the company's sign up form	Full company name: Puas Hati Sdn. Bhd. Contact person name: Muhd Akmal Contact number: 0361788865 Email: akmal.puashati@gmail.com Password: akmal123	An alert message "Puas Hati Sdn. Bhd. you are Successfully Registered in this system" will be displayed	An alert message "Puas Hati Sdn. Bhd. you are Successfully Registered in this system" are displayed	Pass
TC001_05	Field in all fields in the company's sign up form except one field	Full company name: **(Null)** Contact person name: Muhd Akmal Contact number: 0361788865 Email: akmal.puashati@gmail.com Password: akmal123	A popup message "Please fill out this field" will be displayed	A popup message "Please fill out this field" are displayed	Pass
TC001_06	Field in all fields in the student's sign up form with invalid format	Full company name: Puas Hati Sdn. Bhd. Contact person name: **012A99** Contact number: 0361788865 Email: akmal.puashati@gmail.com Password: akmal123	A popup message "Please match the requested format" will be displayed	A popup message "Please match the requested format" are displayed	Pass

Test Case ID	TC002		
Description	To evaluate login functionality		
Module	Registration and Authentication		
Prepared By	Nor Hanis Afifah Binti Harun	Date Prepared	30 / 07 / 2021

Tested By	Muhammad Hafiz Abd Razak			Date Tested	25/8/2021
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	**Status**
TC002_01	Enter a valid student's email and password	Email: hidayahlazim@gmail.com Password: dayah123	An alert message "Welcome to CREATIONS!" will be displayed	An alert message "Welcome to CREATIONS!" are displayed	Pass
TC002_02	Enter a valid student's email and invalid password	Email: hidayahlazim@gmail.com Password: dayah12345	A popup message "Either your email or password is wrong. Please login again." will be displayed	A popup message "Either your email or password is wrong. Please login again." are displayed	Pass
TC002_03	Enter an invalid student's email and a valid password	Email: nurhidayahlazim@gmail.com Password: dayah123	A popup message "Either your email or password is wrong. Please login again." will be displayed	A popup message "Either your email or password is wrong. Please login again." are displayed	Pass
TC002_04	Enter an invalid student's email and invalid password	Email: nurhidayahlazim@gmail.com Password: dayah12345	A popup message "Either your email or password is wrong. Please login again." will be displayed	A popup message "Either your email or password is wrong. Please login again." are displayed	Pass

Test Case ID	TC003				
Description	To evaluate search functionality				
Module	Search				
Prepared By	Nor Hanis Afifah Binti Harun		Date Prepared	30 / 07 / 2021	

Tested By	Muhammad Hafiz Abd Razak			Date Tested	25/8/2021
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	**Status**
TC003_01	Search using job name	Search: web designer	All result that related to web designer will be shown	All result that related to web designer are shown	Pass
TC003_02	Search using field	Search: computer	All result that related to computer will be shown	All result that related to computer are shown	Pass
TC003_03	Search using salary	Search: 1000	All result that related to 1000 will be shown	All result that related to 1000 are shown	Pass
TC003_04	Search using place	Search: Kuala Lumpur	All result that related to Kuala Lumpur will be shown	All result that related to Kuala Lumpur are shown	Pass
TC003_05	Search using company name	Search: Megah Holding Sdn. Bhd.	All result that related to Megah Holding Sdn. Bhd. will be shown	All result that related to Megah Holding Sdn. Bhd. are shown	Pass
TC003_06	Search for job name / field / salary / place / company name	Search: Perak	There is no result will be displayed	There is no result displayed	Pass

Test Case ID	TC004		
Description	To evaluate manage job functionality		
Module	Manage Job		
Prepared By	Nor Hanis Afifah Binti Harun	Date Prepared	30 / 07 / 2021

Tested By	Muhammad Hafiz Abd Razak			Date Tested	25/8/2021
ID	Test Scenario	Test Data	Expected Result	Actual Result	Status
TC004_01	Add a job with data	Job name: Accountant Field: Accounting / Finance Job description: Accountant provide financial advice to client Salary: 1000 Date posted: 2021-06-23 Place: Kuala Lumpur Duration: 3 Start date: 2021-09-27	An alert message "The job has successfully posted" will be displayed	An alert message "The job has successfully posted" are displayed	Pass
TC004_02	Add a job without any data	Job name: Field: Job description: Salary: Date posted: Place: Duration: Start date:	A popup message "Please fill out this field" will be shown	A popup message "Please fill out this field" are shown	Pass
TC004_03	Delete a job when there is none applicant applied	The job is not being applied by any applicant	An alert message "This job has been deleted" will be displayed	An alert message "This job has been deleted" are displayed	Pass
TC004_04	Delete a job when there is an applicant applied	The job is being applied by any applicant	An alert message "Pending job cannot be deleted." will be displayed	An alert message "Pending job cannot be deleted." are displayed	Pass

Test Case ID	TC005		
Description	To evaluate apply internship functionality		
Module	Apply internship		
Prepared By	Nor Hanis Afifah Binti Harun	Date Prepared	30 / 07 / 2021

Tested By	Muhammad Hafiz Abd Razak			Date Tested	25/8/2021
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	Status
TC005_01	Not sign in into the system	User did not sign in into the system	User will be redirected to sign in page	User are redirected to sign in page	Pass
TC005_02	Sign in into the system	User sign in into the system	User will need to upload their resume	User need to upload their resume	Pass
TC005_03	Upload the resume	User upload their resume	An alert message "Resume has been uploaded" will be displayed	An alert message "Resume has been uploaded" are displayed	Pass
TC005_04	Upload the resume	User did not upload their resume	An error message should be displayed	An error message is not displayed	Fail

Test Case ID	TC006		
Description	To evaluate manage profile functionality		
Module	Manage profile		
Prepared By	Nor Hanis Afifah Binti Harun	Date Prepared	30 / 07 / 2021

Tested By	Muhammad Hafiz Abd Razak			Date Tested	25/8/2021
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	Status
TC006_01	View profile	User did not sign in into the system	Users will not be able to view their profile	Users are unable to view their profile	Pass

TC006_02	Sign in into the system	User sign in into the system	User will be able to view their profile	User are able to view their profile	Pass
TC006_03	Student edit the profile	Name: Hafiz Contact Number: 0102484969 Email: hafiz@gmail.com Password: hafiz123 Skill: communication skill	An alert message "Successfully Update!" will be displayed	An alert message "Successfully Update!" are displayed	Pass
TC006_04	Student does not edit the profile	User did not edit anything on the profile	An alert message "Successfully Update!" will be displayed	An alert message "Successfully Update!" are displayed	Pass
TC006_05	Company edit the profile	ID: 1 Company Name: Megah Holding Sdn. Bhd. Company Address: Kuala Lumpur Company Background: transact business of housing developers Contact Person Name: Ashraf bin Malik Contact Number: 0361800078 Email: ashraf.mh@gmail.com Password: ashraf_mh123	An alert message "Successfully Update!" will be displayed	An alert message "Successfully Update!" are displayed	Pass
TC006_06	Company did not edit the profile	User did not edit anything on the profile	An alert message "Successfully Update!" will be displayed	An alert message "Successfully Update!" are displayed	Pass

Test Case ID	TC007		
Description	To evaluate view internship functionality		
Module	View internship		
Prepared By	Nor Hanis Afifah Binti Harun	Date Prepared	30 / 07 / 2021

Tested By	Muhammad Hafiz Abd Razak			Date Tested	25/8/2021
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	Status
TC007_01	Not sign in into the system	User did not sign in into the system	User are able to view available internship position	User are able to view available internship position	Pass
TC007_02	Sign in into the system	User sign in into the system	User are able to view available internship position	User are able to view available internship position	Pass

6.6   Conclusion

In brief, the testing phase is an important phase in developing a software product. While testing is run, there are numerous amount of problems and errors that have been fixed. Although there are still a few minor problems, the system has been improved throughout testing phase 1 and phase 2.

CHAPTER 7: CONCLUSION

7.1 Observation on Weaknesses and Strengths

There are a few weaknesses and strengths that have been discovered while developing this IAS. One of the weakness is that a registered company are unable to view the statistics and summaries of the job such as the most jobs that have been applied and total number of applicants per month. This is because there is no such function available in this system.

Besides that, this system is unable to generate a report that can be used by the companies to review the summaries of the job and applicants.

For strengths, this system will be able to help internship students to look for an internship position since IAS is specifically build for internship students. Therefore a lot of time can be saved. Not only that, the system flow of IAS is simple and easy to execute thus make the student focus on their main goal which is to find an internship since user usually become easily distracted when the interfaces are overcrowded.

7.2 Propositions for Improvement

This IAS system could be improved in many ways. One of it is by adding the chart feature. This can be done by using a simple chart such as a bar chart, pie chart or a graph. This function will enable the company to make a statistic and summaries to improve their company.

Next thing to improve is the report feature. After the company obtain the required data from the chart, it is important to be able to generate report since this report usually will be used in a general meeting to discuss the relevance of the job availability nowadays.

7.3   Project Contribution

IAS is developed mainly to give benefits to both company and university student who will undergo an internship. Therefore, when the students are applying for an internship position and the companies are viewing the applicants for the position applied, they would be able to save time and increase productivity.

7.4   Conclusion

All the phase required in developing a software product are carried out throughout developing this project. The system has been developed completely and it fulfills the objectives and requirements needed in for an internship application system. However, there are still a lot room for improvements in the functionality that can be made in the future in order to make the system more reliable and has a higher function ability. With all the project's weaknesses that has been described in this chapter and its suggested improvements, it would be best to believe that IAS can be further improved and contribute to the targeted user as a better internship application system.
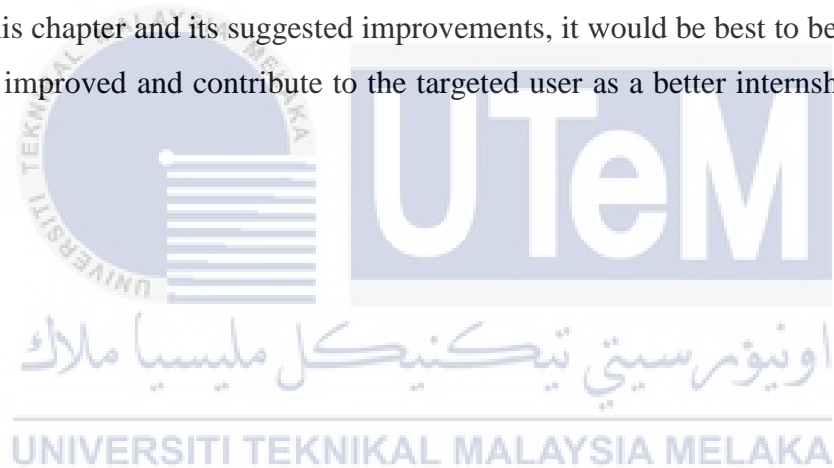
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PHYSICAL DATABASE DESIGN

Table: company

```
CREATE TABLE `company` (
 `companyID` int(11) NOT NULL,
 `companyName` varchar(255) NOT NULL,
 `companyAddress` varchar(255) NOT NULL,
 `companyBackground` text NOT NULL,
 `contactPersonName` varchar(255) NOT NULL,
 `contactNumber` varchar(11) NOT NULL,
 `email` varchar(255) NOT NULL,
 `password` varchar(255) NOT NULL
)
```

Table: student

```
CREATE TABLE `student` (
 `studentID` int(11) NOT NULL,
 `firstName` varchar(255) NOT NULL,
 `lastName` varchar(255) NOT NULL,
 `gender` char(1) NOT NULL,
 `contactNumber` varchar(11) NOT NULL,
 `email` varchar(255) NOT NULL,
 `password` varchar(255) NOT NULL,
 `skill` varchar(255) NOT NULL
)
```

Table: job

```
CREATE TABLE `job` (
 `jobID` int(11) NOT NULL,
 `jobName` varchar(255) NOT NULL,
 `field` varchar(255) NOT NULL,
 `salary` varchar(255) NOT NULL,
 `datePosted` date NOT NULL,
 `place` varchar(255) NOT NULL,
 `duration` varchar(255) NOT NULL,
 `startDate` date NOT NULL,
 `jobDescription` text NOT NULL,
 `companyID` int(11) NOT NULL
)
```

Table: application

```
CREATE TABLE `application` (
 `applicationID` int(11) NOT NULL,
 `studentID` int(11) NOT NULL,
 `jobID` int(11) NOT NULL,
 `resume` text NOT NULL,
 `status` varchar(255) NOT NULL
)
```