Optimizing Internship Placement Process: A Study on the Implementation of an Internship Placement Management System (IPMS) at Universiti Poly-Tech Malaysia to Improve Efficiency and Student Experience

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Abstract

Managing student internship and placement of Universiti Poly-Tech Malaysia (UPTM) students is a task that needs to be handled systematically and efficiently. With proper management and organization of data, a proper system can help in managing data and manipulating it to get more information and produce more results in reporting. This study aims to improve the process of managing students for internship placement using a new proposed system called IPMS (Internship Placement Management System). The evolutionary prototyping models were used as a methodology to develop the IPMS (Internship Placement Management System). There are 5 (FIVE) categories of users involved in this system that have 6 (SIX) modules to be used according to their roles. The modules will consist from the beginning which is managing the users' information records, processing internship applications and confirmation, updating continuous progress from the students, assignment of academic supervisor by the Coordinator, students' internship performance evaluation, and reporting. The implementation of IPMS will help the Coordinator monitor the process from the beginning of the internship until the end. Therefore, the new proposed system, IPMS (Internship Placement Management System) will be useful and helpful in keeping track of and managing the complete process of internship placement in Universiti Poly-Tech Malaysia (UPTM).

Keywords: *Internship, Efficient, Internship Placement, Systematic*

INTRODUCTION

This research is about an idea of innovation to provide an effective way in managing student internship and job placement of Universiti Poly-Tech Malaysia (UPTM) students and graduates. Currently, the operational procedures and processes are in a mixed method: manual and system. Recently, the internship coordinator will use the eITU system. This system mainly recorded basic information such as information on students' profiles, coordinator profiles, a list of companies, and a list of documents that need to be downloaded by students. The system only can view records and has less interaction with users. Therefore, the operations need to incorporate both methods; manual and system. Placement and confirmation letters are done manually using mail merged. Students' evaluations are also done manually using a printed form that can be downloaded from the eITU system.

This is not effective and efficient in organizing and managing data. A lot of improvements can be done to upgrade the existing method. The idea is to do thorough research and develop a new system that can manage the student internship process for the students and graduates. The operational procedures will be simplified by using this system. This system will also guide the students in writing resumes for their internship and job purposes.

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The system is expected to evaluate students' internship performance by industrial and academic supervisors. The coordinator can easily view all the evaluations completed by the supervisors. The system can generate reports such as reports on students' achievements in industrial training and so on. [1]

RESEARCH BACKGROUND

Managing industrial students' processes without a proper system is quite cumbersome. Currently, the operational procedures and processes are in a mixed method: manual and system. This is not effective and efficient in organizing and managing data. There are a lot of improvements that can be done to upgrade the existing method. [2, 3]

There are major problems that exist in current systems that need attention. Firstly, the documentation is done manually using mail merged. The documents are a placement request letter, confirmation letter, and decline letter. The placement request letter is needed by the students to attach in their application for internship to any company. While confirmation letter will be created upon receiving the organization's reply form from the students. For the forms used in this placement process, the organization reply form is a confirmation that a student has confirmed their placement with the company. A decline letter will be issued by the Industrial Training Coordinator if the student is not eligible for industrial training after the result is endorsed. Report Duty Notification Form will be used on the first day the student reports duty at the company. They need to complete the form via the human resource department of the company and submit it to the industrial training coordinator within five (5) days from the date of report duty.

Secondly, the existing system (eITU) is not able to maintain and support the whole process of managing industrial training. The system has the problem of differentiating and categorizing between the current existing student and the past existing student. This normally occurs when the student registers into the system from the diploma level and continues to register for the degree level. The function of the system is less interactive but more on sharing information using download and upload features.

Thirdly, the internship application process is done separately from the system, such as the resume created and the data of the application internship not being tracked or recorded. This will create possible problems such as receiving more than one placement for an internship and the students tend to forget to decline any offer received from the companies.

Then, in terms of progress report submission which is the logbook monitoring process, it is done outside of the system. This will often create a problem for the academic, industrial supervisor, and students to share their progress logbook due to lack of monitoring. In addition, the evaluation of the assessment process is also done manually by using hardcopy forms and needs to be submitted to the Industrial Training Coordinator. Finally, it is hard to analyse the whole data as all the data is in various places and not kept in one repository for any reporting needed.

RESEARCH METHODOLOGY

The evolutionary prototyping model is chosen as a methodology for this software development process. There are five phases involved in this method. Phases involve include problem identification, prototype development, evaluation, refinement, and repeat as necessary.

In the diagram below, the evolutionary prototyping model is represented as a cyclical process with interconnected stages. This cyclical nature of the model allows for continuous evolution and adaptation of the project based on feedback and changing requirements.
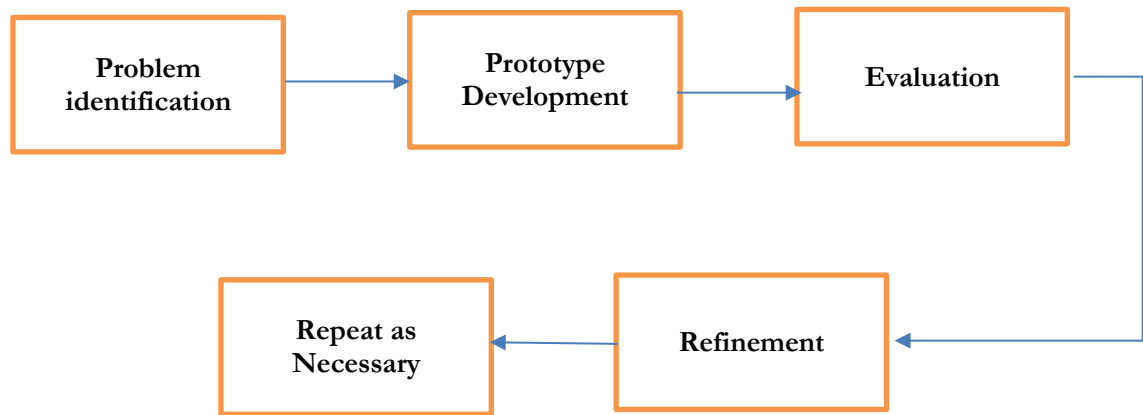
Figure 1.0: Evolutionary Prototyping Model

The first level, problem identification, involves identifying the research problem or objective that needs to be addressed. The necessary user requirements have been done in order to better understand before proceeding to the next level. When user requirements are ready, prototype development takes place, whereby an initial prototype captures the core functionalities and features of the intended project. The prototype serves as a starting point for further refinement. As the prototype is done at a certain part, the evaluation will take place to evaluate the prototype under evaluation and testing. Feedback is collected from relevant parties to improve the strengths, weaknesses, and areas for improvement in the prototype. After the feedback is received, the prototype will be refined and enhanced iteratively under the refinement level. This refinement process may involve making modifications, adding new features, or addressing identified issues. Finally, the last stage, or level, repeats as necessary, whereby the process of prototyping, evaluation, and refinement is repeated as necessary until the research objectives are achieved. Each iteration builds upon the previous one, incorporating feedback and lessons learned to improve the prototype.

RESEARCH SCOPE AND TARGET USER

Scopes of Modules. [4,5]

Managing coordinator, academic supervisor, student internship, and company information record. In this module, all profiles for a coordinator, academic supervisor, students, and a list of companies are stored. This is to ensure all related data are safely stored and can be accessed and retrieved easily whenever needed.

Internship application and confirmation. In this module, the system will auto-generate permission letters by UPTM for internship applications. At the same time, students can apply to more than one company. The system will auto-email to companies that contain an application, permission letter, and Organization Reply Form (ORF) link. The company will fill in the ORF form using the system and it will respond to the ORF whether accepted or declined within a certain duration.

On the students' part, they may receive more than one company offer. Therefore, students MUST accept ONE company only for an internship. Upon acceptance by the student, the system will auto-email to the company that contains confirmation letters and the System will generate a decline letter and auto-email to the rejected company. Students will also print a Report Duty Notification (RDN) form that is generated from the system and get the confirmation stamp by the company and must upload it into the system within a certain duration. This is to prove that the student has reported for duty at the company.

Continuous progress. This module will capture continuous progress that includes updating logbook records and submission of the final report of each student. The monitoring of the progress using the logbook will involve the Academic Supervisor and the Industrial Supervisor.

Assigning an academic supervisor to a student. For this module, the Industrial Training Coordinator can assign the academic supervisor to each of the students and students can check their academic supervisor details through the system.

Assessment evaluation. For this module, it will collect all the necessary evaluation forms done by the industrial and academic supervisor. Collecting or submitting thru the system will ease the burden for the Industrial Training Coordinator to view all the evaluations and prepare to compile the necessary marks and report. Despite that, all kinds of survey form related are also being captured using the system. Finally, the student can also give a rating and comment to the placement company for Industrial Training. This will help future students to choose wisely any company that is suitable for them to undergo the internship.

Reporting. In this module, the system is able to generate reports such as Industrial Training KPI achievement, a List of companies by location, a list of companies that give marks to students (75% and above), etc. This module will help the Industrial Training Coordinator in preparing reports and help give information for re-evaluation programs based on industrial feedback for any improvement needed in a certain duration of time.

Target User

For this system, the users involved are the Super admin, Industrial Training Coordinator, Academic Supervisor (lecturers), students (diploma and degree level), and company representative. [6,7]

Super admin will have the ultimate control of the system. He or she will have access to all the modules and control the accessibility of the module by users.

The Industrial Training Coordinator will have access to all of the modules except the creation of users and its control of accessibility.

For the Academic Supervisors, the role will be fulfilled by the respective lecturers assigned by the Industrial Training Coordinator.

The student's role in this system is the students who have already been confirmed by the Programme Coordinator to undergo Industrial Training for the respective semester. The students will need to register in order to access the system and complete the process of Industrial Training.

As for the company representative, most probably the Industrial Supervisor will be selected as the user of the system because this role needs to do performance evaluation and give feedback from the survey that will be conducted at the end of the semester of the Industrial Training.

DISCUSSION AND DEVELOPMENT

This section will discuss the system design using the application of a use case diagram, flow chart design, and the proposed system using BPMN.
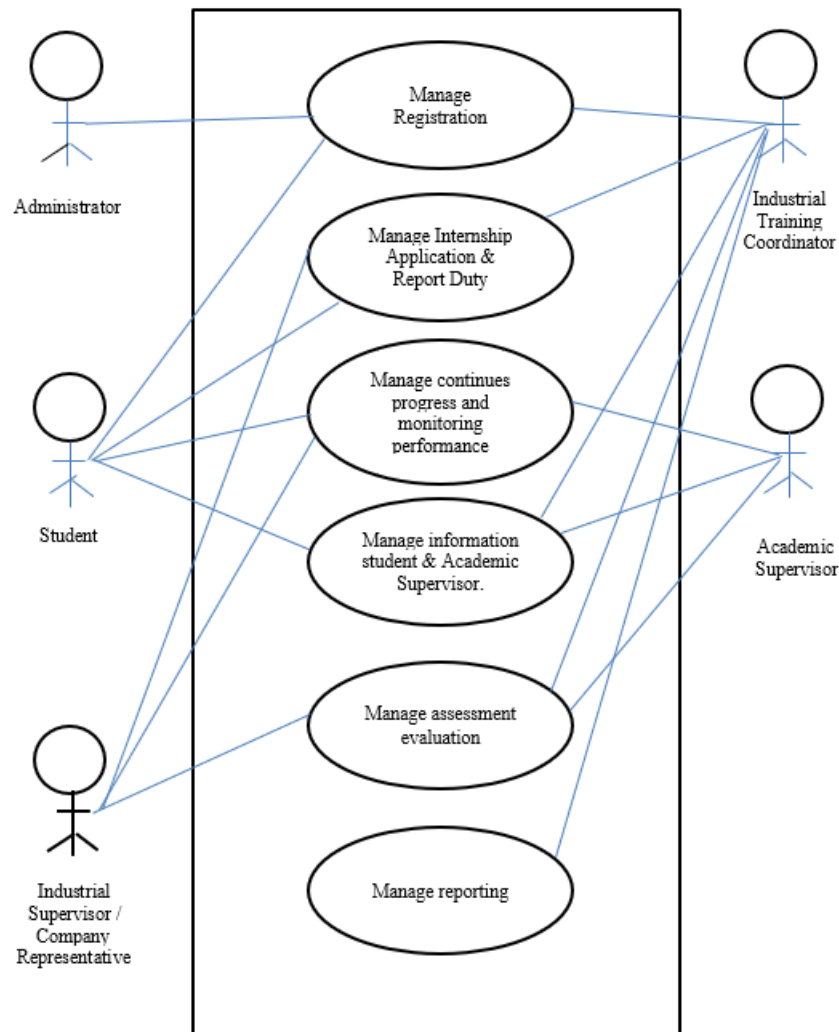
Use Case Diagram

Figure 2.0: Use Case Diagram

Actors involved in the system are administrators, industrial training coordinators (ITC), students, academic supervisors (AS), and industrial supervisor/company representatives (IS). The administrator will be the Super Admin to manage all the accessibility in this system. Any issues regarding database and support will be handled by the Super Admin. In the use case diagram above, in Figure 2.0, there are 6 processes involved in the system. For administrators, it will involve the registration process of all the users, handling login and password, and any issues in the system. For industrial training coordinators, or will be involved in all processes in the system. Students will be involved in all the processes except managing assessment evaluation and reporting. For academic supervisor (lecturers), will be involved in all processes except managing internship applications and report duty, and managing reporting. As for the company representative or industrial supervisor, he or she will be involved in managing internship application and report duty, continuous progress performance, and assessment evaluation.

Business Process Model and Notation (BPMN)
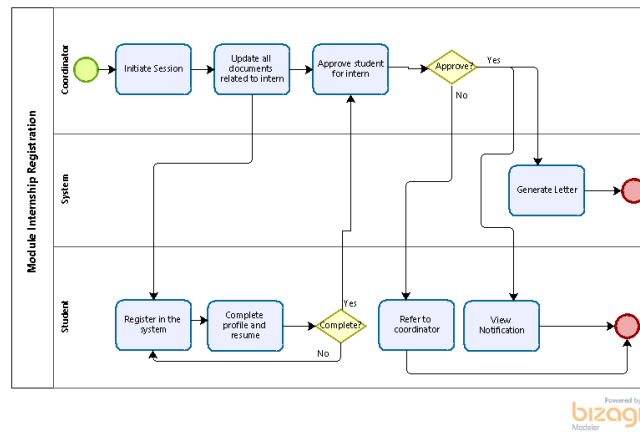
Figure 2.1: Module Registration
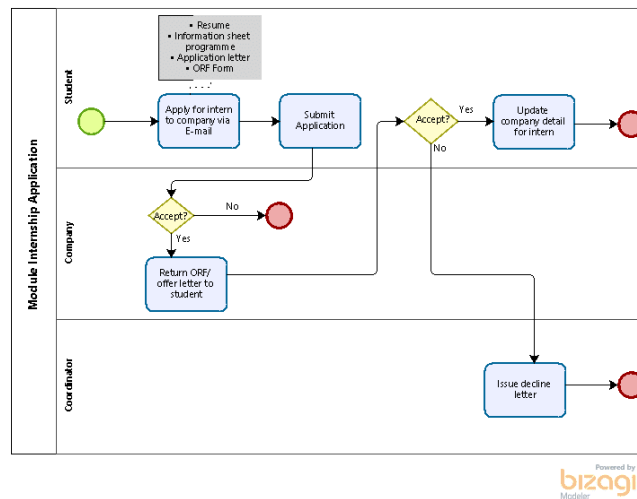
Figure 2.2: Module Application
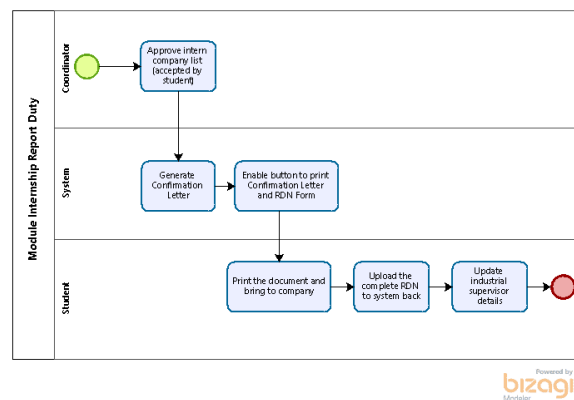
Figure 2.3: Module Report Duty
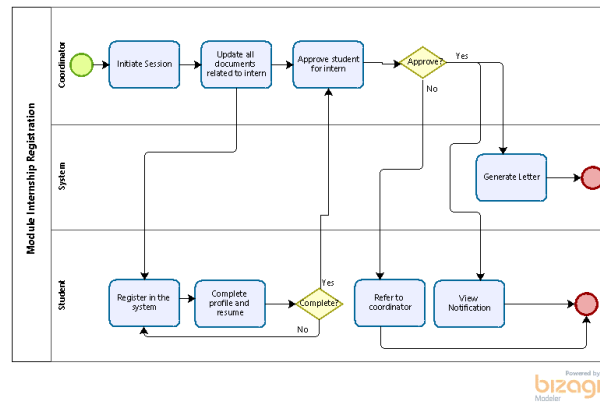
Figure 2.4: Module Progress and Performance
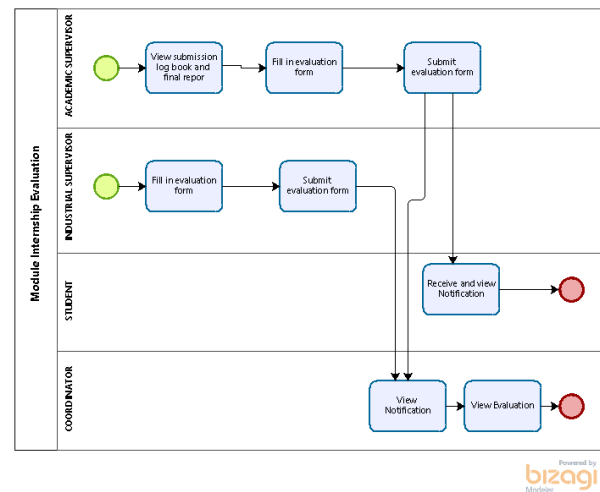
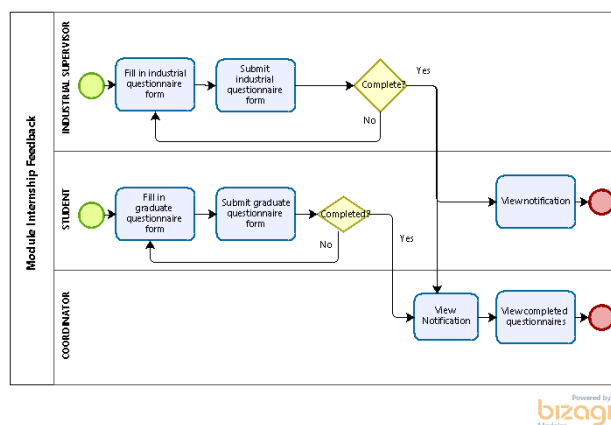**Figure 2.5:** Module Assessment Evaluation

Figure 2.6: Module Feedback and Reporting

THE PROPOSED SYSTEM

A prototype is an early sample of the system built. The user interface prototypes are shown to represent the flow and design of the system before the final system exists. An early user interface prototype allows all the users to visualize and understand the system. With the prototypes of the system, the system was at the final stage of the implementation phase and it will be tested to all users. The system will not be deployed yet as there may be changes that need to be done after the testing phase. The system users are in five (5) categories: [8, 9]

The user interface for all users (Log in System)

Figure 3.0: Login Interface

This figure shows the login interface for all users except the Industrial Supervisor (company) to log in to their accounts according to their respective roles. The username and password are needed in order to log in to the system.

Below Is the Sample User Interface For The Student

The User Interface for Dashboard
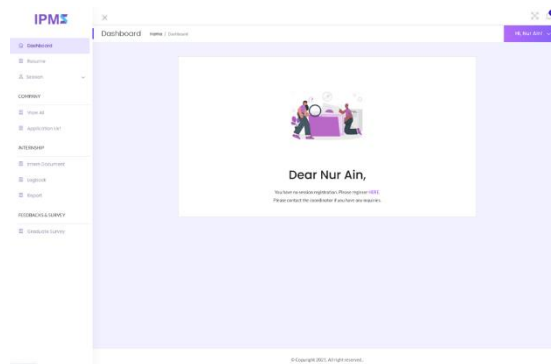
Figure 3.1: User Interface Dashboard

This is the dashboard for the students. They can view the Company function to monitor the status of marks submitted from the company to the Industrial Training Coordinator.

The User Interface for Resume

Figure 3.2: User Interface Resume

Students can create and update their resumes here before they start to apply for Industrial Training in any organization.

The user interface for Viewing the Company List

Figure 3.4: User Interface Viewing Company List

In this view, students can view a list of companies and their profiles. This will help the students to choose a suitable company for their Industrial Training.

The user interface for submitting the logbook and final report

Figure 3.8: User Interface for Logbook and Final Report Submission.

Students will need to update their logbooks weekly in the system. At the end of the week, the logbook will be checked and signed by the Industrial Supervisor at the company.

Students will also submit their final report here by filling in the content of their final report section by section. It is easier for the Academic Supervisor to view and evaluate according to the rubrics.

Below is the sample user interface for the Academic Supervisor (Lecturer)

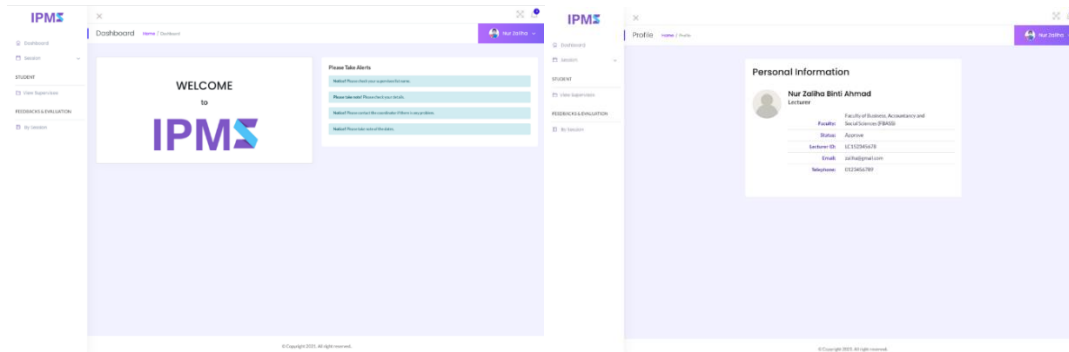**The user interface for the Home Dashboard**

Figure 3.10: User Interface Home Dashboard

This is the example of the personal profile of the Academic Supervisor (Lecturer) that has been assigned in the semester and approved by the Industrial Training Coordinator.

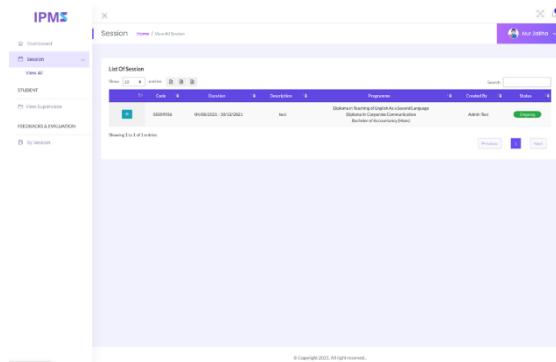**The user interface for the Session List**

Figure 3.11: User Interface Session List

The Academic Supervisor (Lecturer) can see their names under this view in the right session and the right semester.

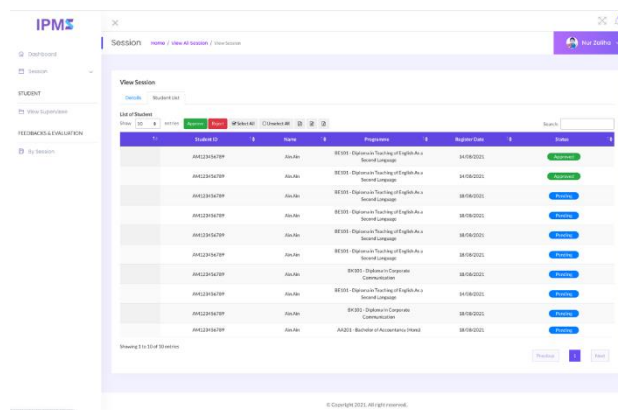**The User Interface for Viewing A List Of Students By Program**

Figure 3.13: User Interface Viewing List of Student (Program)

The User Interface For Evaluation To Students – Final Report & Logbook

Figure 3.16: User Interface Evaluation Final Report and Logbook (Student)

The User Interface For Evaluation To Students – Presentation

Figure 3.17: User Interface Presentation Evaluation (Student)

Below Is the Sample User Interface For The Industrial Training Coordinator

The user interface Dashboard Home

Figure 3.18: User Interface Dashboard Home

In this view, the Industrial Training Coordinator has access to all of the modules. The Coordinator can view all the registered Students, Lecturers, Companies, and session that has been created in the system.

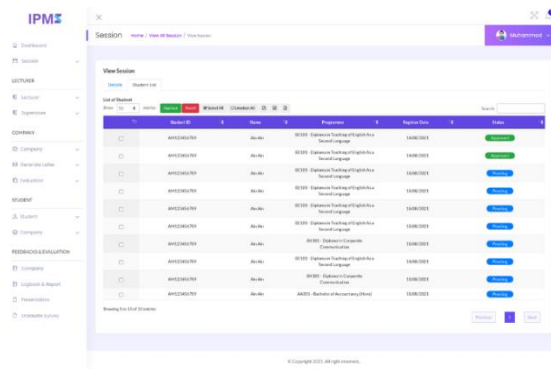## The User Interface To View A List Of The Students Based On Session

Figure 3.21: User Interface Viewing List of Students by Session

In this view, Industrial Training Coordinators can check whether the students registered are from the confirmed list by Programme Coordinator. Once the student's name is valid, the Coordinator will approve the name of the student one by one. Then, the students can have access to the other modules related to Students.

The user interface to assign Students to Academic Supervisors (Lecturer)
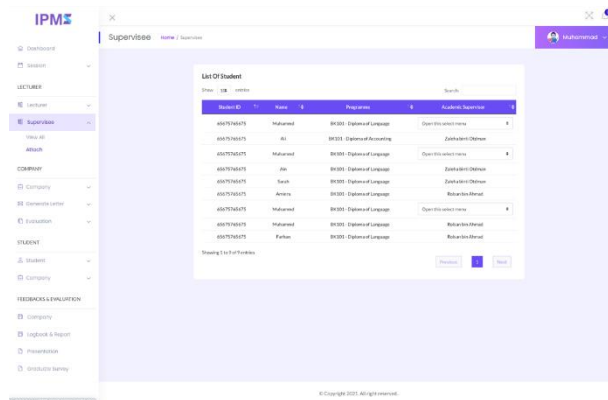

Figure 3.26: User Interface Assigning Student to Academic Supervisor

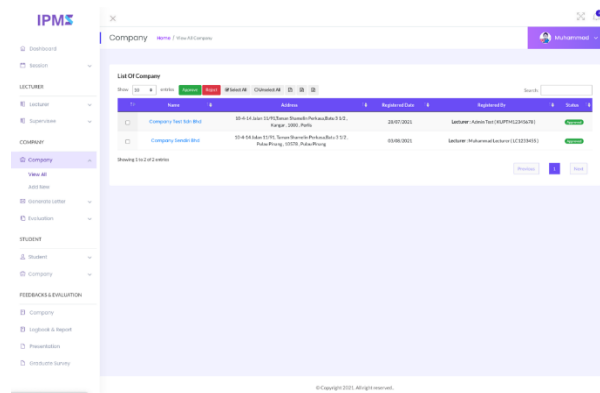## The User Interface To Approve New Companies Into The List

Figure 3.27: User Interface for List of New Companies

In this view, the Industrial Training Coordinator can view and monitor the status of applications done by the students.

In this view, the Industrial Training Coordinator can send the Industrial Supervisor evaluation form online to the respective companies. The Company will just have to key in a given code, in order for the system to capture the data into the system. Therefore, the company need not log in to the system, instead just key in the code and do the performance evaluation for their students.

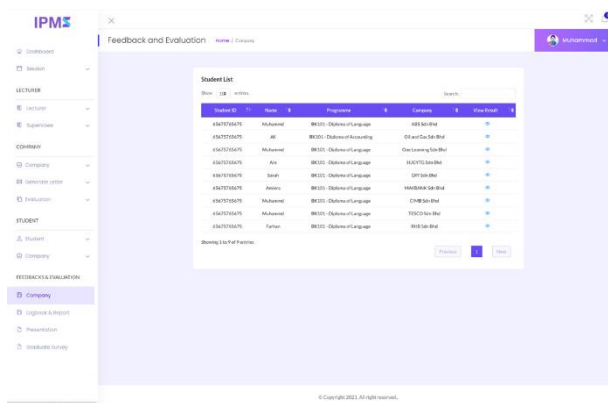## The User Interface to View Feedback And Evaluation

Figure 3.31: User Interface Viewing Feedback and Evaluation

In this view, the Industrial Training Coordinator can view the feedback and evaluation submitted by the companies and students. It is much easier for the Coordinator to monitor and follow up with the students or companies to get feedback and evaluation done.

CONCLUSION AND RECOMMENDATION

The Internship Placement Management System (IPMS) can improve the existing half-manual practice in UPTM academics. The system will benefit the academic staff specifically the Industrial Training Coordinators and Academic Supervisors (Lecturers), Students, and Companies in order to manage the process of internship of students to be more systematic, efficient, and ethical as all data is in the system and organized. All the users in this system can use the system based on their specific roles and functions.

Thus, the implementation of this system may simplify and ease the burden for the Industrial Training Coordinator as reporting and analyzing of data will improve. When reporting is improved, more information can help upgrade our program that align with current trends and industrial needs. Despite that, we may establish good repos with Industries and this can be an opportunity for our students to get job placement in the future. If this can be done, we can achieve marketability for our graduates.

The proposed solution is expected to be more efficient, effective, user-friendly, and secure to address the problems and challenges of the current traditional manual system. However, several recommendations can be made for further development as follows: [10]

       i. Upgrade to the mobile application.

The mobile application will be more practical since the emergence of mobile application technology has become a bridge to communication and expanded profit in more business industries.

       ii. Integrate with an existing system.

Student attendance system using fingerprints can be integrated with the existing Campus Management System (CMS) in providing an existing database of staff (lecturers) and students.

       iii.   Reporting

More related reports should be produced to see more information about the students.

Acknowledgements

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