

FAKULTI SAINS KOMPUTER DAN MATematik

ELECTRONIC LECTURE EXEMPTION APPLICATION SYSTEM (eLEAS)

INDUSTRIAL TRAINING REPORT

AT

INFOSTRUCTURE DEPARTMENT

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جامعة تكنولوجيا مارا
UNIVERSITI
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MARA



**UNIVERSITI TEKNOLOGI MARA
CAWANGAN JOHOR KAMPUS SEGAMAT
(UITM)**

**REPORT TITLE:
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APPLICATION SYSTEM(eLEAS)

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INFOSTRUCTURE DEPARTMENT**

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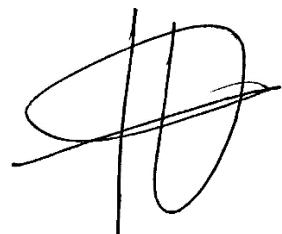
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Assalamualaikum w.b.t

Greetings to all.

First and foremost, I am grateful to Allah S.W.T for his assistance during this practical training. I was able to finish this internship report within the dateline. I have been learning a lot of new things during this internship and have been able to overcome the obstacles and challenges that arose during this internship. The endless support from my family, friends, and company makes my journey more joyful and meaningful.

Secondly, I would like to express my gratitude to my lovely family for making my life easier by being a supporting person in a time of need during the practical training. No words can describe my thankfulness for having such a wonderful family. Thank you to my colleagues that helped me a lot during this internship by giving brilliant ideas while we are working together and all the bitter-sweet memories that we have been through.

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journey more challenging, and I can be an excellent worker
in the future

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ABSTRACT

This report presents the development of an Electronic Lecture Exemption Application System for the Academic Affairs Department at Universiti Teknologi Mara Cawangan Johor (UiTM Johor). The project was undertaken during a practical training of six months in the Infostructure Department from March 19th to August 30th.

The objective of the project was to streamline and automate the process of applying for lecture exemptions, making it more efficient and convenient for both students and the Academic Affairs Department. The existing manual process was time-consuming and prone to errors, with students submitting physical forms and the department manually processing and reviewing each application, leading to delays and difficulties in tracking application statuses. Therefore, the need for a digital solution arose to improve efficiency, reduce errors, and provide better services to students.

The development of the Electronic Lecture Exemption Application System involved various stages, starting with planning and gathering requirements from the Academic Affairs Department. Based on these requirements, system models, such as flowcharts and Entity Relationship Diagrams (ERD), were created to provide a clear understanding of the system's structure and processes.

The system was designed with distinct interfaces for different user roles, including students, lecturers, Ketua Pusat Pengajian, and clerks from the Academic Affairs

Department. The author took charge of developing the front-end and back-end of all four interfaces, meticulously designing and programming essential pages such as login, register, home, application, and profile update pages. The interfaces provided CRUD functionality, enabling users to create, read, update, and delete data as needed. There is also print functionality implemented and can be utilized by certain users.

To enhance communication within the system, the PHPMailer library was integrated to send automated email notifications to users for specific events or actions, such as application submission and status updates. Additionally, a print function was incorporated, allowing users to download or print complete application files for their records or further processing.

The successful implementation of the Electronic Lecture Exemption Application System has significantly improved the application process for lecture exemptions at UiTM Johor. With its user-friendly interface, efficient data management, and streamlined processes, the system has received positive feedback from both students and the Academic Affairs Department.

Overall, the project has showcased the author's programming skills and problem-solving abilities, as well as the valuable practical experience gained during the internship at UiTM Johor's Infostructure Department. The Electronic Lecture Exemption Application System stands as a testament to the potential of technology in revolutionizing administrative processes within academic institutions.

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1.0 INTRODUCTION

1.1 Industrial Training Program Background

The industrial training program serves as a crucial component of academic curricula, providing students with valuable practical experience and exposure to real-world working environments. The program aims to bridge the gap between classroom learning and professional application, equipping students with the necessary skills and knowledge to thrive in their respective fields.

As part of the academic requirements, I embarked on a six-month practical training at the Infostructure Department in Universiti Teknologi Mara Cawangan Johor (UiTM Johor) from March 19th to August 30th. This industrial training opportunity allowed me to explore and apply the theoretical knowledge gained during my academic journey in a professional setting.

The Infostructure Department stands as a key pillar in UiTM Johor's pursuit of technological excellence and academic advancement. Renowned for its cutting-edge information technology (IT) solutions and services, the department plays a vital role in supporting a dynamic learning and administrative environment. With a strong focus on digital innovation and user-centricity, the department propels UiTM Johor into the forefront of the digital age, empowering students and staff with the tools and resources needed to excel in today's fast-paced world.

During my industrial training program, I was presented with the opportunity to contribute significantly to the development of an Electronic Lecture Exemption Application System for the Academic Affairs Department. The objective of the project was to streamline and automate the process of applying for lecture exemptions, making it more efficient and convenient for both students and the Academic Affairs Department.

This report aims to provide an in-depth account of my role in the development of the Electronic Lecture Exemption Application System, as well as the skills and experiences gained throughout the industrial training program. By delving into the background, challenges, methodologies, and outcomes of the project, this report showcases the practical application of my programming skills and problem-solving abilities within a professional working environment.

The industrial training program at UiTM Johor's Infostructure Department has been a transformative and enlightening experience, allowing me to grow both personally and professionally. The exposure to real-world projects, collaboration with experienced professionals, and immersion in a technology-driven environment has undoubtedly shaped my career trajectory and strengthened my passion for information technology.

As I present this report, I am filled with gratitude for the invaluable opportunity provided by UiTM Johor's Infostructure Department. I am confident that the insights

gained from this industrial training program will serve as a solid foundation for my future endeavors in the field of IT, and I eagerly anticipate applying this newfound knowledge to contribute to the advancement of technology in various spheres.

1.2 Industrial Training Objectives

The objective of industrial training is as follow:

- Practicing the theory learned at university in making and solving real-world problem.
- Related to their respective specialized areas.
- Expose students to the knowledge and the evolution of the recent technology used in the industry.
- Instill and bridge the networking as well as the collaboration between the university and industry.
- Expose students to the real working environment.
- Sharpen the soft skills suitable to the working environment.

1.3 Introduction of the Project

Welcome to the project section of my practical training report, where I had the opportunity to develop a Lecture Exemption Application System for the Academic Affairs Department during my internship at Universiti Teknologi Mara Cawangan Johor . Over the course of six months, from 19th March 2023 to 30th August 2023, I worked as a staff member in the Infostructure Department, contributing my skills and expertise to this exciting and impactful project.

The primary goal of this practical training was to combine my academic knowledge with real-world experience by actively participating in the development of a system that would streamline and modernize the lecture exemption process. The Academic Affairs Department, responsible for

managing academic matters, faced challenges in handling lecture exemption requests manually, leading to inefficiencies and delays.

Throughout the internship, I collaborated with a team of dedicated professionals, including developers, system analysts, and domain experts, to design, develop, and implement the Lecture Exemption Application System. This endeavor not only allowed me to expand my technical competencies but also gave me a deep insight into the inner workings of the Academic Affairs Department and its significance in ensuring a seamless academic experience for students.

In this report, I will provide a detailed account of the entire lifecycle of the project. This includes the initial project planning, requirements gathering, system design, implementation, testing, and final deployment. I will discuss the various technologies and tools employed during the development process, as well as the challenges faced and the strategies adopted to overcome them.

Furthermore, I will assess the effectiveness of the Lecture Exemption Application System, evaluating its impact on streamlining the process, reducing administrative burden, and enhancing the overall efficiency of the Academic Affairs Department.

I would like to express my gratitude to University Teknologi Mara Cawangan Johor for providing me with this enriching opportunity, enabling me to apply my theoretical knowledge in a practical setting. The experience gained during this

internship has been instrumental in shaping my professional growth and instilling a deeper appreciation for the critical role of technology in optimizing organizational processes.

Now, let us delve into the journey of developing the Lecture Exemption Application System, reflecting on the lessons learned and the significance of this project in my overall career development.

1.4 Objective of the Project

The development of the Lecture Exemption Application System for the Academic Affairs Department at Universiti Teknologi Mara (UiTM) Cawangan Johor, Kampus Segamat, during the 6-month internship, where I worked as staff from the Infostructure Department, was undertaken with the following key objectives in mind:

- Automate and Streamline the Lecture Exemption Process: The primary objective of the project was to create an automated and streamlined application system for lecture exemptions. By implementing a digital platform, the system aimed to reduce manual paperwork, eliminate redundant processes, and expedite the approval and notification process for lecture exemption requests.
- Enhance Efficiency and Reduce Processing Time: The project sought to significantly improve the efficiency of handling lecture exemption applications. By integrating an electronic workflow, the system aimed to reduce the processing time required for each request, ensuring a prompt and

timely response to students seeking lecture exemptions.

By fulfilling these objectives, the Lecture Exemption Application System aimed to revolutionize the lecture exemption process at UiTM Cawangan Johor, Kampus Segamat, contributing to an efficient and seamless academic experience for students and academic staff alike.

2.0 ORGANIZATION

2.1 Organization Background

Universiti Teknologi Mara (UiTM) Cawangan Johor, Kampus Segamat, is a prominent higher education institution situated in the state of Johor, Malaysia. Established with a commitment to excellence in education, UiTM Cawangan Johor strives to provide comprehensive academic programs and innovative research opportunities to nurture skilled professionals and leaders across various disciplines.

UiTM, as a whole, is a leading public university in Malaysia, renowned for its emphasis on technical and professional education. It was founded in 1956 and has since grown into a vast network of campuses spread throughout the country. With a strong focus on technical, technological, and vocational education, UiTM has been a driving force in producing graduates equipped with industry-relevant skills to meet the demands of a dynamic and competitive job market.

The Academic Affairs Department at UiTM Cawangan Johor plays a pivotal role in managing and overseeing the academic programs, curriculum development, student records, and related administrative tasks. The department's dedication to providing quality education and ensuring a seamless learning experience for students is reflected in its commitment to continuous improvement and innovation.

During the internship period from 19th March 2023 until 30th August 2023, I had the privilege of being part of the Infostructure Department at UiTM Cawangan Johor, Kampus Segamat. The Infostructure Department is responsible for managing the institution's information technology infrastructure, systems, and services. It plays a vital role in ensuring the smooth functioning of technological resources and supporting various academic and administrative functions across the university.

Given the importance of efficient processes and technological advancements in enhancing academic services, the collaboration between the Infostructure Department and the Academic Affairs Department was instrumental in developing the Lecture Exemption Application System. This joint effort aimed to modernize and streamline the process of requesting and granting lecture exemptions, ultimately contributing to a more effective and student-centric academic environment.

Throughout the internship, I had the privilege of working alongside dedicated professionals from both departments, gaining valuable insights into the university's operations and witnessing the commitment to academic excellence. The

experience allowed me to apply my technical knowledge and skills to develop a solution that aligned with the organization's vision of continuous improvement and innovation.

In the subsequent sections of this report, I will delve into the development process of the Lecture Exemption Application System, reflecting on the challenges faced, strategies employed, and the overall impact on enhancing academic operations at UiTM Cawangan Johor, Kampus Segamat.

2.2 Business Activities

The Infostructure Department at Universiti Teknologi Mara (UiTM) Cawangan Johor, Kampus Segamat, plays a critical role in providing and managing various information technology services that support the academic and administrative functions of the institution. During the 6-month internship, where I worked as a staff member in the Infostructure Department, I had the opportunity to contribute to and witness the following key business activities of the department:

- Information Technology Infrastructure Management: The Infostructure Department is responsible for the planning, deployment, and maintenance of the university's information technology infrastructure. This includes managing servers, network devices, communication systems, and data centers to ensure a reliable and secure technological foundation for the entire institution.

- Software Development and Application Support: The department engages in software development projects tailored to meet the specific needs of UiTM Cawangan Johor. These projects range from developing custom applications to support various departments' operations to enhancing existing software systems for improved efficiency.
- System Integration and Interoperability: Ensuring seamless integration and interoperability of different software systems is a crucial aspect of the Infostructure Department's activities. The department works to connect disparate systems and databases, facilitating data exchange and streamlined workflows across different departments.
- Information Security and Cybersecurity: Maintaining the security and integrity of the university's information assets is a top priority for the department. The Infostructure team implements robust cybersecurity measures, such as firewalls, intrusion detection systems, and data encryption, to safeguard sensitive data and protect against cyber threats.
- Technical Support and Help Desk Services: The department provides technical support to faculty, staff, and students, addressing hardware and software issues, troubleshooting network connectivity problems, and assisting with IT-related inquiries through a help desk service. This ensures that the academic community has access to prompt

and reliable technical assistance.

- Data Management and Database Administration: The Infostructure Department is responsible for managing and administering the university's databases. This includes database design, data backup, data recovery, and ensuring data accuracy and consistency.
- Technology Training and Workshops: To promote effective technology utilization, the department conducts training sessions and workshops for faculty, staff, and students. These sessions aim to enhance technology skills, software proficiency, and awareness of cybersecurity best practices.
- IT Policy Development and Compliance: The Infostructure Department actively participates in the development of IT policies and guidelines aligned with industry standards and regulatory requirements. Ensuring compliance with these policies is crucial to maintaining a secure and efficient IT environment.
- Research and Evaluation of Emerging Technologies: The department continuously evaluates emerging technologies and IT trends to identify opportunities for enhancing the university's technological capabilities. Research initiatives in collaboration with academic departments are conducted to explore innovative solutions.

As an intern in the Infostructure Department, my role in

developing the Lecture Exemption Application System aligned with the department's mission to leverage technology for optimizing organizational processes and providing innovative solutions. The project showcased the Infostructure Department's commitment to enhancing the university's information technology landscape and contributing to a more technologically advanced and efficient academic environment at UiTM Cawangan Johor, Kampus Segamat.

2.3 Vision, Mission and Objectives of the organization

2.3.1 Vision

To be a leading and innovative information technology hub that empowers Universiti Teknologi Mara (UiTM) Cawangan Johor, Kampus Segamat, with cutting-edge technological solutions and seamless digital experiences.

2.3.2 Mission

The Infostructure Department is committed to providing reliable, secure, and scalable information technology services to support UiTM Cawangan Johor's academic and administrative functions. We strive to foster a technologically advanced and digitally inclusive environment that enhances teaching, learning, research, and administrative operations.

2.3.3 Organization's objectives

Enhance Technological Infrastructure: The Infostructure Department aims to continually improve and expand the technological infrastructure of UiTM Cawangan Johor. This includes upgrading hardware, enhancing network capabilities, and ensuring a robust foundation to support the

institution's growing IT needs.

Provide Efficient IT Services: The department seeks to deliver efficient and user-friendly IT services to all stakeholders, including faculty, staff, and students. This involves quick and reliable technical support, accessible help desk services, and timely resolution of IT-related issues.

Ensure Information Security: Infostructure prioritizes the protection of sensitive data and the privacy of individuals within the university. The department implements comprehensive cybersecurity measures, conducts regular security audits, and fosters a culture of data protection and awareness.

Promote Innovation and Research: The Infostructure Department encourages innovation in information technology and actively engages in research to identify emerging technologies that can enhance UiTM Cawangan Johor's academic and administrative processes. The exploration of new solutions aims to stay ahead of technological advancements and align IT strategies with the institution's goals.

Facilitate Seamless System Integration: The department aims to facilitate seamless integration and interoperability of various IT systems used across different departments. This enables efficient data sharing, streamlined workflows, and enhanced collaboration among different academic and administrative units.

Provide Training and Technology Awareness: Infostructure seeks to promote technology awareness and proficiency among faculty, staff, and students. The department conducts training sessions, workshops, and technology orientation programs to empower the academic community with the necessary IT skills.

Support Continuity and Disaster Recovery: Ensuring business continuity and disaster recovery readiness is a key objective of the Infostructure Department. This involves creating robust backup and recovery mechanisms, developing contingency plans, and conducting regular drills to minimize potential disruptions to IT services.

Contribute to Sustainable IT Practices: The department is committed to adopting sustainable IT practices, including energy-efficient infrastructure, responsible e-waste management, and promoting eco-friendly IT initiatives to reduce the university's environmental impact.

Collaborate with Academic Departments: Infostructure actively collaborates with academic departments to understand their unique IT requirements and challenges. By engaging in meaningful partnerships, the department aims to tailor IT solutions that align with academic goals and enhance the overall educational experience.

2.4 Organizational Chart

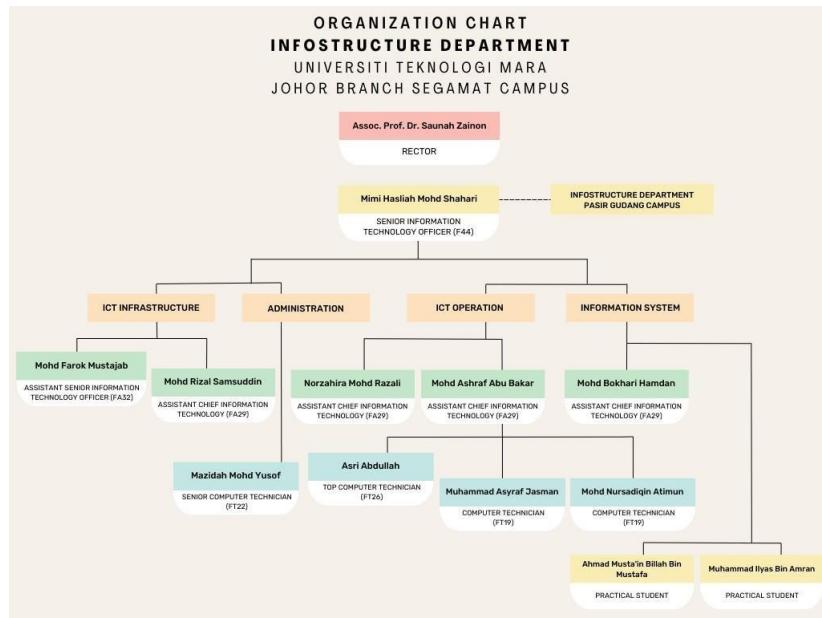


Figure 2.4

3.0 SYSTEM PLANNING

3.1 Introduction

System planning is a critical phase in the development of any information technology project, and it played a pivotal role in the creation of the Lecture Exemption Application System for the Academic Affairs Department at Universiti Teknologi Mara (UiTM) Cawangan Johor, Kampus Segamat. During my six-month internship at UiTM, working as a staff member in the Infostructure Department, I had the privilege of being actively involved in this significant project from its conceptualization to its implementation.

The Lecture Exemption Application System was conceptualized as a solution to modernize and streamline the

process of requesting and granting lecture exemptions for students at UiTM Cawangan Johor. Traditionally, this process was carried out manually, leading to delays, inefficiencies, and challenges in record-keeping. As part of the Infostructure Department, we recognized the potential of information technology to revolutionize this process and provide students with a more efficient and user-friendly experience.

The objective of this report's System Planning section is to provide a comprehensive overview of the crucial activities undertaken during the early stages of the project. These activities encompassed gathering requirements, conducting feasibility studies, and defining the scope and objectives of the Lecture Exemption Application System

3.2 Description of the Current/Existing System

Prior to the development of the Lecture Exemption Application System, the process of requesting and granting lecture exemptions at Universiti Teknologi Mara (UiTM) Cawangan Johor, Kampus Segamat, was predominantly manual and paper-based. As a staff member in the Infostructure Department during my six-month internship, I had the opportunity to observe and evaluate the existing system, which involved the following key components:

1. Manual Submission of Exemption Requests: Under the existing system, students seeking lecture exemptions were required to submit their requests manually by filling out physical application forms. These forms contained essential details such as the student's identification information, the course for which exemption was sought, the reason for the

request, and supporting documents.

2. Physical Routing and Approval Process: Once submitted, the paper-based exemption requests would undergo a manual routing process. This involved passing the documents through various administrative offices and academic staff for review, verification, and approval. The movement of documents between different departments often led to delays and inefficiencies in the overall process.

3. Lack of Transparency and Tracking: The manual nature of the process resulted in a lack of transparency for both students and academic staff. Students had limited visibility into the status of their exemption requests, and academic staff faced challenges in tracking the progress of each request, leading to potential miscommunications and delays in responding to students.

4. Manual Record-Keeping and Reporting: Maintaining physical records of exemption requests, approvals, and outcomes posed challenges in terms of record-keeping and generating timely reports for academic analysis and decision-making. This manual process also increased the risk of data loss or misplacement of critical documents.

5. Limited Accessibility and Convenience: The existing system offered limited accessibility and convenience for students, especially those from remote locations or during peak academic periods. With the requirement to physically visit administrative offices, the process could be burdensome and time-consuming for some students.

6. Absence of Automation and Integration: The absence of automation and integration with existing academic systems contributed to redundant data entry, manual data processing, and potential data discrepancies between different departments.

In summary, the current system's manual and paper-based approach hindered the efficiency, transparency, and user experience of the lecture exemption process. Recognizing these limitations, the development of the Lecture Exemption Application System aimed to address these challenges and provide an innovative, digital solution that streamlined the process, improved communication, enhanced data accuracy, and ultimately contributed to a more student-centric and technologically advanced environment at UiTM Cawangan Johor, Kampus Segamat.

3.3 Main Reason of the System Project

The development of the Lecture Exemption Application System for the Academic Affairs Department at Universiti Teknologi Mara (UiTM) Cawangan Johor, Kampus Segamat, was driven by several key reasons that highlighted the need for a modernized and efficient solution. As a staff member in the Infostructure Department during my six-month internship, I observed and identified the following main reasons for undertaking this system project:

1. Streamlining the Lecture Exemption Process: The manual and paper-based lecture exemption process posed significant challenges in terms of efficiency and timeliness. By developing an automated system, the main objective was

to streamline the entire process, eliminating paperwork, reducing processing time, and enabling faster responses to student requests.

2. Enhancing User Experience: The existing system lacked transparency, making it challenging for students to track the status of their exemption requests. The new application system aimed to improve the overall user experience for both students and academic staff by providing real-time updates on request progress and facilitating seamless communication.

3. Increasing Accessibility and Convenience: The manual submission process required students to physically visit administrative offices to submit exemption requests. The new digital system aimed to enhance accessibility and convenience, allowing students to submit their requests online from anywhere, at any time, thereby eliminating geographical barriers and accommodating busy academic schedules.

4. Improving Data Accuracy and Security: Manual record-keeping in the existing system was susceptible to errors, data loss, or misplacement of critical documents. The Lecture Exemption Application System sought to enhance data accuracy and security through automated data entry and storage, as well as robust cybersecurity measures to protect sensitive student information.

5. Integration with Existing Systems: The absence of integration with other academic systems led to redundant data entry and potential data discrepancies. By integrating

the new application system with UiTM's existing academic and administrative systems, the project aimed to achieve a seamless data flow, minimizing administrative overhead and ensuring data consistency.

6. Enhancing Administrative Efficiency: The manual routing and approval process in the existing system could result in delays and inefficiencies. The new system intended to optimize administrative efficiency by automating workflow processes, notifying relevant parties of pending requests, and expediting decision-making.

7. Enabling Data Analysis and Reporting: The Lecture Exemption Application System aimed to centralize data and facilitate comprehensive reporting. This feature would enable academic administrators to analyze exemption trends, identify common patterns, and make data-driven decisions to enhance academic planning and policy-making.

8. Contributing to UiTM's Technological Advancement: The development of a sophisticated and user-centric application system aligned with UiTM's vision of embracing technology to enhance its academic services and administrative operations. The project represented an opportunity to contribute to the university's technological advancement and align it with industry best practices.

Overall, the main reasons for undertaking the Lecture Exemption Application System project were to address the limitations of the existing system, enhance user experience, and leverage technology to create a more efficient, transparent, and student-centric process for managing

lecture exemptions at UiTM Cawangan Johor, Kampus Segamat.

3.4 Feasibility Study

The development of the Lecture Exemption Application System for the Academic Affairs Department at Universiti Teknologi Mara (UiTM) Cawangan Johor, Kampus Segamat, underwent a comprehensive feasibility study to assess the practicality and viability of the project. As a staff member in the Infostructure Department during my six-month internship, I actively participated in conducting this study. The following sections provide a detailed analysis of each aspect of the feasibility study:

3.4.1 Operational

The operational feasibility analysis assessed the system's compatibility with existing academic and administrative processes at UiTM Cawangan Johor. The Infostructure Department collaborated closely with the Academic Affairs Department to understand their workflows and requirements. The system was designed to seamlessly integrate with existing databases, ensuring that data could be shared between departments efficiently. The team conducted multiple meetings and workshops with key stakeholders to gather feedback and validate the system's design. The feedback received was positive, confirming that the system aligned with the university's operations and objectives. Therefore, the project was considered operationally feasible.

3.4.2 Technical

The technical feasibility analysis focused on evaluating the capability of the Infostructure Department to develop and implement the Lecture Exemption Application System. The department possessed skilled developers with expertise in web application development, database management, and system integration. An assessment of the existing IT infrastructure revealed that the department had the necessary hardware and software resources to support the system's development and

deployment. Additionally, the team had access to modern development tools and frameworks suitable for building a robust and scalable application. Based on the technical expertise available and the adequacy of the IT infrastructure, the project was deemed technically feasible.. Hence the necessary hardware and software for Lecture Exemption Application System listed below:

| | | |
|-----------------------|------------|--|
| Hardware requirements | CPU | A dual-core processor, such as Intel Core i3 or AMD Ryzen 3, to handle development tasks. |
| | Disk Space | A minimum of 10 GB free disk space for the operating system, development tools, and project files. |
| | RAM | At least 4 GB RAM to run the development environment and web server smoothly. |
| | Display | A monitor with a resolution of 1366x768 or higher for a comfortable coding experience. |

| | | |
|-----------------------|---|---|
| | Internet Connectivity | An internet connection is recommended for installing software, accessing documentation, and using version control systems if necessary. However, it is not strictly required for local development. |
| Software Requirements | Operating system | Windows, macOS, or Linux (compatible with VSCode and XAMPP). |
| | Text Editor or Integrated Development Environment (IDE) | VSCode or any other text editor with PHP, HTML, CSS, and JavaScript syntax highlighting and code completion. |
| | Web Server | XAMPP, WAMP, or MAMP, which includes Apache (web server), MySQL (database server), and PHP (server-side scripting language). |
| | PHP | Ensure you have PHP installed and configured in your system. The website |

| | | |
|--|-------------|---|
| | | system will be developed using PHP for server-side processing. |
| | Web Browser | The latest version of popular web browsers like Google Chrome, Mozilla Firefox, or Microsoft Edge for testing and debugging your website. |

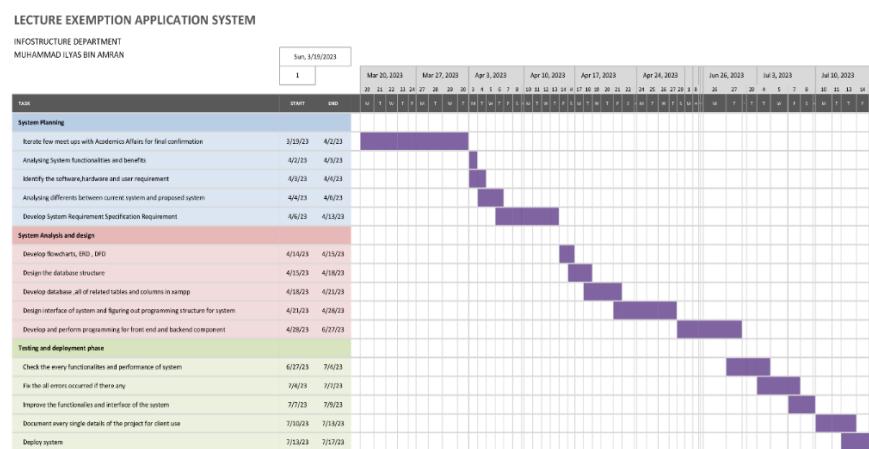
Table 3.4.2 Hardware and software requirements

3.4.3 Economic

The economic feasibility study aimed to determine the financial viability of the Lecture Exemption Application System project. The estimated costs included software development expenses, hardware upgrades (if required), personnel costs for the development team, training expenses, and ongoing maintenance costs. The team collaborated with UiTM's financial department to gather cost data and projected revenue generated through increased efficiency and improved student satisfaction. A cost-benefit analysis showed that the benefits of the system, such as reduced paperwork, improved administrative efficiency, and enhanced user experience, outweighed the investment required for development and maintenance. As a result, the project was deemed economically feasible and justified the allocation of resources.

3.4.4 Schedule

The schedule feasibility study focused on estimating the time required for system development, testing, and deployment. The project timeline was evaluated in consideration of the internship duration and other commitments to ensure that the project could be completed within the stipulated timeframe. The study determined that the proposed timeline was feasible, providing ample time for development and testing.



4.0 SYSTEM ANALYSIS AND DESIGN

4.1 Introduction

4.2

System analysis and design is a crucial phase in the development of the Lecture Exemption Application System for the Academic Affairs Department at Universiti Teknologi Mara (UiTM) Cawangan Johor, Kampus Segamat. As a staff member in the Infostructure Department during my six-month internship, I actively participated in this phase, which played a pivotal role in shaping the entire project's structure and functionality. The purpose of this section is to provide an in-depth overview of the system analysis and design process, outlining the key activities undertaken, methodologies employed, and the objectives achieved during this critical stage of the project.

4.3 System requirements

4.3.1 System objectives

- Streamline Exemption Request Process: The primary objective of the system is to automate and streamline the process of requesting lecture exemptions. By providing an efficient and user-friendly platform, students can easily submit their exemption requests, and academic staff can efficiently review and process them.
- Enhance User Experience: The system intends to improve the overall user experience for both students and academic staff. Through an intuitive and accessible interface, users will be able to navigate the application seamlessly, reducing confusion and improving satisfaction.
- Real-Time Tracking and Communication: The system seeks to provide real-time updates on the status of exemption requests to students and academic staff. Transparent communication and notifications will enable students to monitor the progress of their requests

and facilitate prompt responses from academic administrators.

- Data Accuracy and Security:
Ensuring data accuracy and security is a vital objective of the system. By implementing robust data validation mechanisms and role-based access control, sensitive student information will be safeguarded, and data integrity will be maintained.
- Integration with Existing Systems:
The system aims to integrate seamlessly with UiTM Cawangan Johor's existing academic and administrative systems. This integration will enable data consistency and eliminate the need for redundant data entry across different platforms.
- Efficient Administrative Workflow:
By automating the exemption request workflow, the system aims to optimize administrative efficiency. Automated notifications and task assignments will expedite decision-making and reduce processing time.

4.3.2 System scope

4.3.2.1 Functional requirements

- User Registration and Authentication: Students and academic staff will be able to create accounts, log in securely, and access the system based on their respective roles.
- Exemption Request Submission: Students can submit exemption requests by providing the necessary details, including course information and supporting documents.
- Exemption Request Review and Approval: Academic staff can review exemption requests, request additional information if needed, and make decisions for approval or denial.
- Real-Time Tracking and Notifications: The system will provide real-time status updates to students on the progress of their exemption requests through email notifications or an internal messaging system.

- Academic Records and History: Students can access their exemption history, including approved and denied requests, for future reference.
- Data Reports and Analytics: The system will generate data reports and analytics for academic administrators to analyze exemption trends and make data-driven decisions

4.3.2.2 Non-Functional requirements

- Usability and User Interface: The system will have an intuitive and user-friendly interface, ensuring ease of use for both students and academic staff.
- Performance and Scalability: The system will be designed to handle concurrent users and ensure optimal performance during peak periods.
- Security: The system will implement robust security measures, including encryption, to safeguard student data and protect against unauthorized access.
- Reliability and Availability: The system will be available 24/7 with minimal downtime to ensure continuous access for users.
- Compatibility: The system will be compatible with popular web browsers to ensure a consistent user experience across different platforms.
- Data Backup and Recovery: Regular data backups will be

performed to prevent data loss, and a reliable recovery mechanism will be in place in case of system failures.

4.3.3 System Requirement specification

4.2.3.1. Input requirement

The Lecture Exemption Application System will require various inputs from different types of users, including students, lecturers, Ketua Pusat Pengajian (Head of Academic Program), and Admins (staff from Academic Affairs Department). The inputs can be categorized based on user roles and functionalities of the system:

1. Student Inputs:

User Registration Information: Students will provide their personal details, including full name, student ID, email address, and contact number, during the user registration process.

Exemption Request Information: Students will input details about the course for which they are seeking an exemption, the reason for the request, and any relevant supporting documents.

2. Lecturer Inputs:

Authentication Credentials: Lecturers will use their credentials (username and password) to log into the system and access the exemption requests assigned to them for review.

Exemption Review Decision: After reviewing an exemption request, lecturers will provide their decision, either approving or denying the request, along with any comments or additional information required.

3. Ketua Pusat Pengajian Inputs:

Authentication Credentials: Ketua Pusat Pengajian will log in to the system using their designated credentials to access exemption requests related to their academic program.

Review and Approval: They will review exemption requests assigned to their academic program and make final decisions, approving or denying the requests based on academic program guidelines.

4. Admin Inputs (Academic Affairs Department Staff):

Authentication Credentials: Admins will log in to the system using their credentials to access all exemption requests and manage the system's overall functionalities.

Manage User Accounts: Admins will handle user account management, including student and lecturer registrations, approvals, and account deactivation when necessary.

Monitoring and Reporting: Admins will be able to generate data reports and analytics related to exemption requests, tracking trends, and monitoring the system's performance.

Communication with Users: Admins may communicate with students, lecturers, and Ketua Pusat Pengajian through the system's internal messaging or email notifications.

5. General Inputs (Common to All Users):

User Authentication: All users will need to provide their respective login credentials (username and password) to access the system.

Exemption Request Tracking: The system will capture and store the status of each exemption request, enabling users to track their progress.

Data Updates and Modifications: All users may need to update and modify their profile information, such as contact details, when necessary.

Supporting Documents Upload: Students and lecturers may need to upload supporting documents for exemption requests as per academic program requirements.

These input requirements will ensure that the Lecture

Exemption Application System is fully functional, secure, and user-friendly for students, lecturers, Ketua Pusat Pengajian, and Admins at Universiti Teknologi Mara Cawangan Johor, Kampus Segamat.

4.2.3.2. Output requirement

The Lecture Exemption Application System will generate various outputs to provide valuable information and notifications to the different types of users: students, lecturers, Ketua Pusat Pengajian (Head of Academic Program), and Admins (staff from Academic Affairs Department). These outputs will vary based on user roles and system functionalities:

1. Student Outputs:

Exemption Request Status: After submitting an exemption request, students will receive real-time updates on the status of their request, indicating whether it is pending, approved, or denied.

Notification of Decision: Once a decision is made by lecturers and Ketua Pusat Pengajian, students will be notified of the outcome through the system's internal messaging or email notifications.

Exemption History: Students will have access to their exemption history, displaying previously approved and denied requests for reference.

2. Lecturer Outputs:

Exemption Review Assignments: Lecturers will receive

notifications when a new exemption request is assigned to them for review, ensuring they are aware of pending tasks.

Decision Confirmation: After reviewing an exemption request, lecturers will provide their decision, which will be communicated back to the student through the system.

3. Ketua Pusat Pengajian Outputs:

Assigned Exemption Requests: Ketua Pusat Pengajian will receive notifications of exemption requests related to their respective academic program, allowing them to review and approve or deny requests.

Decision Confirmation: After making the final decision for an exemption request, Ketua Pusat Pengajian's decision will be communicated to the student through the system.

4. Admin Outputs (Academic Affairs Department Staff):

System Notifications: Admins will receive system notifications related to user registrations, approval requests, and other administrative activities.

Data Reports and Analytics: Admins will have access to various data reports and analytics, providing insights into exemption trends, approval rates, and other system performance metrics.

Communication with Users: Admins may communicate with students, lecturers, and Ketua Pusat Pengajian through the system's internal messaging or email notifications.

5. General Outputs (Common to All Users):

User Authentication Status: All users will receive login confirmation upon successful authentication, ensuring secure access to the system.

Error and Validation Messages: Users will receive appropriate error messages and validation feedback if there are any issues with their inputs.

Confirmation of Actions: Users will receive confirmation messages for various actions, such as updating profile information or submitting an exemption request.

System Updates and Announcements: General announcements and system updates will be communicated to all users through notifications.

Data Export: The system may allow Admins to export data reports in various formats (e.g., PDF, CSV) for further analysis or documentation.

By fulfilling these output requirements, the Lecture Exemption Application System will effectively provide relevant and timely information to users, improve communication, and enhance the overall user experience for students, lecturers, Ketua Pusat Pengajian, and Admins at Universiti Teknologi Mara Cawangan Johor, Kampus Segamat.

4.2.3.3. Process Requirement

The Lecture Exemption Application System will involve various processes to ensure smooth functionality, efficient workflow, and effective communication between different user roles. These process requirements outline the key activities and interactions within the system for students, lecturers, Ketua Pusat Pengajian (Head of Academic Program), and Admins (staff from Academic Affairs Department):

1. User Registration and Authentication Process:

Description: This process involves allowing students, lecturers, Ketua Pusat Pengajian, and Admins to register their accounts in the system and authenticate themselves securely.

Requirements:

- User registration forms with fields for personal information.
- Secure authentication mechanisms, such as username and password, for login.

2. Exemption Request Submission and Review Process:

Description: This process enables students to submit exemption requests, and lecturers and Ketua Pusat Pengajian to review and make decisions on these requests.

Requirements:

- Exemption request form with fields for course

information and supporting documents.

- Workflow for assigning exemption requests to specific lecturers and Ketua Pusat Pengajian.
- Notification mechanism to inform lecturers and Ketua Pusat Pengajian of new exemption requests.
- Review interface for lecturers and Ketua Pusat Pengajian to approve or deny requests and provide comments if needed.
- Real-time status updates for students regarding the progress of their exemption requests.

3. Exemption Decision Approval Process:

Description: This process involves the final approval of exemption decisions by Ketua Pusat Pengajian.

Requirements:

- Workflow for assigning final approval authority to Ketua Pusat Pengajian.
- Communication of final decisions to students through the system.

4. User Account Management Process:

Description: This process allows Admins to manage user accounts, including student and lecturer registrations, approval

Requirements:

- User account management interface for Admins to view and handle user registrations and approvals.

5. Data Reporting and Analytics Process:

Description: This process provides Admins with data reports and analytics related to exemption requests and system performance.

Requirements:

- Data reporting module for generating reports on exemption trends, approval rates, and other relevant metrics.
- Data analytics capabilities to analyze data and gain insights.

6. Communication Process:

Description: This process enables communication between users through the system.

Requirements:

- notification system for users to communicate with each other and receive system updates.
- Email notifications to inform users about important events, such as approval decisions and system announcements.

7. Error Handling and Validation Process:

Description: This process ensures proper error handling and validation for user inputs.

Requirements:

- Validation checks for user input fields to prevent

invalid or incorrect data submission.

- Error messages and feedback for users when errors occur.

8. Data Security and Privacy Process:

Description: This process focuses on data security and privacy measures to protect sensitive student information.

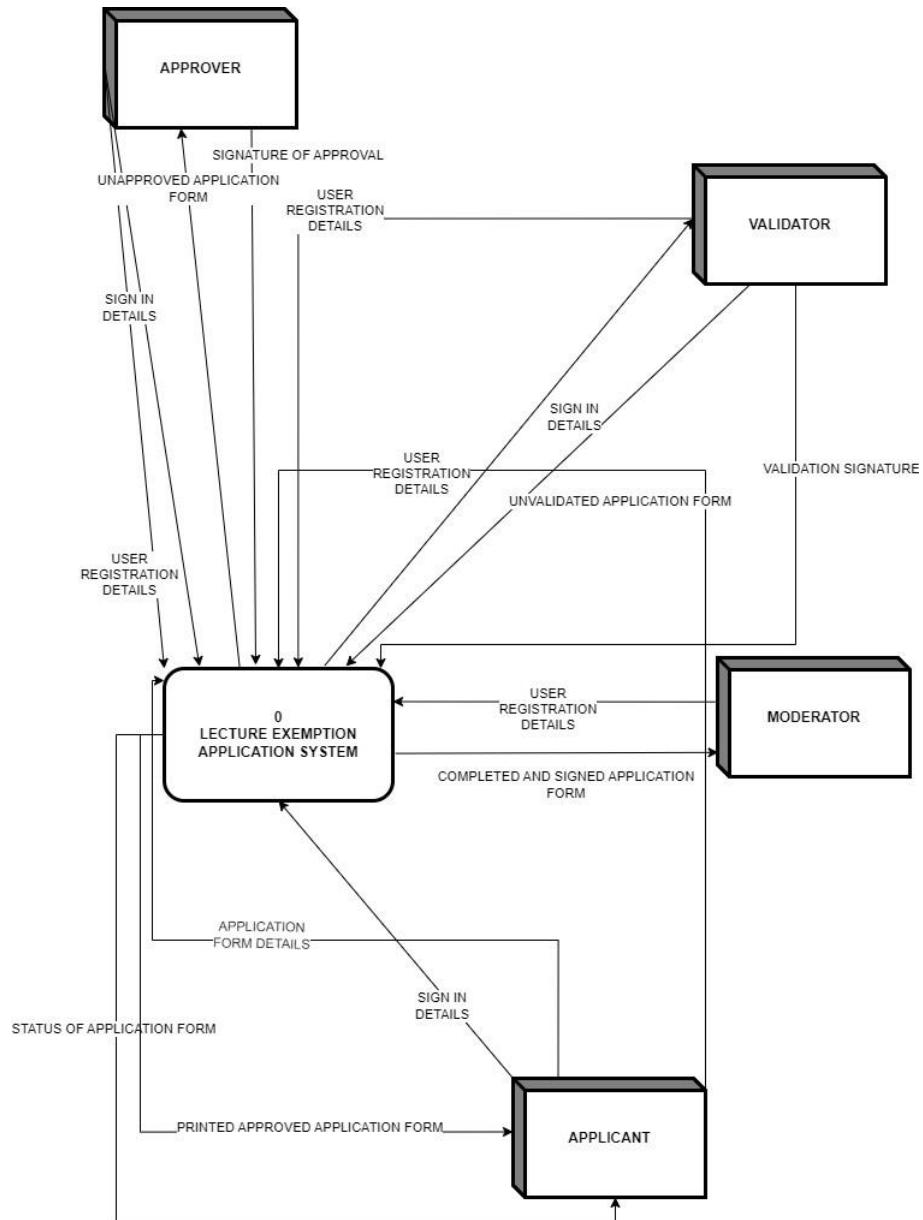
Requirements:

- Encryption of sensitive data, such as passwords and supporting documents.
- Role-based access control to ensure that users can only access information relevant to their roles.
- Compliance with data protection regulations and privacy policies.

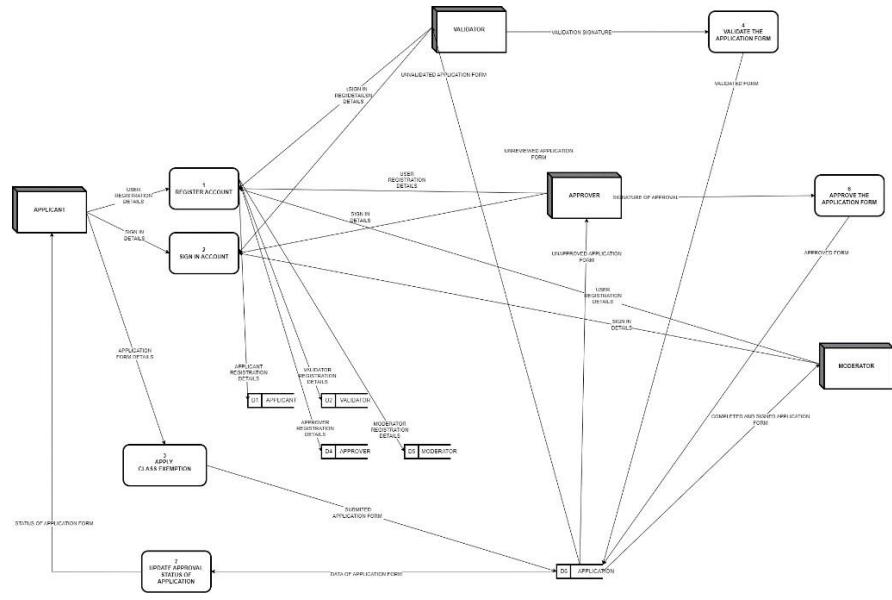
By incorporating these process requirements, the Lecture Exemption Application System will efficiently manage user interactions, facilitate timely decision-making, and maintain data integrity and security for all users at Universiti Teknologi Mara Cawangan Johor, Kampus Segamat.

4.3. Process Modelling

4.3.1 Context Diagram

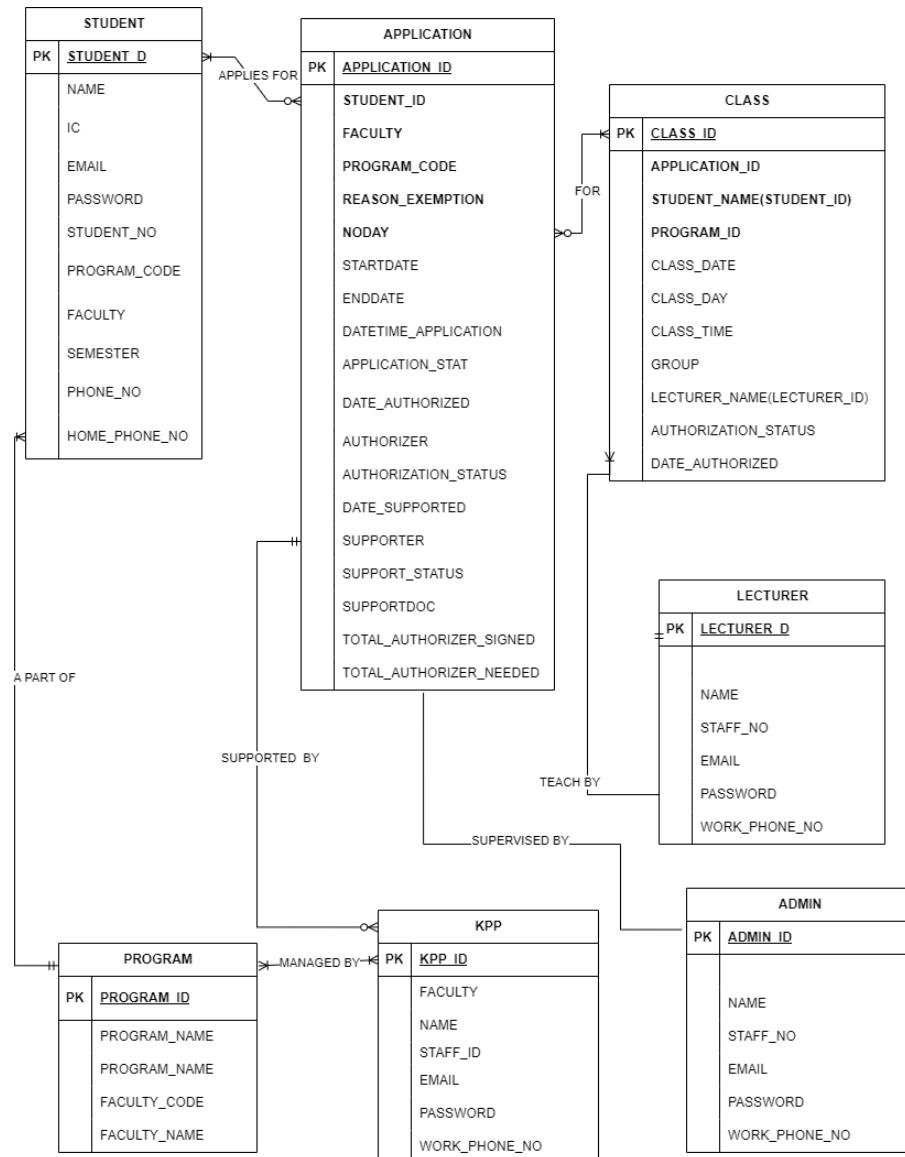


4.3.2 Data Flow Diagram 0

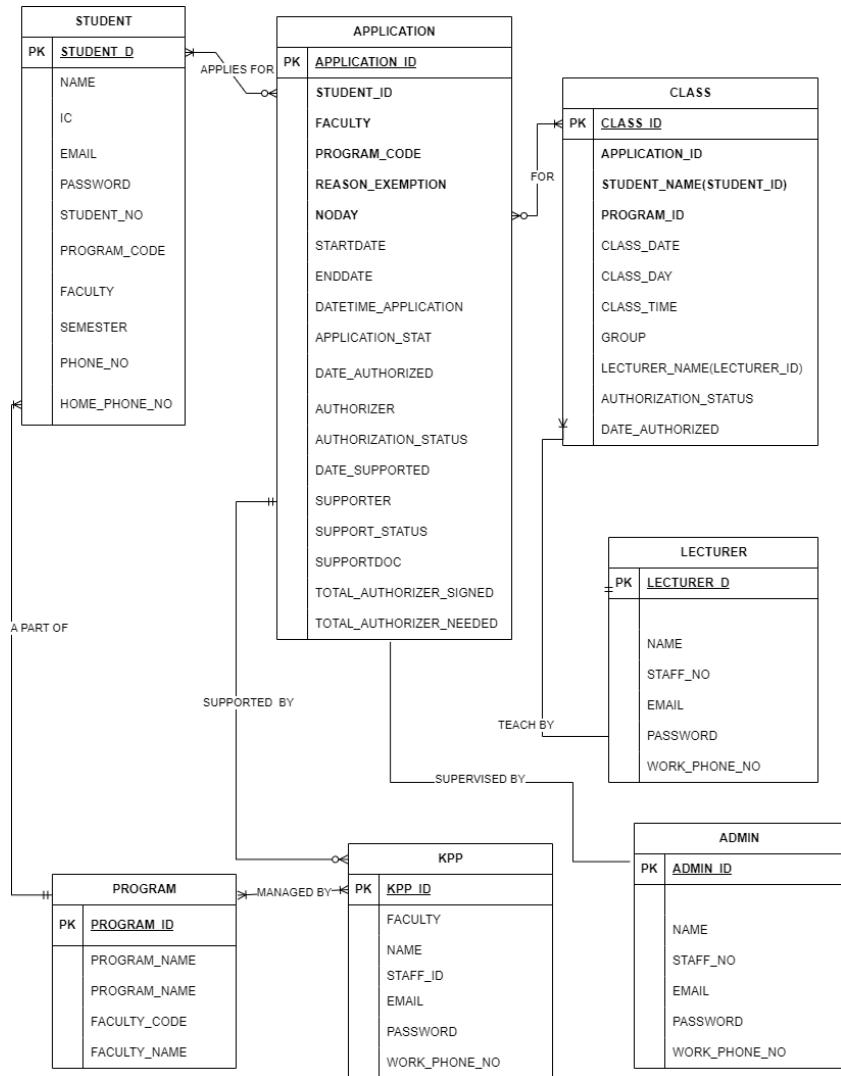


4.4 Data Modelling

4.4.1 Entity Relationship Diagram/ERD



4.4.2. Relational schema



5.0 SYSTEM IMPLEMENTATION

5.1. Input Interface

STUDENT INTERFACE:

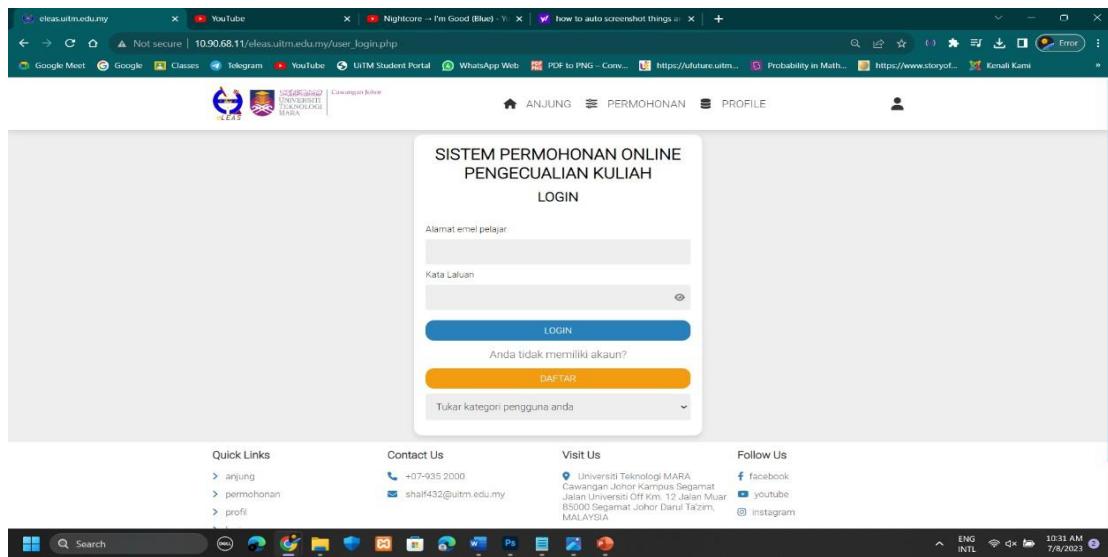


Diagram above shows: login page

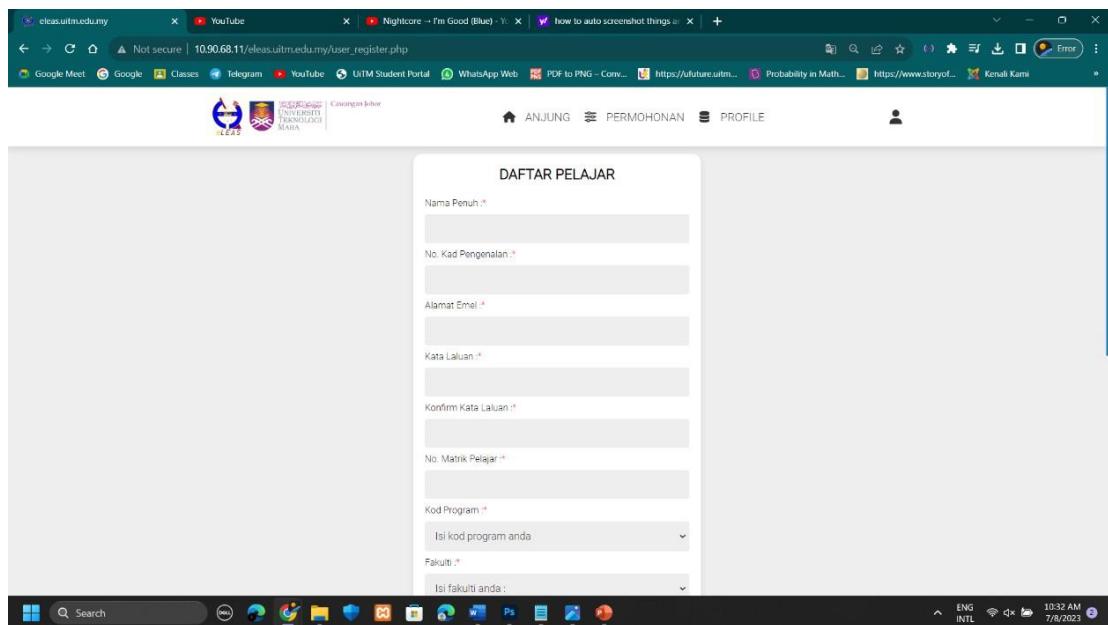


Diagram above shows: registration page

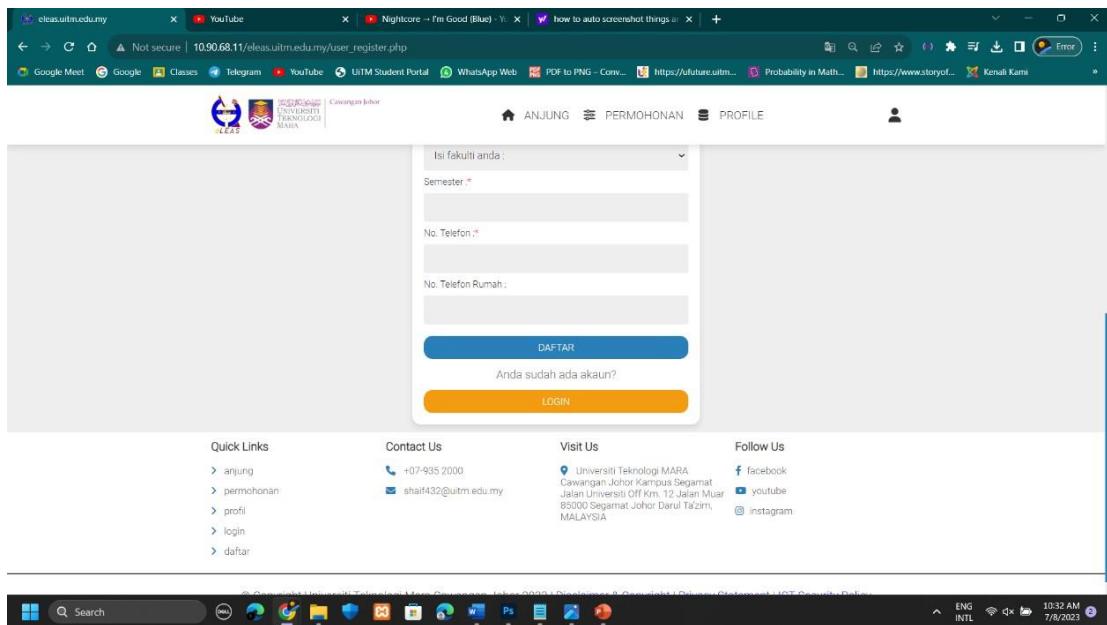


Diagram above shows: registration page

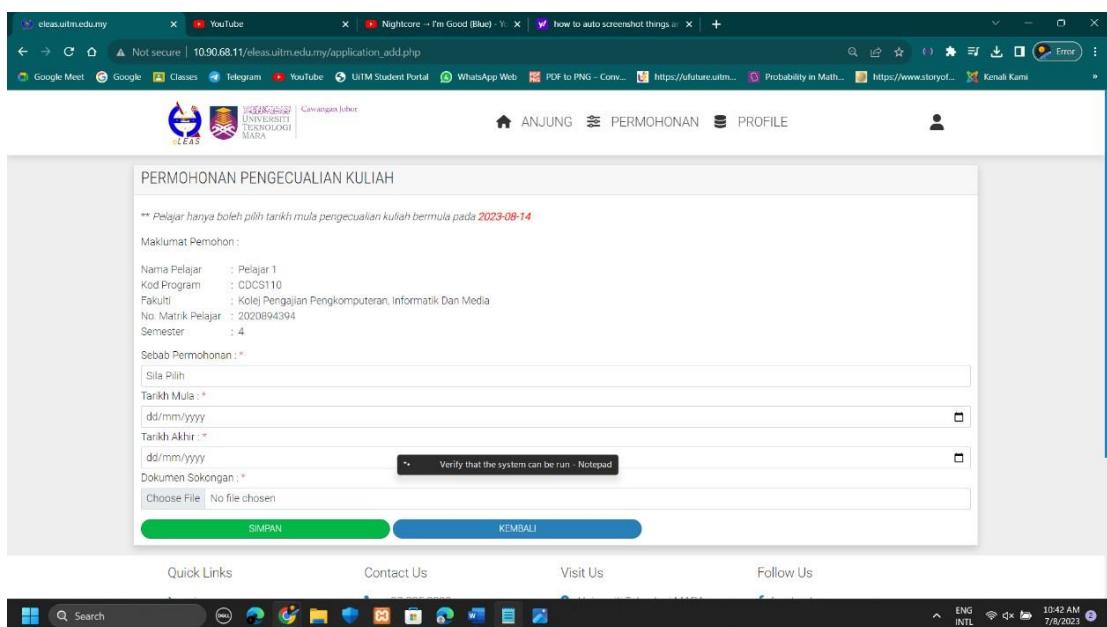


Diagram above shows: application_add page

Papar | rekod setiap halaman

| No. | Nama Pemohon | Tarikh | Hari | Masa | Kod Kursus | kumpulan | Nama Pensyarah | Tindakan |
|--------------------------|--------------|--------|------|------|------------|----------|----------------|----------|
| Tiada rekod yang sepadan | | | | | | | | |

TAMBAH KULIAH/KELAS/MAKMAL

Tarikh : *
dd/mm/yyyy

Hari : *
Sila Pilih

Masa : *
--:-- --

Kod kursus : *

Kumpulan : *

Nama Pensyarah : *
Sila Pilih

TAMBAH **SELESAI**

Diagram above shows: class_add page

LECTURER INTERFACE:

SISTEM PERMOHONAN ONLINE
PENGECUALIAN KULIAH

LOGIN

Alamat emel pensyarah

Kata Laluan

LOGIN

Anda tidak memiliki akaun?

DAFTAR

Tukar kategori pengguna anda

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- > permohonan
- > profil
- > login

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- +07-935 2000
- shafif432@uitm.edu.my

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85200 Segamat Johor Darul Ta'zim,
MALAYSIA

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Diagram above shows: login page

DAFTAR PENSYARAH

Nama Penuh *
Staff ID *
Alamat Emel *
Kata Laluan *
Konfirm Kata Laluan *
No. Telefon *

DAFTAR
Anda sudah ada akaun?
LOGIN

Diagram above shows: register page

KETUA PUSAT PENGAJIAN INTERFACE:

SISTEM PERMOHONAN ONLINE
PENGECEUALIAN KULIAH

LOGIN

Alamat emel KPP
Kata Laluan

LOGIN
Anda tidak memiliki akaun?
DAFTAR
Tukar kategori pengguna anda

Diagram above shows: login page

The screenshot shows a web browser window with multiple tabs open. The active tab is titled "10.90.68.11/eleus.uitm.edu.my/kpp_register.php". The page header includes the UIN Sultan Syarif Kasim logo and links for ANJUNG, PERMOHONAN, and PROFILE. The main content is a registration form titled "DAFTAR KETUA PUSAT PROGRAM". The form fields are:

- Nama Penuh.*
- Staff ID.*
- Alamat Emel.*
- Kata Laluan.*
- Konfirm Kata Laluan.*
- Fakulti Yang Dipegang.*
Isi fakulti anda :
- No. Telefon.*

A blue "DAFTAR" button is located at the bottom of the form. A message "Anda sudah ada akun?" is displayed below the button. The browser's taskbar shows various pinned icons, and the system tray indicates the date and time as 7/8/2023 10:33 AM.

Diagram above shows: register page

ADMIN INTERFACE:

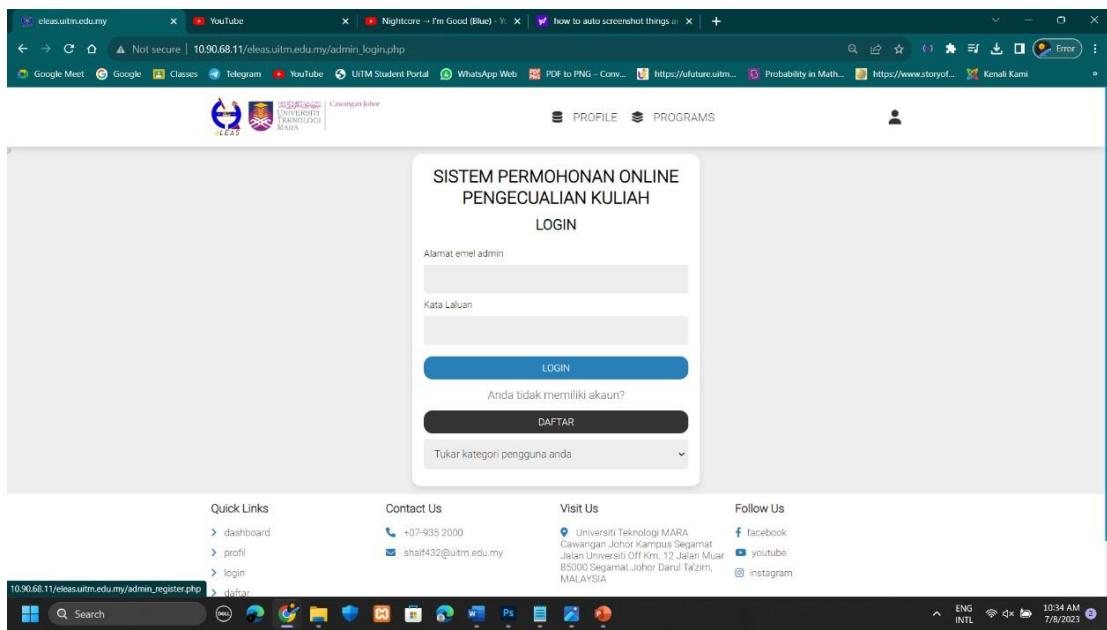


Diagram above shows: login page

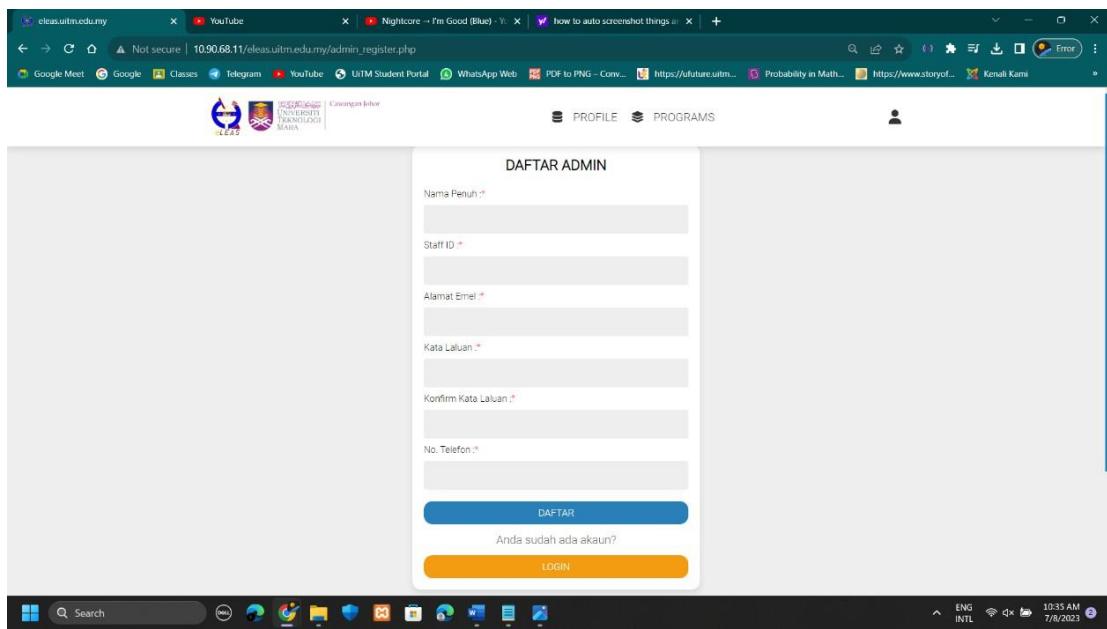


Diagram above shows: register page

5.2. Output Interface

STUDENT INTERFACE:

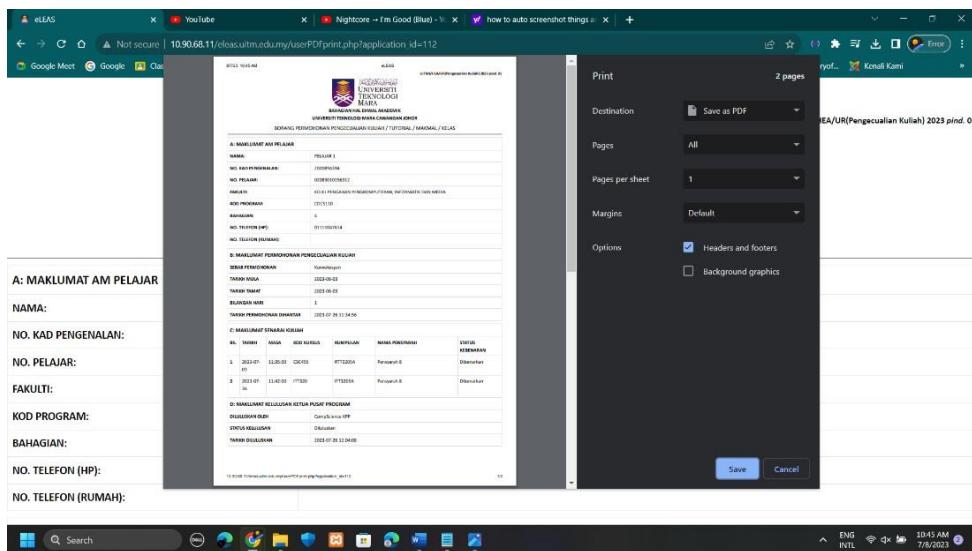


Diagram above shows: print page

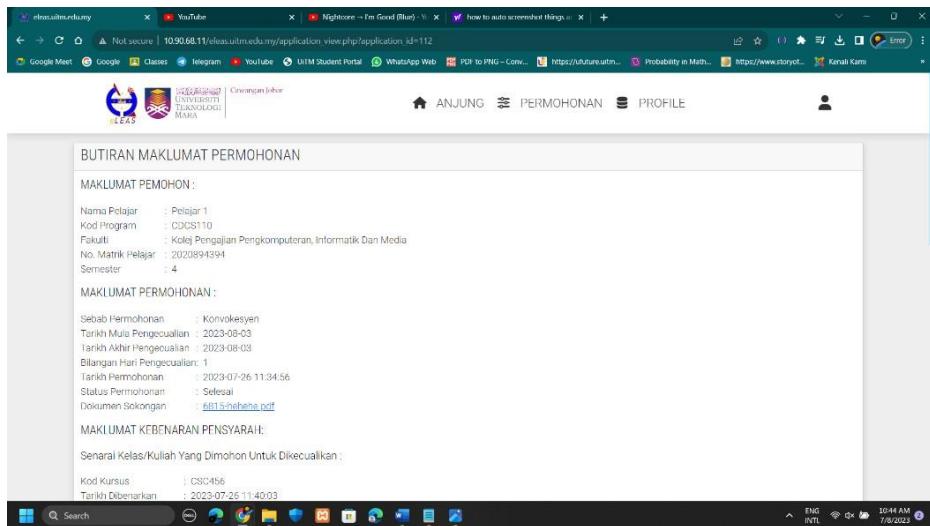


Diagram above shows: view application details page

Kod Kursus : ITT320
 Tarikh Dibenarkan : 2023-07-26 11:40:48
 Status Kebenaran : Dibenarkan
 Dibenarkan oleh : Pensyarah 8

MAKLUMAT KELULUSAN KETUA PENGARAH PROGRAM :

| | |
|-------------------|-----------------------|
| Tarikh Diluluskan | : 2023-07-26 12:04:08 |
| Status Kelulusan | : Diluluskan |
| Diluluskan oleh | : CompScience KPP |

SENARAI KULIAH/KELAS/MAKMAL/TUTORIAL YANG TERLIBAT

| No. | Nama Pemohon | Tarikh | Hari | Masa | Kod Kursus | kumpulan | Nama Pensyarah |
|-----|--------------|------------|--------|----------|------------|----------|----------------|
| 1 | Pelajar 1 | 2023-07-03 | Isnin | 11:35:00 | CSC456 | RTT3205A | Pensyarah 8 |
| 2 | Pelajar 1 | 2023-07-26 | Khamis | 11:42:00 | ITT320 | ITT3205A | Pensyarah 8 |

Papar halaman 1 dari 1

KEMBALI

Diagram above shows: view application details page

LECTURER INTERFACE:

BUTIRAN MAKLUMAT PERMOHONAN

MAKLUMAT PEMOHON :

| | |
|--------------------|---|
| Nama Pelajar | : AHMAD MUSTAIN BILLAH BIN MUSTAFA |
| Kod Program | : CDIM110 |
| Fakulti | : KPPI - Kolej Pengajian Pengkomputeran, Informatik Dan Media |
| No. Matrik Pelajar | : 2020614182 |
| Semester | : 6 |

MAKLUMAT PERMOHONAN :

| | |
|----------------------------|-----------------------|
| Sebab Permohonan | : Must |
| Tarikh Mula Pengecualian | : 2023-08-01 |
| Tarikh Akhir Pengecualian | : 2023-09-04 |
| Bilangan Hari Pengecualian | : 5 |
| Tarikh Permohonan | : 2023-07-30 16:17:38 |
| Status Permohonan | : aktif |

MAKLUMAT KEBENARAN PENSYARAH:

Senarai Kelas/Kuliah Yang Dimohon Untuk Dikecualikan :

| | |
|-------------------|-----------------------|
| Kod Kursus | : CSC256 |
| Tarikh Dibenarkan | : 0000-00-00 00:00:00 |
| Status Kebenaran | : pending |
| Dibenarkan oleh | : Pensyarah 1 |

MAKLUMAT KELULUSAN KETUA PENGARAH PROGRAM :

Diagram above shows: view application details page

MAKLUMAT KEBENARAN PENSYARAH:

Senarai Kelas/Kuliah Yang Dimohon Untuk Dikecualikan :

| | |
|-------------------|-----------------------|
| Kod Kursus | : CSC256 |
| Tarikh Dibenarkan | : 0000-00-00 00:00:00 |
| Status Kebenaran | : pending |
| Dibenarkan oleh | : Pensyarah 1 |

MAKLUMAT KELULUSAN KETUA PENGARAH PROGRAM :

| | |
|-------------------|-----------------------|
| Tarikh Diluluskan | : 0000-00-00 00:00:00 |
| Status Kelulusan | : pending |
| Diluluskan oleh | : CompScience KPP |

MAKLUMAT KELAS/KULIAH

| No. | Nama Pemohon | Tarikh | Hari | Masa | Kod Kursus | kumpulan | Nama Pensyarah |
|-----|----------------------------------|------------|--------|----------|------------|----------|----------------|
| 1 | AHMAD MUSTAIN BILLAH BIN MUSTAFA | 2023-08-31 | Khamis | 08.00.00 | CSC256 | JCS1106A | Pensyarah 1 |

Papar halaman 1 dari 1

KEMBALI

Diagram above shows: view application details page

KETUA PUSAT PENGAJIAN INTERFACE:

BUTIRAN MAKLUMAT PERMOHONAN

MAKLUMAT PEMOHON :

| | |
|--------------------|--|
| Nama Pelajar | : Pelajar 1 |
| Kod Program | : CDGS110 |
| Fakulti | : Kolej Pengajian Pengkomputeran, Informatik Dan Media |
| No. Matrik Pelajar | : 2020894394 |
| Semester | : 4 |

MAKLUMAT PERMOHONAN :

| | |
|----------------------------|-----------------------|
| Sebab Permohonan | : Konokeyen |
| Tarikh Mula Pengecualian | : 2023-08-03 |
| Tarikh Akhir Pengecualian | : 2023-08-03 |
| Bilangan Hari Pengecualian | : 1 |
| Tarikh Permohonan | : 2023-07-26 11:34:56 |
| Status Permohonan | : Selesai |

MAKLUMAT KEBENARAN PENSYARAH:

Senarai Kelas/Kuliah Yang Dimohon Untuk Dikecualikan :

| | |
|-------------------|-----------------------|
| Kod Kursus | : CSC456 |
| Tarikh Dibenarkan | : 2023-07-26 11:40:03 |
| Status Kebenaran | : Dibenarkan |
| Dibenarkan oleh | : Pensyarah 8 |

| | |
|-------------------|-----------------------|
| Kod Kursus | : ITT320 |
| Tarikh Dibenarkan | : 2023-07-26 11:49:42 |

Diagram above shows: view application details page

MAKLUMAT KELULUSAN KETUA PENGARAH PROGRAM :

| | |
|-------------------|-----------------------|
| Tarikh Diluluskan | : 2023-07-26 12:04:08 |
| Status Kelulusan | : Diluluskan |
| Diluluskan oleh | : CompScience KPP |

SEWARAI KULIAH/KELAS/MAKMAL/TUTORIAL YANG TERLIBAT

| No. | Nama Pemohon | Tarikh | Hari | Masa | Kod Kursus | kumpulan | Nama Pensyarah |
|-----|--------------|------------|--------|----------|------------|----------|----------------|
| 1 | Pelajar 1 | 2023-07-03 | Isnin | 11:35:00 | CSC456 | RTT3205A | Pensyarah 8 |
| 2 | Pelajar 1 | 2023-07-26 | Khamis | 11:42:00 | ITT320 | ITT3205A | Pensyarah 8 |

Papar halaman 1 dari 1

KEMBALI

Diagram above shows: view application details page

ADMIN INTERFACE:

SENARAI PERMOHONAN BELUM DIBENARKAN PENSYARAH

| No. | Nama Pemohon | Program Kod | Sebab Penyelepasan | Tarikh/Masa Permozonan | Kelas/Kuliah Yang Terlibat | Dibenarkan | Diluluskan | Status Permozonan | Tindakan |
|-----|----------------------------------|-------------|--------------------|------------------------|---|------------|------------|-------------------|--|
| 1 | AHMAD MUSTAIN BILLAH BIN MUSTAFA | CDIM110 | Muet | 2023-07-30 16:17:38 | (1) Kod Kursus : CSC256 Kumpulan : JCS1106A Pensyarah : Pensyarah 1 | pending | pending | aktif | <button>Lihat</button> <button>Bantuan</button> |
| 2 | Pelajar 1 | CDDS110 | Konvokeyen | 2023-08-07 10:43:12 | Tiada | pending | pending | aktif | <button>Lihat</button> <button>Bantuan</button> |

Papar halaman 1 dari 1

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- > login
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- > shairf432@ultra.edu.my

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Diagram above shows: view list of application that is not yet been validated by lecturers page

The screenshot shows a web browser window with the URL 10.90.68.11/eleas.ultra.edu.my/admin_application.php?application_type=2. The page title is "SENARAI PERMOHONAN BELUM DILULUSKAN KETUA PUSAT PROGRAM". It features a search bar and a table with columns: No., Nama Pemohon, Program Kod, Sebab Pengecualian, Tarikh/Masa Permohonan, Kelas/Kuliah Yang Terlibat, Diberikan, Diluluskan, Status Permohonan, and Tindakan. A message at the bottom states "Tiada rekod yang sepadan". Below the table are sections for "Quick Links", "Contact Us", "Visit Us", and "Follow Us". The footer includes copyright information and links to various university pages.

Diagram above shows: view list of application that is not yet been validated by kpps page

The screenshot shows a web browser window with the URL 10.90.68.11/eleas.ultra.edu.my/admin_application.php?application_type=3. The page title is "SENARAI PERMOHONAN YANG TAK DILULUSKAN". It features a search bar and a table with columns: No., Nama Pemohon, Program Kod, Sebab Pengecualian, Tarikh/Masa Permohonan, Kelas/Kuliah Yang Terlibat, Diberikan, Diluluskan, Status Permohonan, and Tindakan. A message at the bottom states "Tiada rekod yang sepadan". Below the table are sections for "Quick Links", "Contact Us", "Visit Us", and "Follow Us". The footer includes copyright information and links to various university pages.

Diagram above shows: view list of application that is not yet been approved page

SENARAI PERMOHONAN YANG TELAH SELESAI

| No. | Nama Pemohon | Program Kod | Sebab Pengecualian | Tarikh/Masa Permozonan | Kelas/Kuliah Yang Terlibat | Dibenarkan | Diluluskan | Status Permozonan | Tindakan |
|-----|--------------|-------------|--------------------|------------------------|--|------------|------------|-------------------|----------|
| 1 | Pelajar 1 | CDCS110 | Konvokesyen | 2023-07-26 11:34:56 | (1)Kod Kursus : CSC456 Kumpulan RTT3205A Pensyarah : Pensyarah 8 | Selesai | Diluluskan | Selesai | Lihat |

Papar halaman 1 dari 1

Quick Links: dashboard, profil, login, daftar

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Diagram above shows: view list of application that is not yet been completed page

SENARAI PERMOHONAN KESELURUHAN

| No. | Nama Pemohon | Program Kod | Sebab Pengecualian | Tarikh/Masa Permozonan | Kelas/Kuliah Yang Terlibat | Dibenarkan | Diluluskan | Status Permozonan | Tindakan |
|-----|--------------------------------------|-------------|--------------------|------------------------|--|------------|------------|-------------------|----------|
| 1 | Pelajar 1 | CDCS110 | Konvokesyen | 2023-07-26 11:34:56 | (1)Kod Kursus : CSC456 Kumpulan : RTT3205A Pensyarah : Pensyarah 8 | Selesai | Diluluskan | Selesai | Lihat |
| 2 | SITI NUR ANIS SURAYA BINTI MD SAMIRI | BA242 | Muet | 2023-07-30 14:14:32 | (1)Kod Kursus : ITT320 Kumpulan : ITT3205A Pensyarah : Pensyarah 1 | pending | pending | Tamat Tempoh | Lihat |
| 3 | AHMAD MUSTAIN BILLAH BIN MUSTAFA | CDIM110 | Muet | 2023-07-30 16:17:38 | (1)Kod Kursus : GS0256 Kumpulan : JOS1106A Pensyarah : Pensyarah 1 | pending | pending | aktif | Lihat |
| 4 | Pelajar 1 | CDCS110 | Konvokesyen | 2023-08-07 10:43:12 | Tiada | pending | pending | aktif | Lihat |

Papar halaman 1 dari 1

Diagram above shows: view list of all application page

Screenshot of a web browser showing a list of registered staff. The page title is "SENARAI KESELURUHAN STAFF BERDAFTAR".

Table columns: No., Nama Pelajar, kod Program, Fakulti, Semester, Emel, No. Pelajar, No. Telefon, No. Telefon Rumah.

Data rows:

| No. | Nama Pelajar | kod Program | Fakulti | Semester | Emel | No. Pelajar | No. Telefon | No. Telefon Rumah |
|-----|--------------------------------------|-------------|--|----------|---------------------------------|-------------|-------------|-------------------|
| 1 | SITI NUR ANIS SURAYA BINTI MO SAMIRI | BA242 | Fakulti Pengurusan Dan Perniagaan | 5 | niesuraya@gmail.com | 2022793633 | 01159577361 | 0111104761456 |
| 2 | Pelajar 1 | CDCS110 | Kolej Pengajian Pengkomputeran, Informatik Dan Media | 4 | s1@gmail.com | 2020894394 | 01111047614 | |
| 3 | AHMAD MUSTAIN | CDCS110 | Kolej Pengajian Pengkomputeran, Informatik Dan Media | 6 | mua@gmail.com | 2020614182 | 0142701906 | |
| 4 | Pelajar 2 | CDCS110 | Kolej Pengajian Pengkomputeran, Informatik Dan Media | 3 | s2@gmail.com | 2020894394 | 01111047614 | 0111104761456 |
| 5 | MUHD MUJAHARBIN BIN KAMARULBARIN | CDCS110 | Kolej Pengajian Pengkomputeran, Informatik Dan Media | 2 | 2022454508@student.ultra.edu.my | 2022454508 | 0199380081 | 0136019197 |
| 6 | PUTRA ZIKRULLAH BIN AHMAD REDZUAN | CDCS110 | Kolej Pengajian Pengkomputeran, Informatik Dan Media | 2 | 2022459582@student.ultra.edu.my | 2022459582 | 01112980977 | 0193694097 |
| 7 | MUHAMMAD NAZIRUL MUALIF BIN AMAR | CDCS110 | Kolej Pengajian Pengkomputeran, Informatik Dan Media | 2 | 2022465162@student.ultra.edu.my | 2022465162 | 0174308452 | |

Diagram above shows: view list of all registered staff page

Screenshot of a web browser showing a list of registered students. The page title is "SENARAI KESELURUHAN STAFF BERDAFTAR".

Table columns: No., Nama Pensyarah, Emel, No. Staff, No. Telefon, Peranan, Fakulti Diluruskan.

Data rows:

| No. | Nama Pensyarah | Emel | No. Staff | No. Telefon | Peranan | Fakulti Diluruskan |
|-----|----------------|--------------|------------|--------------|-----------|--------------------|
| 1 | Pensyarah 1 | 11@gmail.com | 2147483647 | 213213123424 | Pensyarah | Tidak berkenaan |
| 2 | Pensyarah 2 | 12@gmail.com | 2131213 | 2132131 | Pensyarah | Tidak berkenaan |
| 3 | Pensyarah 3 | 13@gmail.com | 2131213 | 0111104673 | Pensyarah | Tidak berkenaan |
| 4 | Pensyarah 4 | 14@gmail.com | 2147483647 | 0111104673 | Pensyarah | Tidak berkenaan |
| 5 | Pensyarah 5 | 15@gmail.com | 2131213 | 2132131 | Pensyarah | Tidak berkenaan |
| 6 | Pensyarah 6 | 16@gmail.com | 2131213 | 2132131 | Pensyarah | Tidak berkenaan |
| 7 | Pensyarah 7 | 17@gmail.com | 231423 | 2132131 | Pensyarah | Tidak berkenaan |
| 8 | Pensyarah 8 | 18@gmail.com | 2020894394 | 0111104673 | Pensyarah | Tidak berkenaan |
| 9 | pensyarah 9 | 19@gmail.com | 123231221 | 0111104673 | Pensyarah | Tidak berkenaan |
| 10 | Pensyarah 10 | 10@gmail.com | 2131213 | 2132131 | Pensyarah | Tidak berkenaan |

Diagram above shows: view list of all registered student page

5.3. Process interface

STUDENT INTERFACE:

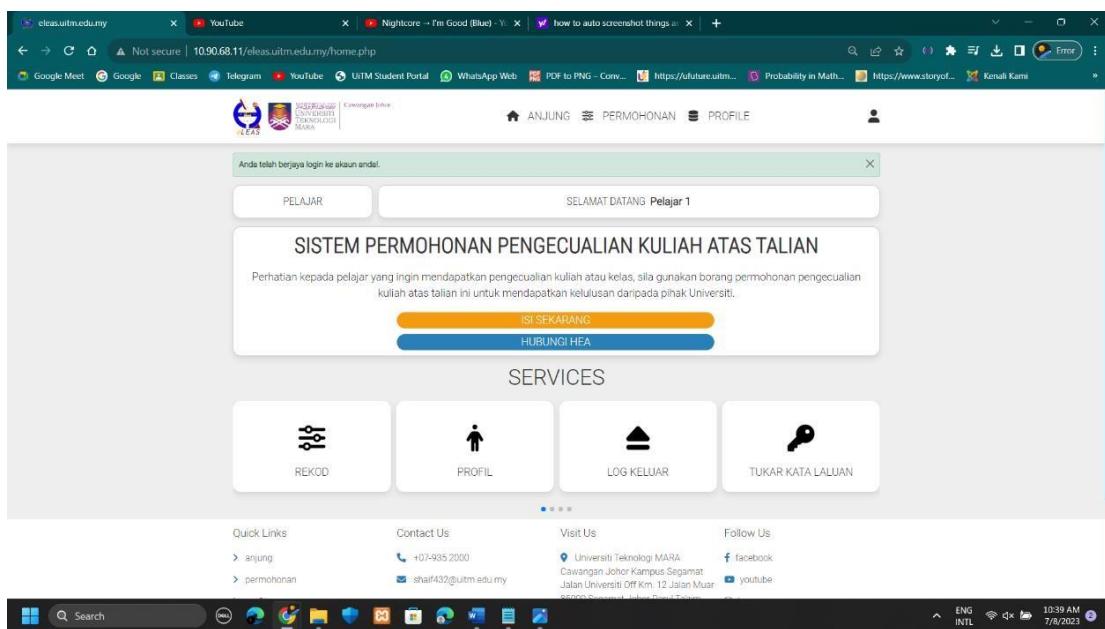


Diagram above shows: home page

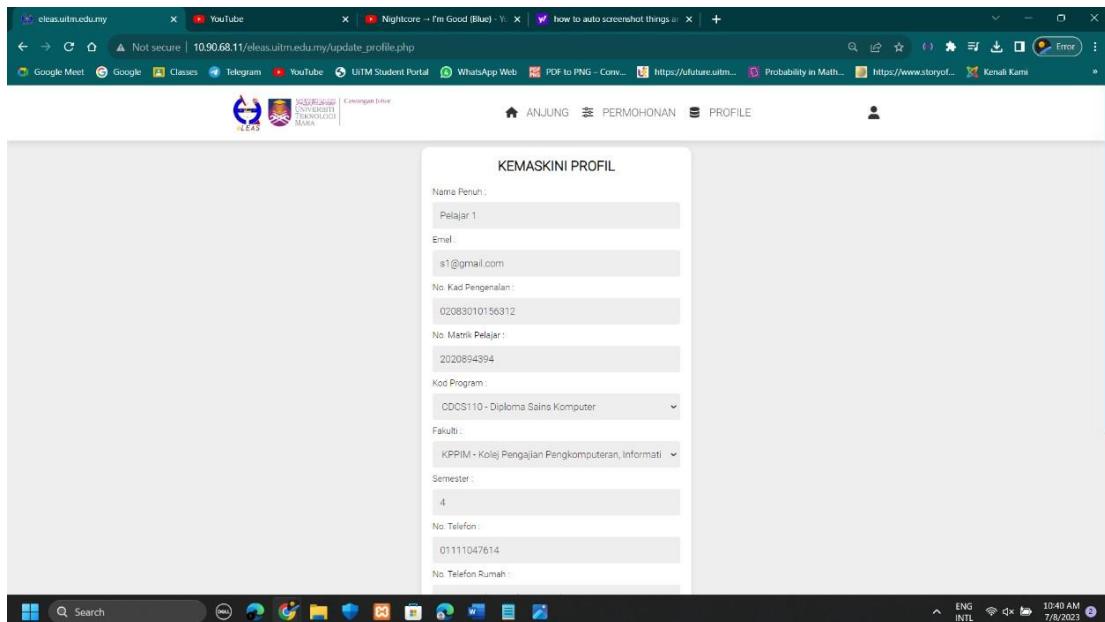


Diagram above shows: update profile page

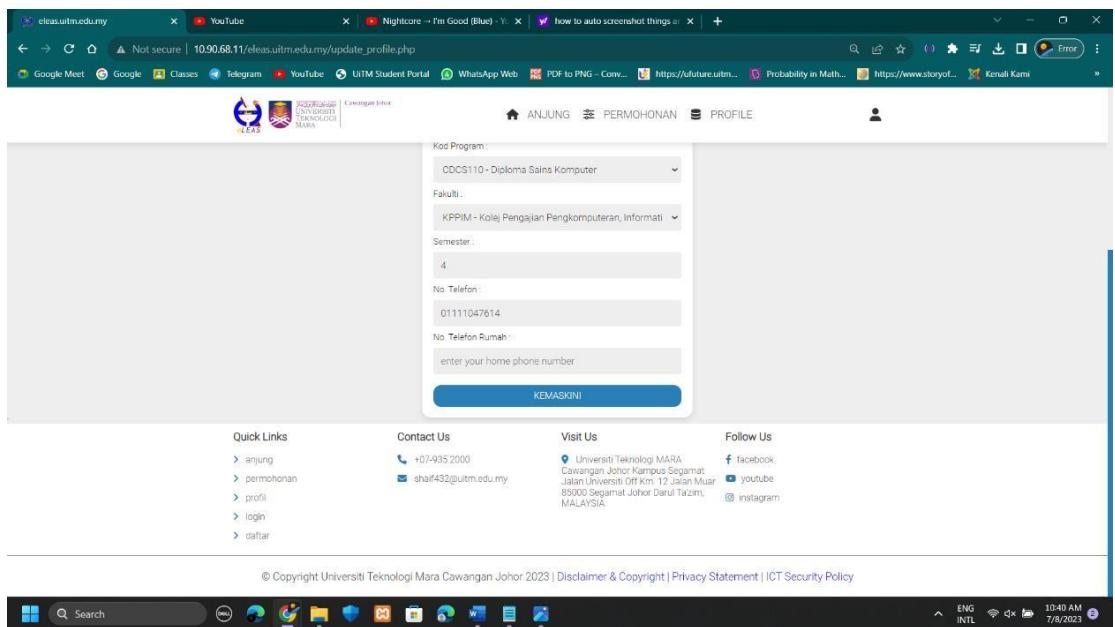


Diagram above shows: update profile page

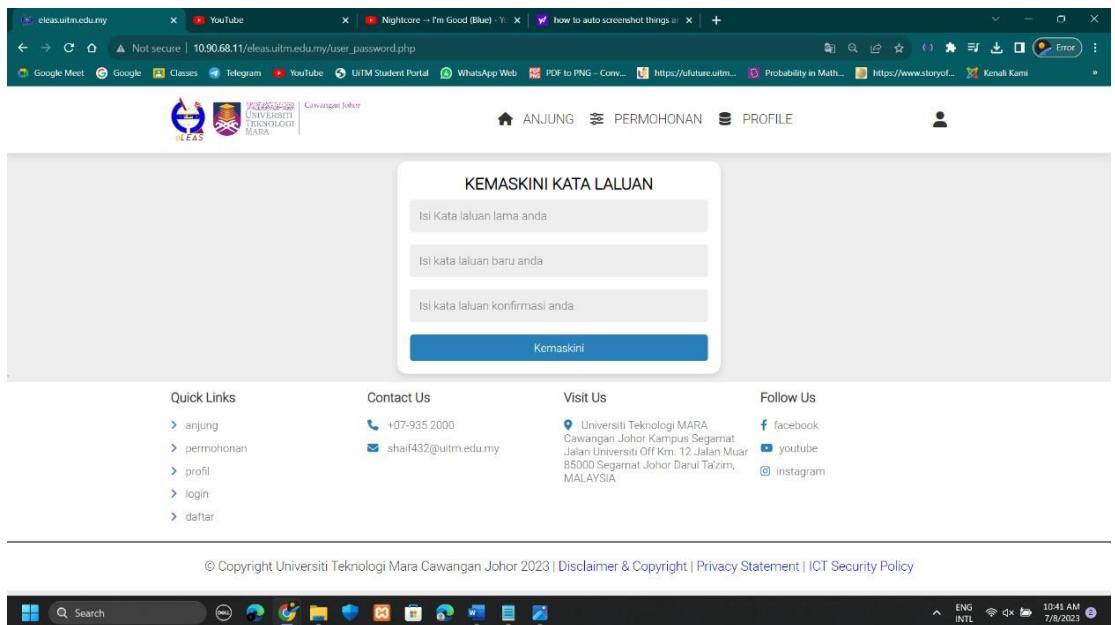


Diagram above shows: change password page

LECTURER INTERFACE:

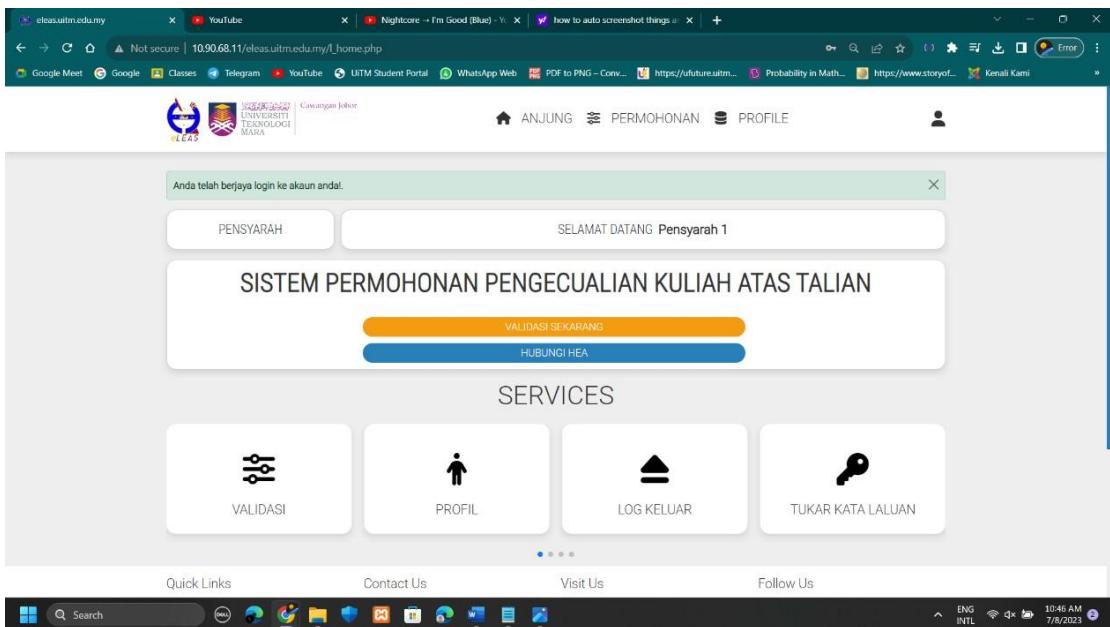


Diagram above shows: home page

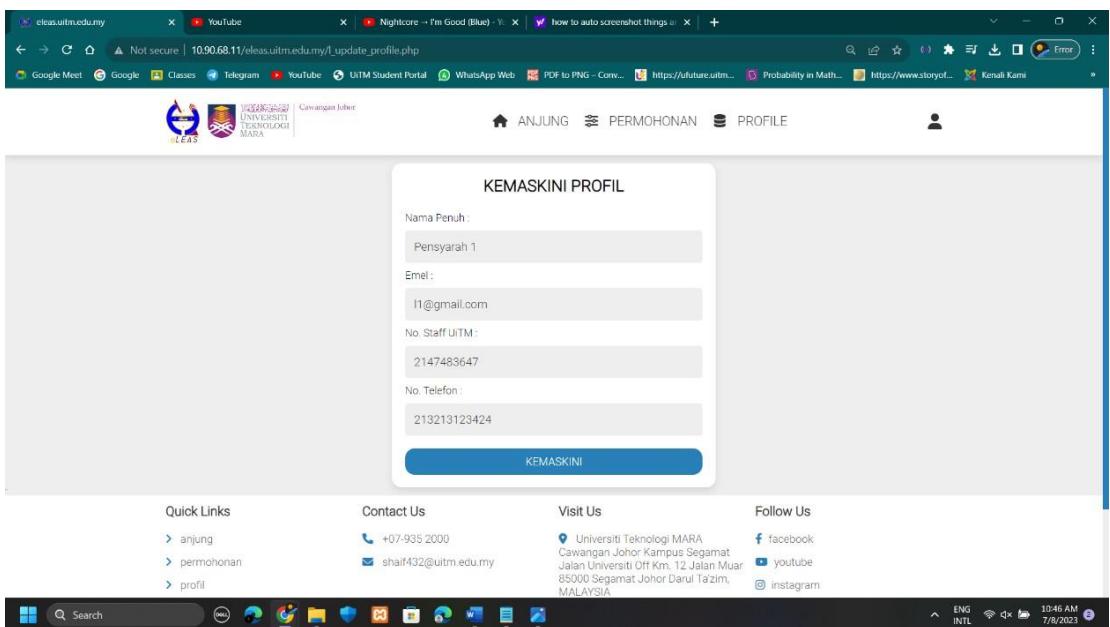


Diagram above shows: update profile page

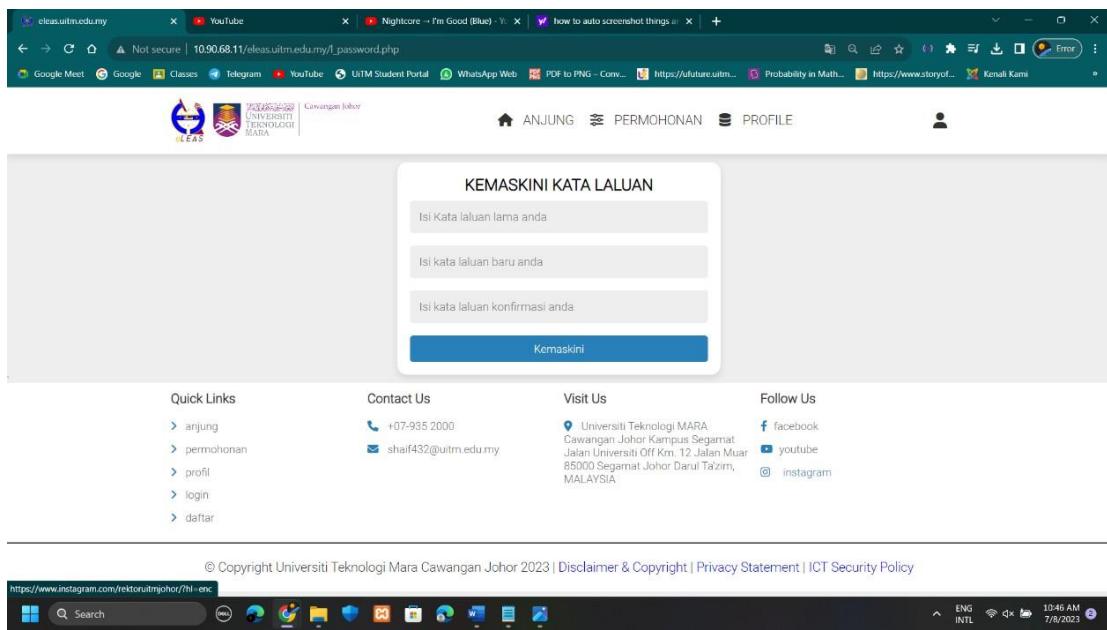


Diagram above shows: change password page

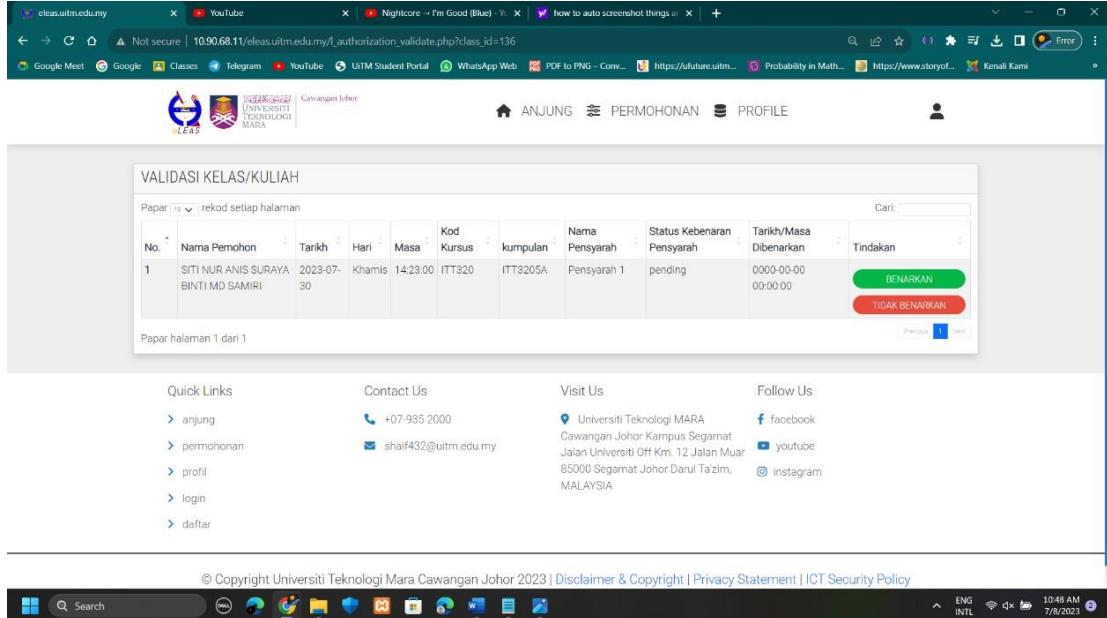


Diagram above shows: application validation page

KETUA PUSAT PENGAJIAN INTERFACE:

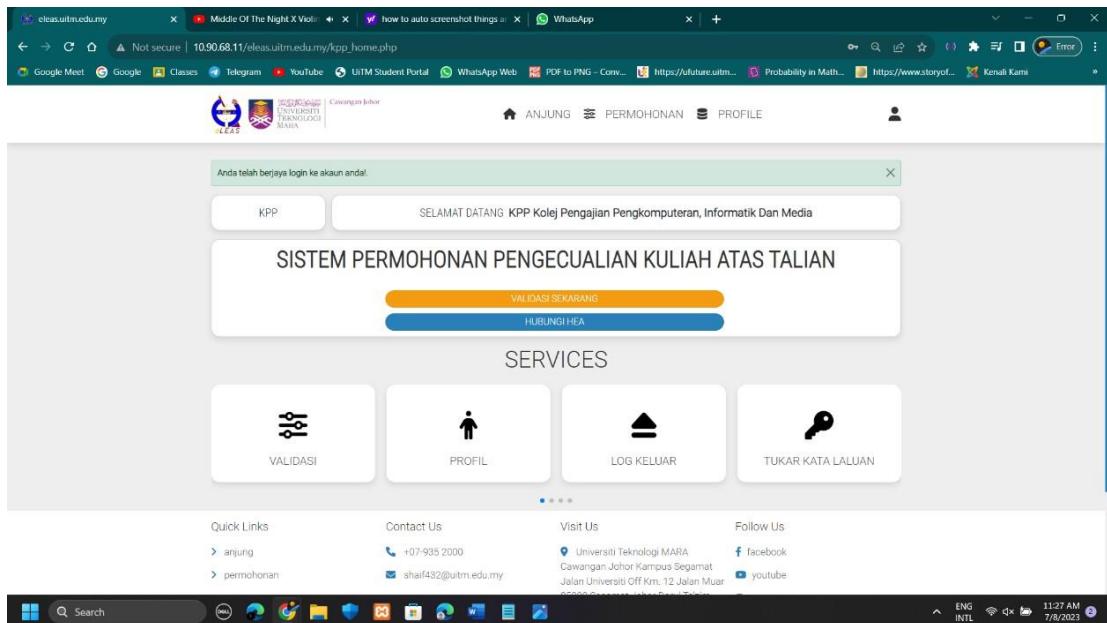


Diagram above shows: home page

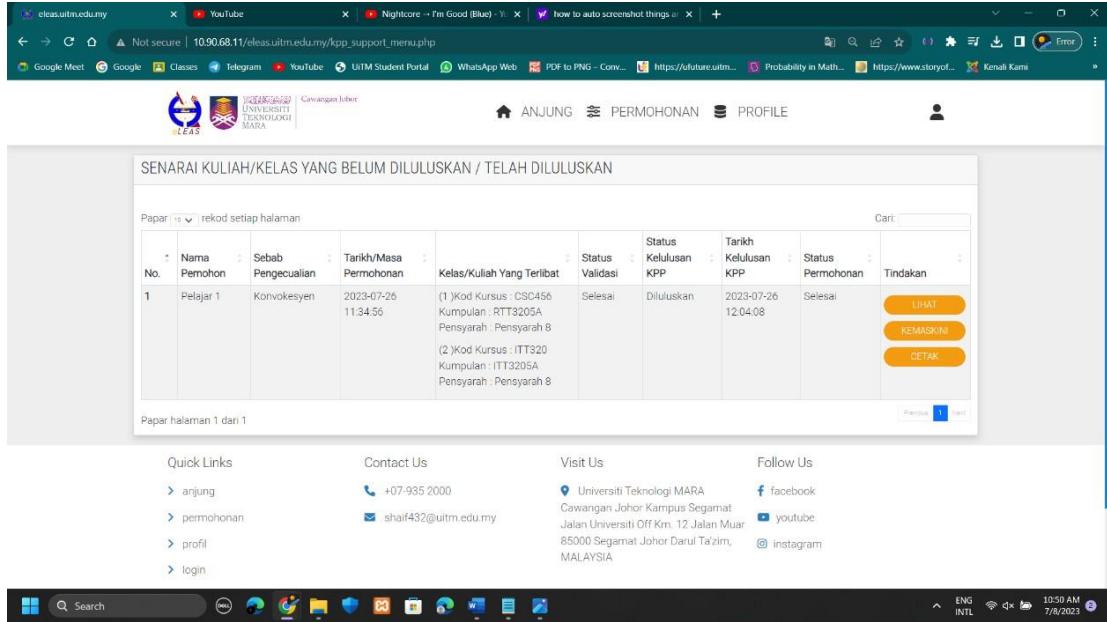


Diagram above shows: application validation page

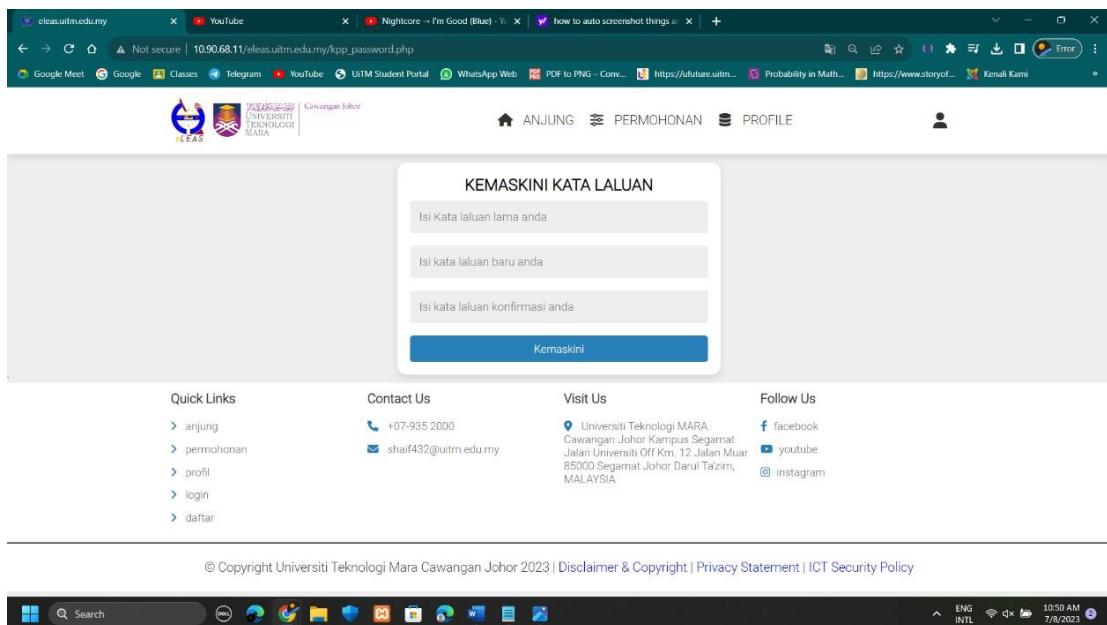


Diagram above shows: password change page

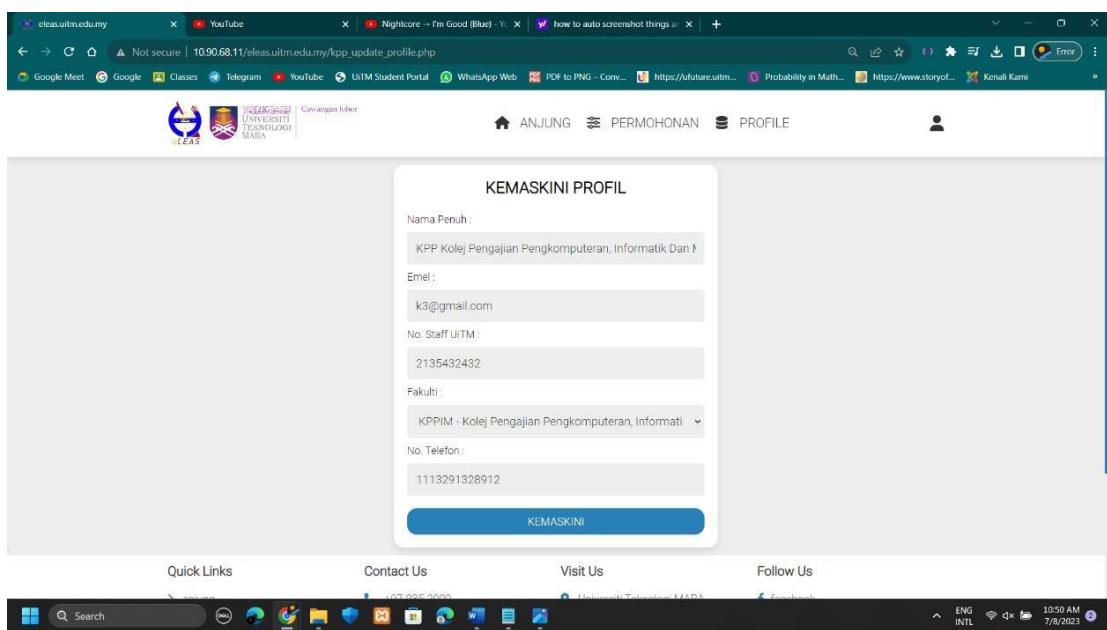


Diagram above shows: profile update page

KEMASKINI STATUS SOKONGAN PERMOHONAN PENGECEUALIAN KULIAH PELAJAR

| No. | Nama Pemohon | Sebab Pengecualian | Tarikh/Masa Permohonan | Kelas/Kuliah Yang Terlibat | Status Kelulusan KPP | Tarikh Kelulusan KPP | Tindakan |
|-----|--------------|--------------------|------------------------|---|----------------------|----------------------|--|
| 1 | Pelajar 1 | Konvoikesyen | 2023-07-26 11:34:56 | (1.)Kod Kursus : CSC456 Kumpulan : RTT3205A Pensyarah : Pensyarah 8 (2.)Kod Kursus : ITT3200 Kumpulan : ITT3205A Pensyarah : Pensyarah 8 | Diluluskan | 2023-07-26 12:04:08 | LULUSKAN TIDAK LULUSKAN |

Papar halaman 1 dari 1

[KEMBALI](#)

Quick Links

- > anjung
- > permohonan
- > profil
- > login
- > daftar

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- email: shaf432@uitm.edu.my

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Cawangan Johor Kampüs Segamat
Jalan Universiti Off Km. 12 Jalan Muar
85000 Segamat Johor Darul Ta'zim,
MALAYSIA

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- youtube
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Diagram above shows: application validation page

ADMIN INTERFACE:

SISTEM ADMIN

SELAMAT DATANG KE WEBSITE KAMI! a1

SENARAI PERMOHONAN

| | | | | |
|---------------------------------------|---------------------------------|------------------------------------|---------------------------|-------------------------------|
| PERMOHONAN BELUM DIBENARKAN PENSYARAH | PERMOHONAN BELUM DILULUSKAN KPP | JUMLAH PERMOHONAN TIDAK DILULUSKAN | JUMLAH PERMOHONAN SELESAI | JUMLAH KESELURUHAN PERMOHONAN |
| 2 | 0 | 0 | 1 | 4 |
| LIHAT | LIHAT | LIHAT | LIHAT | LIHAT |

SENARAI PENGGUNA

| | |
|--------------------------------------|------------------------------------|
| JUMLAH KESELURUHAN PELAJAR BERDAFTAR | JUMLAH KESELURUHAN STAFF BERDAFTAR |
|--------------------------------------|------------------------------------|

Diagram above shows: dashboard page

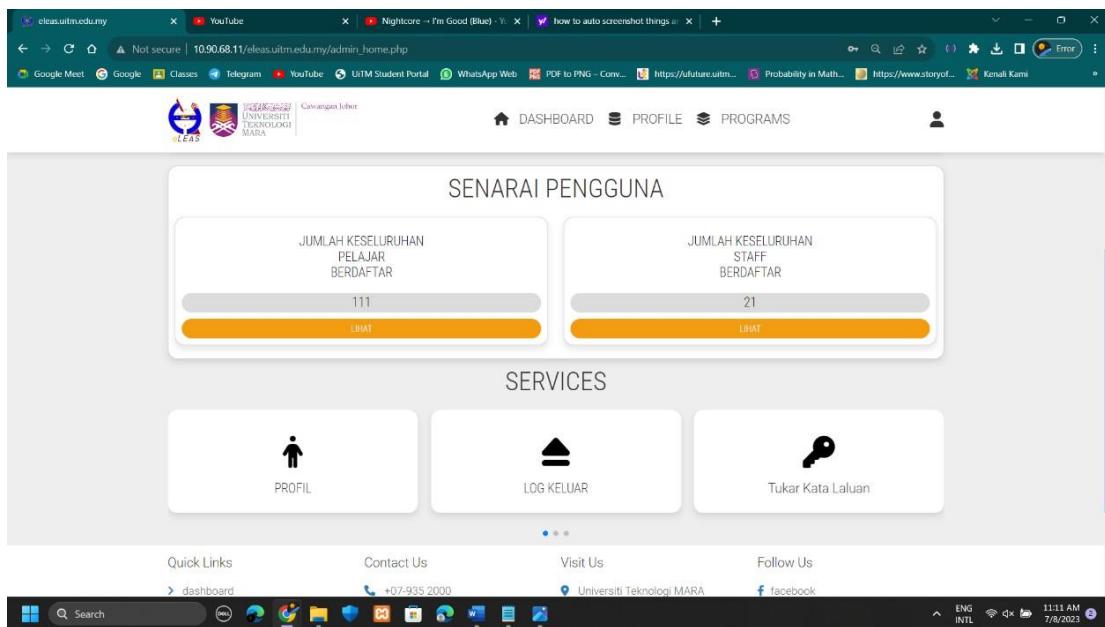


Diagram above shows: dashboard page

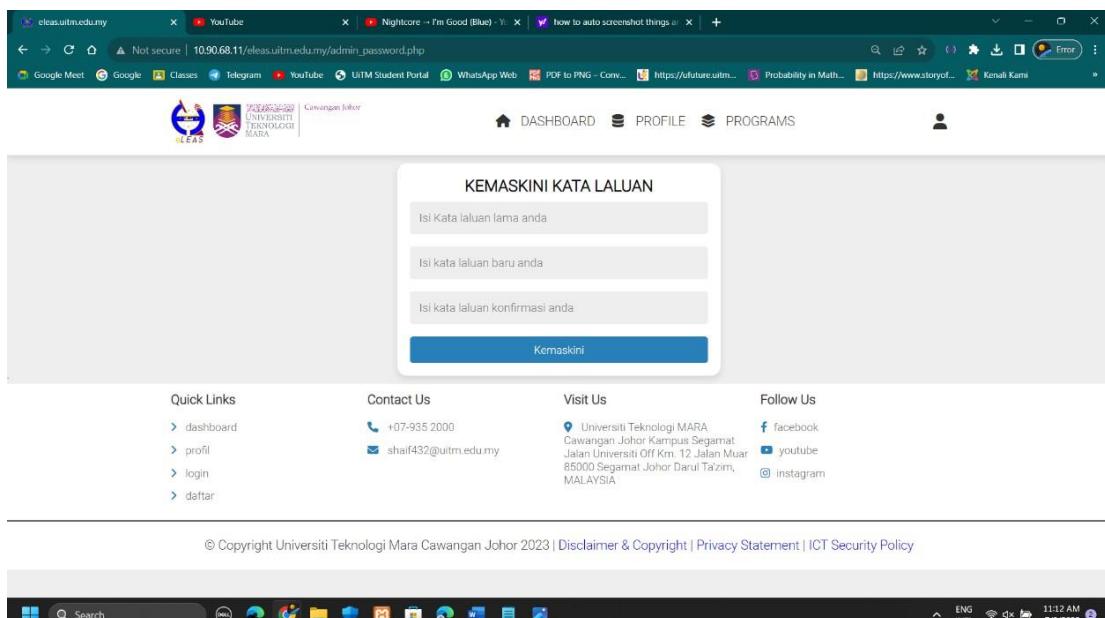


Diagram above shows: change password page

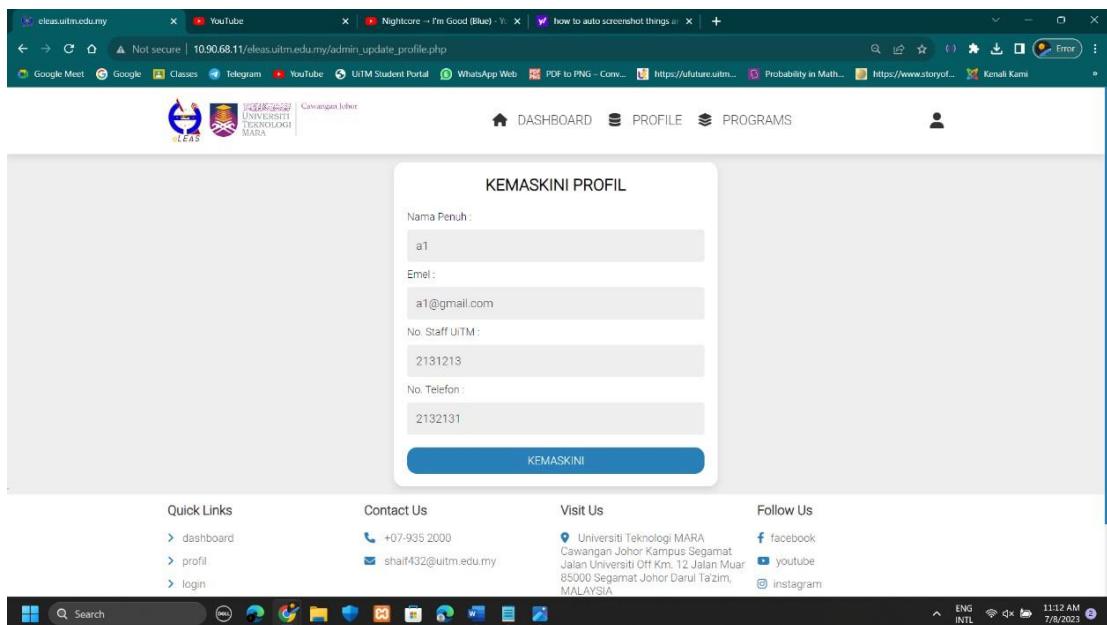


Diagram above shows: update profile page

| SENARAI PROGRAM | | | | | |
|-----------------|-------------|---|--|---------------------------|----------------------------|
| | | | | Cart: | |
| | | EXPORT TO EXCEL | | TAHANAH PROGRAM | |
| Papar | is ✓ | rekod setiap halaman | | | |
| Kod No. | Kod Program | Nama Program | Fakulti | Ketua Pusat Program | Tindakan |
| 1 | ACC110 | Diploma Perakaunan | Fakulti Perakaunan | KPP Perakaunan | <button>KEMASKINI</button> |
| 2 | ACC220 | Sarjana Muda Perakaunan (Kepujian) | Fakulti Perakaunan | KPP Perakaunan | <button>KEMASKINI</button> |
| 3 | BA111 | Diploma Pengajian Perniagaan | Fakulti Pengurusan Dan Perniagaan | KPP Pengurusan Perniagaan | <button>KEMASKINI</button> |
| 4 | BA114 | Diploma Analisis Pelaburan | Fakulti Pengurusan Dan Perniagaan | KPP Pengurusan Perniagaan | <button>KEMASKINI</button> |
| 5 | BA119 | Diploma Pengajian Perbankan | Fakulti Pengurusan Dan Perniagaan | KPP Pengurusan Perniagaan | <button>KEMASKINI</button> |
| 6 | BA240 | Sarjana Muda Pentadbiran Perniagaan (Kepujian) | Fakulti Pengurusan Dan Perniagaan Pemasaran | KPP Pengurusan Perniagaan | <button>KEMASKINI</button> |
| 7 | BA242 | Sarjana Muda Pentadbiran Perniagaan (Kepujian) Kewangan | Fakulti Pengurusan Dan Perniagaan | KPP Pengurusan Perniagaan | <button>KEMASKINI</button> |
| 8 | BA249 | Sarjana Muda Pentadbiran Perniagaan (Kepujian) Perbankan Islam | Fakulti Pengurusan Dan Perniagaan | KPP Pengurusan Perniagaan | <button>KEMASKINI</button> |
| 9 | BA251 | Sarjana Muda Pentadbiran Perniagaan (Kepujian) Pengurusan Pelaburan | Fakulti Pengurusan Dan Perniagaan | KPP Pengurusan Perniagaan | <button>KEMASKINI</button> |
| 10 | BA252 | Sarjana Muda Pemasaran Digital (Kepujian) | Fakulti Pengurusan Dan Perniagaan | KPP Pengurusan Perniagaan | <button>KEMASKINI</button> |

Diagram above shows: update program page

6.0. SYSTEM TESTING

6.1. Introduction

System testing is a type of software testing that verifies that a system, including all its hardware and software components, functions as intended. The goal of system testing is to ensure that the entire system meets the requirements specified by the customer or user. This can include functional testing, performance testing, and security testing, among others.

The main purposes of system testing:

- To evaluate the end-to-end functionality of a software system and ensure that it meets the specified requirements includes testing the system's interfaces, workflows, and overall performance.
- Includes testing the system's ability to integrate with other systems and handle real-world scenarios.
- To identify any defects or issues in the system before it is released to the customer or user, so that they can be fixed before deployment.
- Helps to ensure that the system is reliable, efficient, and secure.

6.2. Test summary

6.2.1. Unit Testing (Function, unit, system, etc.)

Unit testing is a software testing method in which individual units or components of a software application are tested in isolation from the rest of the system. In the context of system development, unit testing refers to the practice of testing individual functions or methods within the code of the app to ensure that they work as expected. This helps to identify and fix bugs early in the development process, and can improve the overall quality and reliability of the app.

6.2.2. Integration Testing (Function, unit, system, etc.)

Integration testing is a software testing method in which individual units or components of a software application are tested as a group or in combination with other units or components. In the context of system development, integration testing refers to the practice of testing how different parts of the system interact with each other and with external systems. Integration testing is typically more complex than unit testing, as it involves testing multiple parts of the system at once. It is also more focused on testing the overall functionality of the app, rather than individual units of code.

6.2.3. System Testing (Function, unit, system, etc.)

System testing is a software testing method in which an entire software system is tested as a whole, including all its components and external interfaces. In the context of system development, system testing refers to the practice of testing the system in a real-world environment, as it would be used by end users. This can include testing how the app performs on different devices, operating systems, and network conditions, as well as how it responds to different user interactions and input.

6.3. Test Assessment

A test assessment for a system is a process of evaluating the quality and functionality of the app by testing it against a set of criteria or standards. This can include testing for compatibility with different devices and operating systems, performance under different network conditions, usability and user experience, security, and compliance with industry standards.

The test assessment for the system is:

- Verify that the system can be run on the localhost server, and the client can navigate through the different pages of the application without any issues.

- Verify that every user can undergo the registration and login process.
- Verify that every user can change their password , update their profile informations and logout from their respective account
- Verify that every students user can submit the application through the application adding page and email notification will be sent to respective lecturers
- Verify that every lecturer user can view all of application form directed by student and lecturers can validate every application form and email notification will be sent to respective Ketua Pusat Pengajian
- Verify that every Ketua Pusat Pengajian can view all of application form which is directed by student and has been validated by lecturers. And then Ketua Pusat Pengajian can validate every application form and email notification will be sent to respective Student
Verify that every admins can view lists of all applications either it still active or completed or expired

| Test assessment | Expected Result | Actual Result | Result |
|---|---|---|--------|
| Verify that the system can be run on the hosting server , and the users can navigate through the different pages of the application without any issues. | User can access and navigate through every pages of the website system with ease and smoothly | User can access and navigate through every pages of the website system with ease and smoothly as expected | pass |
| Verify that every user input received by system through all types of processes transferred to database in local | Input data entered by user should be successfully transferred and stored inside database | Input data entered by user is successfully transferred and stored inside database as expected | pass |
| Verify that the every users from students,lecturers ,Ketua Pusat Pengajian, and admin can undergo the registration and login process without any issues. | Users should be successfully register accounts or login into the system | Users can successfully register accounts or login into the system As expected | pass |
| Verify that the every users from students,lecturers ,Ketua Pusat Pengajian, and admin can change their password , update their profile informations and logout from their | Users should have the accessibility to change and update their profile informations including their passwords | Users should have the accessibility to change and update their profile informations including their passwords as expected | pass |

| | | | |
|--|---|---|------|
| | | | |
| Verify that every students user can submit the application through the application adding page and email notification will be sent to respective lecturers | Users of student can submit application forms and notification through email should be sent towards respective lecturers | Users of student can submit application forms and notification through email should be sent towards respective lecturers as expected | pass |
| Verify that every lecturer user can view all of application form directed by student and lecturers can validate every application form and email notification will be sent to respective Ketua Pusat Pengajian | Users of lecturers can view all of application form directed by student and lecturers can validate every application form and email notification will be sent to respective Ketua Pusat Pengajian | Users of lecturers can view all of application form directed by student and lecturers can validate every application form and email notification will be sent to respective Ketua Pusat Pengajian | pass |

| | | | |
|--|--|--|------|
| <p>Verify that every Ketua Pusat Pengajian can view all of application form which is directed by student and has been validated by lecturers. And then Ketua Pusat Pengajian can validate every application form and email notification will be sent to respective Student</p> <p>Verify that every admins can view lists of all applications either it still active or completed or expired</p> | <p>Ketua Pusat Pengajian can view all of application form which is directed by student and has been validated by lecturers. And then Ketua Pusat Pengajian can validate every application form and email notification will be sent to respective Student</p> | <p>Ketua Pusat Pengajian can view all of application form which is directed by student and has been validated by lecturers. And then Ketua Pusat Pengajian can validate every application form and email notification will be sent to respective Student</p> | pass |
| | <p>Every admins can view lists of all applications either it still active or completed or expired</p> | <p>Every admins can view lists of all applications either it still active or completed or expired</p> | pass |

6.4. Test Result

Test results are important to understand the quality

of the mobile app and help the development team to identify the issues and fix them before releasing the app to the users. It is referred to the outcome or output of the testing process. They can include a variety of information, such as the number of tests that were run, the number of tests that passed or failed, and any issues or bugs that were found during testing.

The test result for Juara Adventures mobile application:

7.0 FINDINGS AND OBSERVATIONS

7.1 System Strengths

The Lecture Exemption Application System offers numerous strengths and advantages that significantly improve the exemption process for the Academic Affairs Department at Universiti Teknologi Mara Cawangan Johor, Kampus Segamat. Throughout the development and testing phases, the following system strengths have been identified:

1. Streamlined Exemption Process:

The system streamlines the entire lecture exemption process, reducing paperwork, manual handling, and administrative burden.

Students can easily submit exemption requests online, and academic staff can efficiently review and process these requests through the system.

2. Improved Transparency and Communication:

The system enhances transparency by providing real-time updates on the status of exemption requests for students and academic staff.

Users receive notifications and messages through the system, facilitating effective communication throughout the process.

3. Enhanced User Experience:

The user interface is designed to be user-friendly, intuitive, and easy to navigate for students, lecturers, Ketua Pusat

Pengajian, and Admins.

Users can efficiently interact with the system, submit requests, and access information without significant learning curves.

4. Role-Based Access Control:

The system implements role-based access control, ensuring that each user can only access information and functionalities relevant to their specific roles.

This enhances data security and privacy, preventing unauthorized access to sensitive information.

5. Data Accuracy and Integrity:

With structured data entry and validation mechanisms, the system ensures data accuracy and integrity.

The use of primary keys and foreign keys maintains data consistency and avoids duplication of records.

6. Centralized Data Management:

All exemption requests, related information, and decision records are stored centrally in the database.

This centralized data management improves data retrieval and reporting capabilities for academic administrators.

7. Real-Time Tracking and Reporting:

Users can track the progress of their exemption requests in real-time, reducing uncertainty and anxiety about application status.

Academic staff can generate data reports and analytics, offering insights into exemption trends and performance metrics.

8. Data Security and Privacy Measures:

The system incorporates robust data security measures to protect sensitive student information and ensure compliance with data protection regulations.

Encryption and secure authentication mechanisms safeguard data from unauthorized access.

9. Potential for Integration with Existing Systems:

The system is designed with a modular architecture, allowing for potential integration with existing university systems, such as the Student Information System (SIS) or academic program databases.

Integration can further enhance data synchronization and streamline academic processes.

10. Scalability for Future Growth:

The system is designed with scalability in mind to accommodate the growing number of users and exemption requests in the future.

As the university community expands, the system can effectively handle increased user loads without compromising performance.

These system strengths signify the significant progress achieved during the internship period and demonstrate the positive impact the Lecture Exemption Application System

will have on the Academic Affairs Department. With its efficiency, transparency, and user-friendly features, the system is poised to become an essential tool in optimizing the lecture exemption process and enhancing the academic experience for students and academic staff alike.

7.2 System Weaknesses

While the Lecture Exemption Application System offers numerous benefits and improvements to the exemption process, it is essential to acknowledge and address its weaknesses to ensure continuous improvement and user satisfaction. During the development and testing phases, the following weaknesses were identified:

1. User Interface Complexity:

The user interface may be perceived as complex for some users, particularly those who are not familiar with technology or have limited experience with similar systems. To address this, the system should undergo a usability assessment and user testing to identify areas for simplification and optimization. User feedback should be actively sought to improve the user interface's intuitiveness.

2. Lack of Multilingual Support:

The system may currently lack multilingual support, limiting its usability for non-English-speaking users or international students.

To enhance inclusivity, consider incorporating multilingual support, allowing users to interact with the system in their preferred language.

3. Manual Data Entry and Repetition:

Some information, such as student details or course information, may require manual data entry, leading to potential errors and duplication of efforts.

To address this weakness, explore options for data integration or data import functionalities to minimize manual data entry and ensure data consistency.

4. Limited System Performance Metrics:

The system may lack comprehensive performance monitoring and metrics, hindering the identification of potential bottlenecks or areas for optimization.

Implement performance monitoring tools to measure system response times and identify areas that require optimization to ensure a smooth user experience.

5. Dependency on Internet Connectivity:

As an online application, the system is dependent on stable internet connectivity. Any interruption in connectivity may impact users' ability to access and use the system.

Consider implementing offline capabilities or providing alternative access methods during internet outages to mitigate this weakness.

6. Security Vulnerabilities:

As with any online system, security vulnerabilities could be a potential weakness, including the risk of data breaches or

unauthorized access.

Conduct regular security audits and penetration testing to identify and address vulnerabilities, ensuring data integrity and user privacy.

Addressing these weaknesses will require a proactive approach, with continuous monitoring, user feedback, and iterative improvements. As the system evolves, it will provide a more seamless and satisfactory experience for students, lecturers, Ketua Pusat Pengajian, and Admins at Universiti Teknologi Mara Cawangan Johor, Kampus Segamat.

7.3 Recommendation for Future Works

The development of the Lecture Exemption Application System marks a significant achievement in streamlining the exemption process for the Academic Affairs Department at Universiti Teknologi Mara Cawangan Johor, Kampus Segamat. As the system moves into its implementation and usage phase, there are several recommendations for future works to further enhance its functionality, user experience, and overall impact on the academic community:

1. User Feedback and Iterative Improvements:

Encourage users, including students, lecturers, Ketua Pusat Pengajian, and Admins, to provide feedback on their experience with the system.

Conduct user surveys, interviews, or focus groups to gather valuable insights and identify areas for improvement.

Use the feedback received to make iterative enhancements to the system, addressing any usability issues and incorporating additional features based on user needs.

2. Mobile Application Development:

Consider developing a mobile application version of the system to cater to users who prefer accessing the application on their smartphones or tablets.

A mobile application would provide greater convenience and accessibility, allowing users to submit exemption requests and track their status on-the-go.

3. Integration with Student Information System:

Explore the possibility of integrating the Lecture Exemption Application System with the university's existing Student Information System (SIS).

Integration would enable seamless data synchronization and reduce the need for duplicate data entry, enhancing data accuracy and consistency.

4. Automated Notifications and Reminders:

Implement automated notifications and reminders to keep users informed about critical deadlines, status updates, and pending actions related to their exemption requests.

Timely reminders will ensure that users stay engaged with the system and avoid any delays in the application process.

5. Performance Optimization and Scalability:

As the user base grows, continuously monitor the system's performance and scalability to handle increasing user loads effectively.

Implement performance optimization techniques to maintain fast response times and smooth user interactions.

6. Data Analytics and Decision Support:

Enhance the system with data analytics capabilities to generate insightful reports and trends related to exemption requests and approval rates.

Data-driven decision-making will enable academic administrators to identify patterns and make informed policy adjustments.

7. Enhanced Data Security Measures:

Regularly update and strengthen data security measures to protect sensitive student information from potential threats. Implement periodic security audits and vulnerability assessments to identify and address potential security risks proactively.

8. Training and Support for Users:

Provide comprehensive training and ongoing support for all users to ensure they can fully utilize the system's features and functionalities.

User training sessions and online documentation will help users navigate the system with confidence.

By implementing these recommendations, the Lecture Exemption Application System can evolve into a robust, user-centric, and reliable platform that significantly improves the efficiency and transparency of the exemption process. The system will continue to serve as a valuable tool for the Academic Affairs Department, contributing to a seamless and positive academic experience for students and academic staff at Universiti Teknologi Mara Cawangan Johor, Kampus Segamat.

7.0 Additional things that I learnt

Embarking on the journey of learning PHP, SQL, JavaScript, HTML, and CSS has provided me with a robust skill set essential for web development. This educational pursuit began by delving into PHP, a server-side scripting language that empowers me to create dynamic web pages, process user data, manage databases, and handle user sessions. Simultaneously, my exploration of SQL equipped me with the ability to design efficient database structures, manipulate data, and retrieve information using SQL queries. This knowledge proves instrumental in storing and managing data related to student exemptions and course details for my lecture exemption application system.

Transitioning to the frontend, my focus shifted to JavaScript, a language pivotal for interactivity and dynamic content on the web. Mastering JavaScript enabled me to manipulate the Document Object Model (DOM), respond to user interactions, and incorporate dynamic effects into the application. These skills are pivotal in elevating the user experience and responsiveness of my application. Moreover, my understanding of HTML and CSS, the foundational components of web development, enabled me to structure content effectively and style it with finesse. The combination of HTML and CSS ensures that my lecture exemption application system boasts a polished, user-friendly interface.

The benefits of acquiring proficiency in these technologies are manifold for my project. My comprehensive knowledge spans from backend (PHP, SQL) to frontend (JavaScript, HTML, CSS), allowing me to independently develop the

entire application. With PHP and SQL, I possess the capability to meticulously manage student data, course details, and exemption requests within a structured database. Meanwhile, JavaScript empowers me to craft an interactive, intuitive interface that engages users and provides real-time feedback. The combined effects of HTML and CSS lend my application a visually captivating and professional appearance, enhancing its overall appeal.

To enhance my learning experience, I leveraged resources such as YouTube tutorials and W3Schools. These platforms provided me with a wealth of information, guiding me through step-by-step processes, offering illustrative examples, and facilitating interactive exercises. Furthermore, I explored a range of Visual Studio Code (VSCode) extensions, which significantly bolstered my programming efficiency. These extensions, spanning code formatting, debugging, and Git integration, among others, have streamlined my workflow, allowing me to dedicate more time to coding and minimizing manual tasks.

In conclusion, my dedicated pursuit of proficiency in PHP, SQL, JavaScript, HTML, and CSS, combined with my utilization of online resources and VSCode extensions, has armed me with the expertise necessary to realize my vision for the lecture exemption application system. This amalgamation of skills empowers me to develop a functional, dynamic, and visually appealing application that effectively addresses user needs.

7.1 Conclusion

Developing the Lecture Exemption Application System for the Academic Affairs Department at Universiti Teknologi Mara Cawangan Johor, Kampus Segamat, has been a fulfilling and rewarding experience. As an intern from the Infostructure Department, I had the privilege of working on this significant project, aimed at streamlining and enhancing the lecture exemption process for students, lecturers, Ketua Pusat Pengajian, and Admins. Throughout the six-month internship, the project has undergone meticulous system analysis and design, with the objective of providing an efficient, user-friendly, and secure platform for managing exemption requests.

The system analysis phase involved a comprehensive evaluation of the existing manual exemption process. Understanding the challenges faced by students and academic staff allowed us to define clear and detailed system requirements. The system's objectives were established, focusing on optimizing the application process, enhancing user experience, providing real-time tracking and communication, ensuring data security, and integrating with existing systems.

In the system design phase, a robust architecture and user interface were devised, incorporating various modeling techniques to visualize the system's structure and interactions. A careful selection of the technology stack, data management strategies, and security measures were made to meet the project's requirements and objectives.

During development, the system's functional and non-functional requirements were implemented, catering to the specific needs of students, lecturers, Ketua Pusat Pengajian, and Admins. User-friendly interfaces were created, enabling seamless submission and review of exemption requests, real-time status tracking, and effective communication among stakeholders.

The successful completion of the system analysis and design phase marks a significant milestone in this project's journey. By meeting the input, output, and process requirements, the Lecture Exemption Application System is poised to revolutionize the exemption process, reducing administrative burden and optimizing decision-making for the Academic Affairs Department.

As the project moves forward, the next phases of development, testing, and deployment hold immense promise for its eventual implementation and integration into the academic ecosystem. Continuous collaboration and feedback from stakeholders will be pivotal in refining the system and ensuring its alignment with the department's evolving needs.

In conclusion, this internship experience has been invaluable in honing my skills as a developer and understanding the critical role of information technology in addressing real-world challenges. The Lecture Exemption Application System represents a tangible contribution to the academic community, and I am eager to witness its positive impact on the students and staff at Universiti Teknologi Mara Cawangan Johor, Kampus Segamat. I express my

heartfelt gratitude to the Academic Affairs Department and the Infostructure Department for this opportunity, and I look forward to continued growth and learning in the field of information technology.

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9.0 APPENDIX



Diagram 9.0.1 :shows the QR Code for student from University Teknologi Mara to access the login page of the system.This link only can be accessed if students are connected to UiTM Wifi connection