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**DEPARTMENT OF INFORMATION TECHNOLOGY AND  
COMMUNICATION**

**DIPLOMA IN INFORMATION TECHNOLOGY (DIGITAL  
TECHNOLOGY)**

**PROJECT PROPOSAL**

**POLYEDUHUB**

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**SESSION: II 2024/2025**

## DECLARATION

1 We hereby declare that the technical report entitled “PolyEduHub” is based on original \ work under supervision and guidance of Pn Salehah Binti Hj Omar except for citations and quotations which have been duly acknowledged. We also declare that it has not been previously and concurrently submitted for any other diploma or award at Polytechnic or other institutions.

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**Session:** SESSION: II 2024/2025

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## **Abstract**

PolyEduHub is a centralized web-based platform designed to enhance access to educational resources and foster collaboration among Polytechnic Malaysia students from all departments. The system addresses key challenges such as limited access to quality study materials, lack of collaboration opportunities, and inefficient resource organization. By providing a repository for notes, assignments, and activities, PolyEduHub enables students to upload, download, and share resources in various formats, categorized and tagged for easy navigation. Real-time collaboration tools, advanced search filters, and a Q&A section further support collaborative learning.

To encourage active participation and resource sharing, the platform features a gamified reward system with points, badges, and leaderboards. Personalized dashboards offer tailored recommendations based on user preferences and academic needs. PolyEduHub aims to empower polytechnic students across Malaysia, streamlining the way they access, organize, and share knowledge while promoting a culture of collaboration and innovation.

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## **1.0 INTRODUCTION**

Students at Polytechnic Malaysia often face difficulties in accessing high-quality study materials, collaborating effectively with peers, and organizing their academic resources. Research indicates that limited access to structured educational content and inefficient study organization can lead to academic underperformance and increased stress among students (Doe, 2020; Smith & Lee, 2021). Furthermore, the absence of centralized platforms for knowledge-sharing can result in duplicated efforts and reduced productivity (Brown et al., 2019).

PolyEduHub aims to centralize resources, offering features such as a repository for uploading and downloading materials, advanced search filters, and real-time collaboration tools. The platform also encourages resource sharing through a reward system with points, badges, and leaderboards to recognize contributors. Personalized dashboards further enhance the user experience by tailoring recommendations to individual academic needs.

This initiative not only streamlines resource accessibility but also fosters a collaborative learning environment where students can share ideas and innovations. By providing a structured, user-friendly platform, PolyEduHub seeks to empower students and enhance their academic journey across Polytechnic Malaysia.

## **2.0 PROBLEM STATEMENT**

Students across Polytechnic Malaysia face significant challenges in accessing and managing study resources. The lack of a centralized platform results in disorganized materials, making it timeconsuming to search for relevant notes, assignments, and activities. Additionally, limited opportunities for collaboration hinder the sharing of ideas and innovations among students from different institutions and departments. Moreover, the absence of motivation or incentives discourages students from contributing their resources, further exacerbating the issue of resource availability and collaboration.

### **3.0 OBJECTIVE**

The goal of PolyEduHub is to improve how Polytechnic Malaysia students' access, share, and use academic resources by providing an easy-to-use, all-in-one platform. The system aims to:

- 1.To provide easy access to resources, develop a user-friendly interface and implement a fast search function with keyword suggestions.
- 2.To organize resources efficiently, establish a structured system using tags, categories, and advanced search filters.
- 3.To facilitate resource sharing, create tools for uploading, downloading, and exchanging academic materials with incentives for contributions.

## 4.0 SCOPE PROJECT

### *4.1 System Scope*

#### 1. **Resource Repository**

- Allows users to upload, download, and share notes and assignments in various formats.
- Organizes resources with tagging and categorization for easy navigation.

#### 2. **Collaborative Learning** ○ Provides real-time collaboration tools for editing notes and interacting through Q&A sections.

#### 3. **Search and Categorization** ○ Offers advanced search functionality with filters such as subject, course, and keywords.

#### 4. **Reward System** ○ Implements gamified features like points, badges, and leaderboards to encourage resource sharing and active participation.

#### 5. **Personalization** ○ Includes personalized dashboards with resource recommendations tailored to user preferences and academic needs.

### *4.2 User Scope*

#### 1. **Students** ○ Access and download notes, assignments, and activities. ○ Upload and share their resources.

- Earn rewards through active participation.

#### 2. **Administrators** ○ Manage the platform by reviewing and approving uploaded resources.

- Upload official notes, activities, and past-year questions. ○ Monitor system usage and manage leaderboards or reward systems.

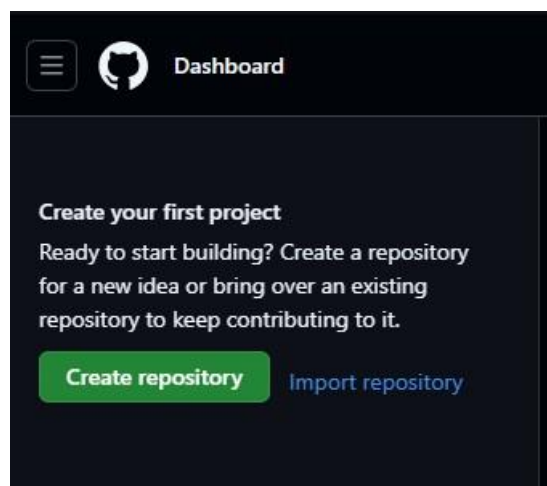


## 5.0 LITERATURE REVIEW

In the digital age, online platforms have revolutionized the way students access resources, collaborate, and manage their learning. Several existing tools have paved the way for educational platforms, each offering unique features that address different aspects of student needs. For PolyEduHub, we draw inspiration from well-established platforms like GitHub, Padlet, and Google Classroom, each contributing valuable insights into the design and functionality of our system.

### *5.1 GitHub: Collaborative Sharing and Version Control*

GitHub, a widely-used platform in the software development community, allows users to share code, collaborate on projects, and track changes in real-time. One of the key features of GitHub is its **version control system**, which helps manage different versions of a project, ensuring that users can collaborate seamlessly without overwriting each other's work. This model is particularly useful for PolyEduHub, where students can upload, edit, and share study materials. By implementing a version control-like system, PolyEduHub can enable students to collaborate on shared notes and assignments without losing track of previous versions. This feature would be essential for maintaining the quality of resources while encouraging teamwork and participation.



*Figure 5.1 GitHub repository*

## 5.2 Padlet: Visual Collaboration and Easy Resource Sharing

Padlet is a platform designed to foster collaboration by allowing users to share content on an interactive digital board. It is widely used in educational settings for brainstorming, group projects, and visual learning activities. One of Padlet's strengths lies in its **easy-to-use interface** and ability to display diverse media (images, videos, links, and text) in an organized manner. The platform's flexibility encourages creative collaboration and the sharing of ideas in real time. This approach can be applied to PolyEduHub by providing an interactive, user-friendly environment for students to share notes, assignments, and resources in multiple formats. PolyEduHub could also incorporate a Q&A feature, similar to Padlet's comment and reply function, allowing students to engage in discussions and share feedback on resources, fostering a collaborative learning experience.

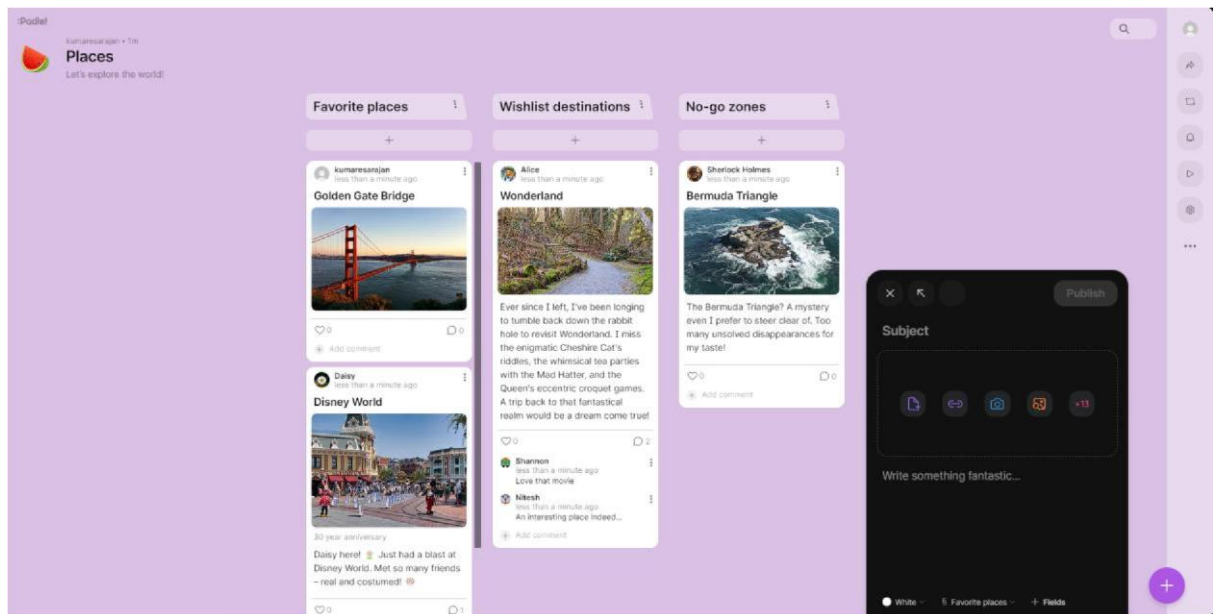
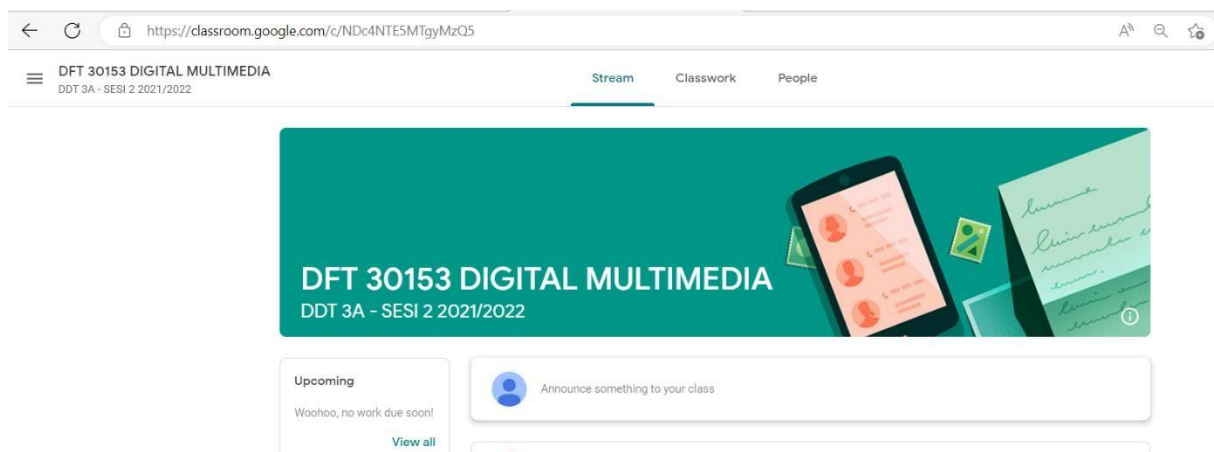


Figure 5.2: Padlet

## 5.3 Google Classroom: Structured Learning and Resource Management

Google Classroom has become a central tool for educators and students, offering an easy-to-navigate interface that supports the organization of learning materials, assignments, and communication between teachers and students. A key feature of Google Classroom is its **integration with Google Drive**, allowing students to access, submit, and collaborate on documents and assignments. The platform also provides **announcement features** that notify students about upcoming deadlines and assignments. PolyEduHub can adapt this model by

integrating a similar system for managing notes, assignments, and deadlines. Additionally, PolyEduHub can provide a **reward system** to motivate students to contribute resources, much like how Google Classroom encourages student engagement through assignment submissions and class participation.



*Figure 5.3: Google Classroom*

#### **5.4 Comparative Insights for PolyEduHub**

- **Collaborative Features:** Both GitHub and Padlet emphasize collaboration, with GitHub's version control system and Padlet's real-time sharing capabilities. PolyEduHub can incorporate these features by enabling students to share and edit notes, allowing real-time collaboration on assignments, and creating spaces for feedback and discussions.
- **Resource Organization:** Google Classroom's ability to organize and categorize resources can be applied in PolyEduHub, where materials can be tagged and categorized by subject, semester, and type of resource (e.g., notes, assignments, activities). This will make it easier for students to find relevant content quickly.
- **Incentivization:** The reward systems found in both GitHub (through contributions) and Padlet (through engagement) are valuable lessons for PolyEduHub's own incentive model. By incorporating points,

badges, and leaderboards, PolyEduHub can encourage students to contribute high-quality resources and remain actively engaged.

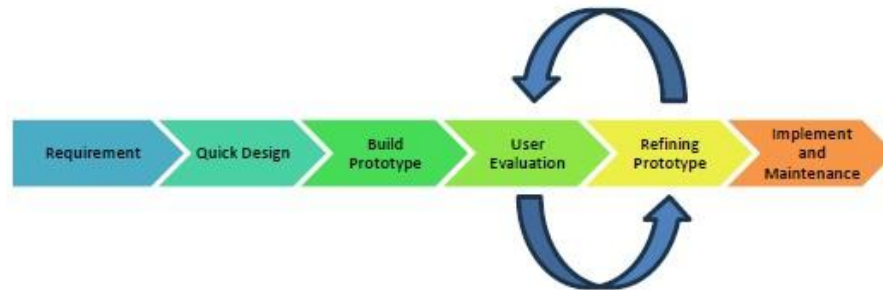
- **User Experience:** While GitHub, Padlet, and Google Classroom each provide distinct user experiences, PolyEduHub can benefit from a clean, user-friendly interface that combines elements from all three platforms. Ensuring ease of use while offering advanced features will make PolyEduHub accessible to students of all technical skill levels.

Feature	GitHub	Padlet	Google Classroom	PolyEduHub
<b>Collaboration</b>	Real-time code sharing and version control	Real-time sharing and commenting on resources	Real-time submission and feedback from instructors	Real-time collaboration on notes, assignments, and Q&A
<b>Resource Sharing</b>	Share and track versions of code	Share notes, images, videos, and links	Share assignments and class materials	Upload, download, and share notes, assignments, and activities
<b>Version Control</b>	Built-in version control for code	No built-in version control	No version control	Version control-like system for notes and assignments
<b>Search and Categorization</b>	Search repositories by tags and keywords	Search by board title and tags	Search for assignments and resources	Advanced search by subject, course, and keywords
<b>Reward System</b>	Contributions are tracked but no gamification	No formal reward system	No formal reward system	Points, badges, and leaderboards to incentivize contributions
<b>Real-Time Editing/Collaboration</b>	Yes, for code and text files	Yes, for all types of content	Limited real-time collaboration (in Google Docs)	Real-time editing and collaboration on notes and assignments
<b>Personalization</b>	Limited to repository for individual projects	Limited, based on board preferences	Personal notifications and assignments	Personalized dashboards and content recommendations based on user activity
<b>Communication Tools</b>	Issues, pull requests, discussions	Commenting and replying on resources	Announcements and comments	Q&A section, comments, and realtime chat for collaboration
<b>User Access</b>	Public/private repositories, user permissions	Open or closed boards, guest access	Student-teacher interaction, limited external access	Students and admins with role-based permissions for content management
<b>Mobile Compatibility</b>	Yes, via GitHub app	Yes, with mobilefriendly layout	Yes, via Google Classroom mobile app	Mobile-friendly design for easy access on any device
<b>Content Type</b>	Code, documentation	Notes, images, videos, links	Assignments, announcements, materials	Notes, code, documentation, activity resources, Q&A

Table 5.4: Comparison with Existing System

## 6.0 METHODOLOGY

The methodology that we will be used in order to developed PolyEduHub is prototyping.



*Figure 6.1: Phase of prototyping*

### *I. Requirement Gathering and Analysis*

- **Objective:** Identify the key challenges faced by Polytechnic Malaysia students in accessing, organizing, and sharing study resources.
- **Activities:**
  - Conduct surveys and interviews with students, lecturers, and administrators.
  - Document requirements for features like resource sharing, collaboration tools, and reward systems.
  - Analyze gaps in existing platforms like GitHub, Padlet, and Google Classroom for additional insights.
- **Output:** A list of functional and non-functional requirements.

### *II. Quick Design*

- **Objective:** Develop a basic design for the user interface and system architecture.
- **Activities:**

- Create wireframes for dashboards, collaboration tools, and resource management screens. ○
- Outline the system's technical structure, including database schemas and API endpoints.
- Ensure the design emphasizes user-friendliness and accessibility.
- **Output:** Initial wireframes and system design documentation.

### *III. Build Initial Prototype*

- **Objective:** Develop a working prototype with core features to demonstrate functionality.
- **Activities:**
  - Implement essential modules, such as:
    - ✦ User authentication (student and admin roles).
    - ✦ Resource uploading and tagging system.
  - Use front-end technologies (HTML, CSS, JavaScript) and back-end frameworks (PHP, MySQL) for development.
- **Output:** Functional prototype with limited but essential features.

### *IV. User Evaluation and Feedback*

- **Objective:** Test the prototype with actual users to gather insights on usability and functionality.
- **Activities:**
  - Conduct usability testing sessions with Polytechnic students and admins.
  - Collect feedback through surveys, interviews, or focus groups.
- **Output:** Feedback report detailing user suggestions and identified issues.

### *V. Refine Prototype*

- **Objective:** Enhance the prototype based on user feedback.
- **Activities:**
  - Add missing features such as advanced search, reward systems, and real-time

collaboration tools.

- Improve UI/UX design based on user suggestions.
- Optimize database queries and backend processes for better performance.
- **Output:** Updated prototype with additional functionality and improved user experience.

## VI. Maintenance and Updates

- **Objective:** Continuously improve PolyEduHub based on feedback and new requirements.
- **Activities:**
  - Monitor system performance and user activity.
  - Address bugs or issues reported by users.
  - Add new features or enhance existing ones in response to user needs.
- **Output:** A continuously evolving and user-centric platform.

## 7.0 GANTT CHART

A Gantt Chart projects the overall activities and progress of the project. It helps us plan our task by assessing how long the project should take and ensuring all the plans get done due to the timeline.





*Table 7.1: Gantt Chart*

## 8.0 COST PLANNING

When developing the system, cost planning is very important to consider in order to make our website successful. This is the cost plan for developing PolyEduHub.

Number	Activity	Amount (RM)
1.	Domain, Website Hosting	100.00
2.	Banner, Pamphlet, Poster	250.00
3.	Report Print	80.00
4.	Booth decoration	150.00
SOFTWARES		
5.	Visual Studio Code, XMAPP, Figma	Free
HARDWARE		
6.	Laptop (Intel Core-i7, 16GB RAM, RTX3050)	4500.00
7.	Printer	500
8.	Other Accessory	200
	Total	<b>5780</b>

*Table 8.1: Cost Planning*

## 9.0 CONCLUSION

Students in higher education institutions often face challenges in accessing quality study materials, collaborating with peers, and organizing academic resources efficiently (Al-Emran et al., 2018). Polytechnic Malaysia students experience similar difficulties, which can hinder their academic performance and overall learning experience. Research suggests that digital platforms with centralized repositories, collaborative tools, and gamification elements can significantly enhance students' engagement and resource accessibility (Huang & Hew, 2021).

To address these issues, the **PolyEduHub** project proposes a web-based platform designed to streamline academic resource management. The platform will integrate a **centralized repository** for study materials, **real-time collaboration tools** to facilitate group learning, and a **gamified reward system** to incentivize content sharing and participation. Gamification has been shown to improve student motivation and engagement in educational environments (Dichev & Dicheva, 2017).

The **Prototyping Model** will be employed as the development methodology, ensuring continuous **user feedback and iterative refinements** throughout the development process. This approach aligns with research emphasizing the importance of **user-centered design** in educational technology to enhance usability and effectiveness (Nussbaumer et al., 2019). By incorporating feedback from Polytechnic Malaysia students and administrators, the platform will evolve to meet their specific needs while maintaining functionality and ease of use.

Ultimately, **PolyEduHub** aspires to create an **inclusive, efficient, and collaborative learning environment** for students across all Polytechnic Malaysia institutions. By leveraging innovative digital solutions, the platform has the potential to **transform academic practices, encourage knowledge sharing, and support students in achieving their educational goals**.

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