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SECTION 09

GROUP NAME: BRAINIACS

TASK: PHASE 1-PROJECT PROPOSAL AND PLANNING

TITLE: IMPROVING PRINTING SERVICE WITH EZPRINT

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1.0 INTRODUCTION

In today's fast-paced digital era, educational institutions must maintain efficient operations. Our team highlighted Kolej Tun Dr. Ismail (KTDI), our residential college's printing service system, as a serious issue that must be addressed. Currently, its outdated procedures and lack of user-friendliness are frustrating customers, such as students and staff. To address these challenges, we aim to develop a mobile app called *EZPrint* that improves the printing service experience for both the business and its consumers.

2.0 BACKGROUND STUDY

College printing services play a vital role in supporting the academic and administrative functions of the institution. These services encompass a wide range of printing needs, including course materials, administrative documents, and promotional materials. A well-functioning printing service is essential for ensuring timely and efficient delivery of these materials to students, faculty, and staff.

At the moment, KTDI runs a central printing facility furnished with copiers, binding machines, and digital printers. Requests for printing can be made by visiting specific service locations in person or via an online platform by sending the content of the required printing materials via the *WhatsApp* app. Urgent requests are given precedence, and jobs are processed in the order they are received. Although the existing technology has done the college well, there are issues with lengthy wait times, particularly during busy times, and sporadic equipment failures.

Hence, this report outlines both the requirements and the planning process for the new system, ensuring not only compliance with the client's expectations but also a holistic approach to satisfaction and successful implementation.

3.0 PROBLEM STATEMENT

These are some of the challenges faced by printing service in our residential college :

1. **Lack of Centralised Communication**

   Since consumers and the shop now rely on different channels, such as *WhatsApp*, the lack of a centralized communication platform causes confusion and delays in the fulfillment of print requests.

2. **Lack of Access to Printing Facilities**

   Customers frequently encounter delays and inconveniences when utilizing printing facilities, affecting their overall satisfaction with the product.

3. **Manual Management of Print Requests**

   The manual handling of print requests not only consumes time but also increases the risk of errors and inefficiencies in the process.

4. **The Inefficient Profit Margin Calculation**

   Financial management for the store is difficult and error-prone because the existing system lacks automation for computing profit margins.

5. **Repetitive Customer Queries**

   Lack of information accessibility leads to recurrent customer inquiries, putting the store team under more pressure and affecting the customer encounter.

4.0 PROPOSED SOLUTIONS

Introducing *EZPrint*, the printing service app designed to revolutionize printing experiences and overcome common user challenges. With *EZPrint*, users can effortlessly create an account anytime, anywhere, through a simple one-way interaction. During registration, users input essential details like their name and email. Following account activation via a verification email, users gain access to the app's comprehensive features.

EZPrint empowers users to seamlessly upload files from their devices or cloud storage, simplifying the printing process. With intuitive print settings selection, including options for color, paper size, and quality, users can customize their printing preferences effortlessly. Secure payment gateways ensure safe transactions, providing peace of mind to users throughout the process.

Conveniently, *EZPrint* offers users the flexibility to track their print orders within the app, providing transparency and control. Additionally, users have the option to extend their printing time directly through the app, eliminating the hassle of late fees and extra charges.

Furthermore, *EZPrint* streamlines revenue generation by automating monthly reports as per the company's request. By eliminating manual profit calculations, the app enhances operational efficiency, allowing the company to focus on delivering exceptional printing services to its users. With its user-centric approach and innovative features, *EZPrint* sets a new standard for printing service apps, making printing tasks simpler and more accessible for everyone.

4.1 Feasibility Study

4.1.1 Technical Feasibility

The *EZPrint* application operates via a mobile app, accessible on smartphones and other internet-connected devices. Its user-friendly interface allows users to upload files, select print options, and manage print jobs seamlessly. This platform choice ensures widespread accessibility and ease of use for users. The system requires a robust server infrastructure and database system to facilitate user registration, and details (such as email, username, student / faculty ID and mobile number) are securely stored. When users submit print orders, the server processes them to ensure they reach the appropriate printing facility. Data storage for uploaded files is also handled securely, with encryption protocols safeguarding sensitive information and online payments. Additionally, scalability considerations must be incorporated into the system's architecture to accommodate increased traffic and workload as the user base grows. Overall, the technical requirements are achievable with the appropriate resources and expertise, making the development and deployment of the *EZPrint* application technically feasible.

4.1.2 Operational Feasibility

Operationally, the *EZPrint* app requires ongoing supervision and maintenance to ensure smooth functioning. An Information Systems (IS) support team is essential to monitor the system, database, and security measures, addressing any technical issues or glitches promptly. By offering an intuitive design, it allows users to easily upload files from their devices or cloud storage and select print settings like color and paper size without any hassle. Additionally, IS support can assist in promotional activities, such as creating new features or running marketing campaigns within the app. While the company owner manages the overall operation and tracks printing service information, users primarily interact with the app to view, customize, and order printing services, enhancing operational efficiency and the user experience. Including training and support in operational feasibility involves ensuring users are equipped with the knowledge and assistance they need to use the online payment feature confidently. Providing clear instructions and tutorials within the application enhances user comfort and adoption of the payment method.

4.1.3 Economical Feasibility (Cost-Benefit Analysis)

Estimated costs and expected benefits for *EZPrint* :

Estimated Costs	
Development Costs	
Hardware	RM 40 000
Software	RM 10 000
App development with inclusive training fees	RM 20 000
Operational Costs	
App maintenance and testing	RM 2 500 per year
Advertisement	RM 1 000 per year
IS support	RM 6 000
Supplies	RM 8 000 per year

Assumption	
Discount rate	10%
Sensitivity factor (cost)	90%
Sensitivity factor (benefits)	95%
Annual increment in production cost	5%
Annual increment in benefits	15%

Expected Benefits	
Savings	RM 3 000 per month
Increase sales	RM 35 000
Eliminating manual profit	RM 2 000 per month

Costs	Year 0	Year 1	Year 2	Year 3
Development Costs				
Hardware	36 000			
Software	9 000			
Training	18 000			
Total	**63 000**			
Operational Cost				
App maintenance and testing		2 250	2 363	2 481
Advertisement		900	945	992
IS support		5 400	5 670	5 954
Supplies		7 200	7 560	7 938
Annual Production Cost		15 750	16 538	17 365
Present Value (PV)		14 318	13 668	13 047
Accumulated Costs		**77 318**	**90 986**	**104 033**

Benefits	Year 0	Year 1	Year 2	Year 3
Savings		34 200	39 330	45 230
Increase sales		33 250	38 238	43 974
Eliminate manual profits		22 800	26 220	30 153
Annual Benefits		90 250	103 788	119 357
Present Value (PV)		82 045	85 775	89 675
Accumulated Benefits		82 045	167 820	257 495
Gain or Loss		**4 727**	**76 834**	**153 462**
Profitability Index	**2.44**			

From the table above, we can see that the profitability index is 2.44, showing that it is a good investment because the value is greater than one.

5.0 OBJECTIVES

These are the objectives for our project :

1. To improve the client experience, provide a user-friendly and effective printing service solution.
2. To streamline internal procedures for the printing store workers, resulting in increased production and reduced manual effort.
3. To boost profitability by using improved financial management and dynamic pricing techniques.
4. Create a centralized channel of communication between the printing shop and its customers.
5. Reduce the amount of time clients wait to use printing facilities.
6. Reduce recurring client inquiries by providing a detailed Frequently Asked Question (FAQ) area.

6.0 SCOPE OF THE PROJECT

6.1 System (Mobile Application)

The application will include the following functionalities :

1. **Viewing Printing Service Information**

   Users can browse information about available printing services, such as types of printing (e.g., black and white, color), paper sizes, paper's quality and pricing.

2. **User Account Creation and Login**

   Users can create an account within the application by providing details such as email, name, student / faculty ID, and contact information for easy login and personalized service.

3. **Secure and Accurate Data Collection**

   Implement secure data collection methods to ensure the safety of user information, such as print history, payment details, and preferences.

6.2 User (Customer)

1. User Login and Authentication

Authorized users may access their accounts and print requests securely.

2. Notification System

Implementing a notification system that notifies customers of print requests, payment confirmations, offers, and announcements from the printing store.

3. Inquiry System

Customers can track the status of their print jobs, including projected completion times and any faults or delays.

4. Printing Specifications

Users may upload files and specify paper quality, binding, and color options.

6.3 Feasibility Study

6.3.1 Technical Feasibility

1. Mobile Application as Main Platform

Implementing a mobile application for the printing service requires ensuring it meets user needs effectively.

2. Use Database to Store Information

Utilizing a database to store printing orders and user information necessitates ensuring scalability and reliability to handle data efficiently.

3. Security Measurement for Data Storage and Online Payment

Implementing robust security measures for data storage and online payment is crucial to protect sensitive user information and online payment transactions.

6.3.2 Operational Feasibility

1. **Advertisement**

   Promotional activities within the printing service app can attract and encourage users to use the platform.

2. **Human Resource**

   Effective human resources, budget, and timeline management is necessary for the successful development and operation of the printing service application.

3. **Efficiency**

   Streamlining user interactions and backend processes enhances efficiency and improves the printing experience for users.

4. **Maintenance**

   Ongoing maintenance planning ensures the printing service application remains functional and up-to-date, providing long-term value to users.

6.3.3 Economical Feasibility

1. **Hardware and Software Cost**

   Budgeting for hardware and software costs is necessary to cover initial investments and ongoing maintenance expenses for the printing service application.

2. **Testing Cost**

   Allocating resources for testing activities helps identify and resolve issues, ensuring the printing service application functions reliably.

3. **Application Development Cost**

   Estimating development costs helps plan and manage project expenses effectively for the printing service application.

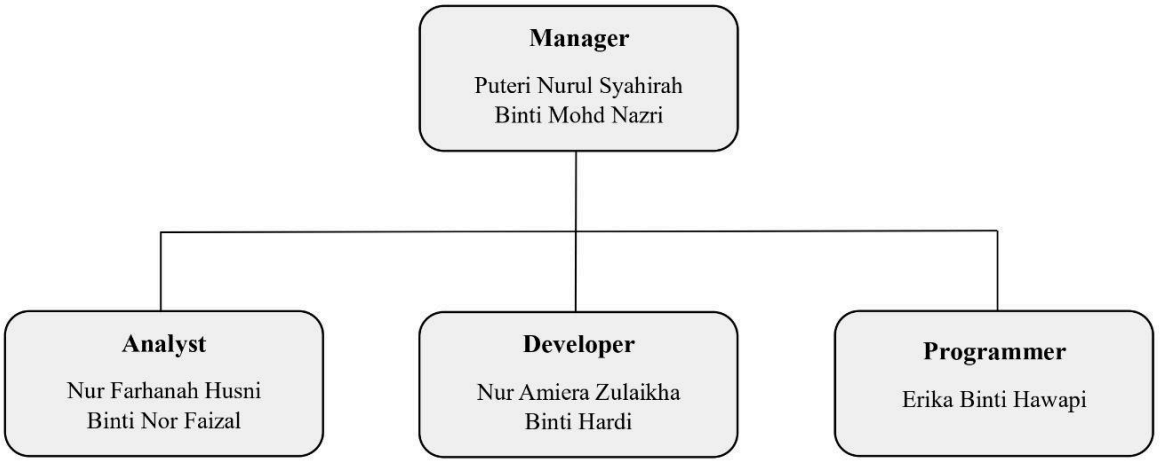
4. **Duration to Design and Build an Application**

   Setting realistic project timelines is crucial to ensure timely completion within budget constraints for the printing service application.

7.0 PROJECT PLANNING

7.1 Human Resource

Our project management team is as follows :



Manager : Puteri Nurul Syahirah Binti Mohd Nazri

- Leading the project planning phase from generating ideas to completing the project.
- Monitoring project progress to ensure that the project is completed on time and within budget.

Analyst : Nur Farhanah Husni Binti Nor Faizal

- Identifying the goals and requirements of the project to fulfill the objectives of the project.
- Reviewing financial models based on current market trends to determine the profitability of the project.

Developer : Nur Amiera Zulaikha Binti Hardi

- Conducting research and collecting information required before starting the project.
- Developing the software required for the project with the programmer.

Programmer : Erika Binti Hawapi

- Collaborating with the analyst and programmer to develop, design, and test the software required for the project.
- Write documentation for the software to ensure users' understanding.

7.2 Work Breakdown Structure (WBS)

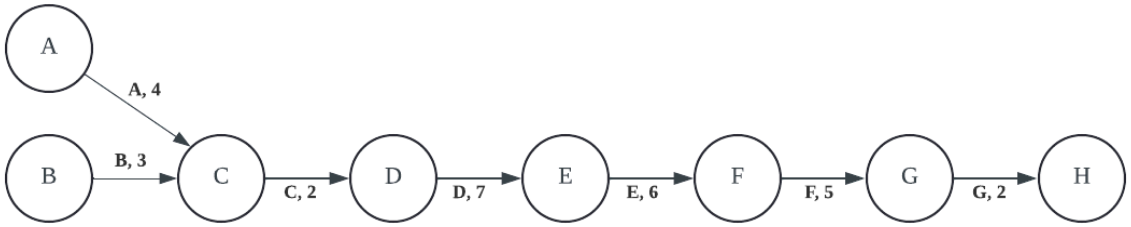
This is the Work Breakdown Structure (WBS) of our project based on phases of the System Development Life Cycle (SDLC) :

NO.	TASKS
1	**Identifying Problems, Opportunities, and Objectives** Identifying problems with the current printing system, opportunities to improve existing problems, and objectives of the proposed printing system.
2	**Determining Human Information Requirements** Determining human information requirements by observing the interaction of users with the current printing system.
3	**Analyzing System Needs** Analyzing the printing system needs and preparing a proposal for the proposed printing system.
4	**Designing the Recommended System** Designing the recommended printing system, which includes designing databases, input, output, and user interface.
5	**Developing and Documenting Software** Developing the required printing system software and documenting the software, which includes manuals of the printing system and online help for users.
6	**Testing and Maintaining the System** Testing the new printing system, as well as providing maintenance and documentation for the new printing system.
7	**Implementing and Evaluating the System** Implementing the new printing system, which includes user training and evaluating the new printing system to ensure that it can be used smoothly by users.

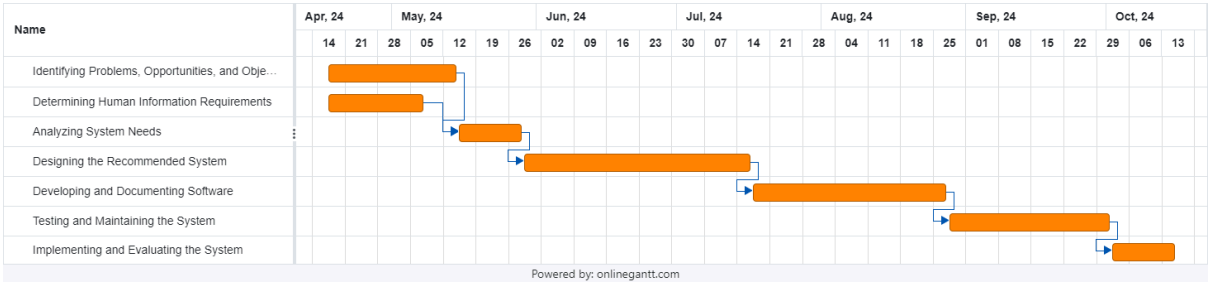
7.3 PERT Chart

	TASKS	PREDECESSOR	DURATION (WEEKS)
A	**Identifying Problems, Opportunities, and Objectives** Identifying problems with the current printing system, opportunities to improve existing problems, and objectives of the proposed printing system.	None	4
B	**Determining Human Information Requirements** Determining human information requirements by observing the interaction of users with the current printing system.	None	3
C	**Analyzing System Needs** Analyzing the printing system needs and preparing a proposal for the proposed printing system.	A, B	2
D	**Designing the Recommended System** Designing the recommended printing system, which includes designing databases, input, output, and user interface.	C	7
E	**Developing and Documenting Software** Developing the required printing system software and documenting the software, which includes manuals of the printing system and online help for users.	D	6
F	**Testing and Maintaining the System** Testing the new printing system, as well as providing maintenance and documentation for the new printing system.	E	5
G	**Implementing and Evaluating the System** Implementing the new printing system, which includes user training and evaluating the new printing system to ensure that it can be used smoothly by users.	F	2

PERT Chart :



7.4 Gantt Chart



8.0 BENEFITS AND OVERALL SUMMARY

From this project, the *EZPrint* system can bring several benefits, including :

- **Improved Time Efficiency**

Customers will spend less time in line to place their purchases and more time picking up the paper as soon as they receive an order notice, thanks to the system.

- **Enhanced Quality**

The employment of contemporary printing techniques and equipment may provide sharper pictures, vivid colors, and more consistent output, all of which improve overall printing quality. The system will reduce the time customers spend waiting in line to place their orders and just pick up the paper when they get notification of their order.

- **Improved Customer Satisfaction**

The system will lead to more effective order processing and quicker turnaround times. Consumers value rapid and dependable service, and printing firms may surpass client expectations and raise satisfaction levels by fulfilling orders on time.

In conclusion, a major step forward in the effective implementation of KTDI's printing service systems is the *EZPrint* app. We, *Braniacs*, have proposed a great deal about the printing system at KTDI by implementing the System Development Life Cycle (SDLC) to successfully plan and organize the development of the *EZPrint* app. We are also conducting a feasibility study to ensure that our proposed project can meet its objectives within a reasonable range of profitability. To calculate the estimated profitability, we are also performing a Cost-Benefit Analysis (CBA) to assess the project's cost concerns before moving forward with the project. We also comprehend the wants of our stakeholders, which is KTDI's printing system, in order to guarantee that the planned system complies with their requirements, as this is one of the essential steps in the development of our project. In addition, we also necessitate careful planning and scheduling by building a Work Breakdown Structure (WBS) as well as implementing PERT Chart and Gantt Chart in our project to guarantee that our project's development will complete within the estimated duration. These resources certify a thorough project management strategy by offering clarity on the scope, tasks, and financial limitations of the *EZPrint* app.

9.0 PROJECT MANAGEMENT

9.1 GitHub Repository

Link : https://github.com/puterinurulsyahirah/Braniacs_Project1_SAD_20232024

9.2 Kanban Board