EASYPIX : Your Vision, Our Streamlining: A Web-based System for Online Booking and Personalized Photo Editing

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I. INTRODUCTION

1.1Project Content

In today's technology-driven society, technology is being used to enhance convenience for people. Not only that, but technology has also enabled an increase in productivity and helped to reduce the amount of time spent on mundane tasks including photography. Many traditional photo studios still rely on manual processes, where clients have to visit the studio, wait in line, and book appointments in person. This can be inconvenient, especially with modern technology offering quicker and simpler ways to book services online, as other industries do. *[13]*

EASYPIX is a newly established photo studio in Dili, Gasan, owned and operated by Gerard Gian A. Lopez and his partner, Jessarine Madronio. What started as a hobby has became into a business that aims to provide convenience and high-quality service to its customers. Currently, EASYPIX handles walk-in clients and online bookings through Facebook Messenger, with Google Calendar being used for scheduling and queue management. However, most of the processes are performed manually, leading to occasional inefficiencies and inconvenience for both the owners and customers.

One problem of a photo studio is that they don't have an efficient online booking system. Customers usually have to call or go to the studio to schedule a

session, which can cause scheduling issues, especially for mobile clients who need services at different times or locations. There is no easy way for people to get digital pictures quickly through a mobile platform, which many people need nowadays.

Another issue is that clients cannot easily access their previous photos. Most studios don't have a secure web portal where customers can retrieve old photos, which forces clients to visit or contact the studio again.Walk-in clients also face problems, as many studios don't have a proper system to manage these visitors, leading to long wait times and unsatisfied customers.

To address these challenges, "EASYPIX" A System for Online Booking and Personalized Photo Editing platform is being developed. It's a web-based system that allows online booking for both studio and mobile clients, offers a mobile ID picture portal, and provides a secure platform for clients to access their previous photos. It also includes a queuing system for

walk-in clients, helping studios organize better and reduce waiting times.

With EASYPIX, photo studios can modernize their services, making them more efficient and accessible. Clients will have a better, smoother experience, from booking to getting their edited photos. This system is designed to meet the growing demand for faster and more convenient photography services.

1.2 Project Objectives

The study aims to develop a web-based system for Easypix Photo Studio in Dili, Gasan, Marinduque, designed to provide convenient, secure, and efficient photography services to the community. The objectives of this project include:

1. **Assessment of Feasibility**
   Conduct a feasibility study to evaluate the technical, financial, and operational aspects of implementing the system.
2. **Development of a Booking and Queuing System**
   Create a feature that enables customers to schedule appointments for photo services, minimizing wait times and improving service efficiency.
3. **Secure Photo Access**
   Implement a secure system that allows customers to view and download soft copies of their photos safely, ensuring privacy and security.
4. **Photo Customization Tool**
   Develop a tool that provides users with the option to edit photos using pre-designed templates, offering a personalized and creative experience.
5. **Promotions and Offers Section**
   Design a dedicated section where customers can view and explore the studio's current promotions and special offers.
6. **Usability and Performance Testing**
   Conduct comprehensive testing to ensure the system meets user expectations for functionality, security, and overall performance.

1.3 Significance of the Project

The Easypix website can help the organization to manage their appointments more efficiently, reducing the risk of double booking or missed appointments.

By adding an additional feature of photo editing, it can enhance the customer experience by providing additional service value and customization options. Easypix provides a solution that benefits customers, photo editing businesses, and future developers.

The Easypix streamlines the process of booking photo services and will reduce the time and effort required to schedule sessions. This system also offers a secure photo access feature for the customer's peace of mind by ensuring that their photos are only accessible to them protecting their privacy.

The booking and queuing system will help businesses manage customers' appointments and workflow efficiently and also minimize scheduling conflicts. Secure access to customers' photos helps build trust and ensures compliance with data privacy leading to higher customer satisfaction. The promotion feature also allows businesses to advertise their current promo deals directly to the customers which will lead to increasing customer engagement.

This project contributes to the growing body of knowledge on web-based systems for service management. It provides a framework for combining security, booking, and user customization features in one platform. Future developers can build upon systems to enhance online services in the photography industry.

1.4 Scope and Limitations of the Project

The Easypix project focuses on developing a web-based system to streamline photo studio services, providing convenience and efficiency for both the studio and its customers. The system will include an online booking feature with a queuing system to manage appointments and minimize wait times, as well as a photo editing tool offering basic functionalities like cropping, resizing, and applying pre-made filters or templates. Additionally, a

dedicated section will display current promotions and special offers to engage customers. Secure photo access will be implemented, allowing clients to view and download their photos for a limited time while ensuring data privacy and efficient storage management. The project will involve rigorous usability and performance testing to confirm functionality and address any issues before deployment. However, the system will be limited to basic editing tools and common photo file formats (e.g., JPG, PNG), excluding advanced features like professional retouching.

The photo editing tool is limited to basic functions only such as cropping, resizing, and applying basic filters. The system will primarily use photo services. The system is internet-dependent and requires a user to have a stable internet connection to access and use the system.

While the system will offer basic editing features, it will not include advanced photo editing capabilities, such as complex retouching or professional-level editing tools. The system will support only commonly used photo file formats such as JPG, and PNG. Other formats may not be supported.

The system will allow temporary storage of photos for customer access but will not serve as a long-term photo storage platform. Photos may only be available for a limited period of time before they are deleted to manage storage space.

The system is designed for small to medium-sized businesses and may require further enhancements to support large enterprises.

1.4 Definition of Terms

Queuing system - a system where customers arrive for service at a facility, forming a queue when the facility is busy.

Rigorous - extremely thorough, exhaustive, or accurate.: "the rigorous testing of consumer products".

2. REVIEW OF RELATED LITERATURE

2.1 Online Booking System

One of the primary challenges in traditional photography booking methods is the occurrence of scheduling conflicts. When managing appointments manually through phone calls or paper calendars, it is easy to double-book clients or overlook important engagements [10]. This often leads to frustration for both photographers and clients, resulting in a negative experience. Traditional booking systems frequently use paper-based records, which can result in possible customer information being lost. Essential paperwork like contracts, invoices, or communication with clients can be lost or ruined, leading to difficulties in providing services and managing clients [10].

Another significant challenge is the manual handling of payments and invoicing, which can be time-consuming and prone to inaccuracies. Traditional systems often require photographers to send invoices via email or mail, leading to delayed payments and potential discrepancies in financial records [11]. As the number of client inquiries grows, this process becomes increasingly cumbersome and can overwhelm photographers, leading to scheduling errors and miscommunications [11].

Photographers can better manage their calendars and concentrate on their creative work by using an online booking system, which frees them from administrative duties. Through an easily customizable online calendar, it helps clients schedule appointments, eliminating the need for back-and-forth email or phone conversations [1]. Simplifies the scheduling process by providing a structured system for booking appointments. Customers can book online and the system automatically updates available slots, preventing overbooking or scheduling conflicts [4].

It includes a scheduler that periodically updates appointment routes, using techniques like simulated annealing to generate new schedules. This helps prevent appointment duplication and ensures that the system remains up-to-date and accurate [5].

Siargao Island, a popular tourist destination in the Philippines, experiences challenges in its maritime travel services due to manual ticketing and booking processes. Mejas and Encarnacion (2024) examined the current services offered by small-scale local maritime providers, focusing on operational challenges and passenger preferences. The study employed a mixed-method approach, using online surveys and interviews to collect data. Respondents were selected through convenience sampling, and the data were analyzed using frequency distribution, weighted mean, standard deviation, and ranking[25].

Pricing in online booking systems presents challenges, particularly in predicting reasonable prices for hosts. Trang et al. (2021) explored the application of machine learning and sentiment analysis to address these challenges. The study focused on improving price prediction by examining features such as location, number of beds, and accommodation type, which are commonly used in setting prices[26].

Research on online booking systems shows that they typically feature web-based interfaces, developed with technologies such as PHP and HTML, which allow users to make reservations and view available services. These systems often include different user roles, such as administrators, front desk managers, and customers, each with specific access permissions (Jones & Roberts, 2020). The systems also offer a simple graphical user interface (GUI) to facilitate ease of use[30].

2.2 Managing Queuing

These days, the world depends on technology and each person from young to old seems to be deeply involved. Technology is one of the important components in today's society and it makes daily activities easier. All sectors of society were indeed impacted to increase efficiency and effectiveness. All business companies have their strategy to serve a client but currently, technology has a process called queue that conveniently provides customer service. A queuing system is to control clients at the counters where their priority number appears on the screen[7]. Customer queuing management is important for improving the queuing tasks to run more smoothly. With the help of a queue

management system, it manages the flow of the users or customers that will use the system. It provides an alternative solution to the old manual queuing system by making it digitized which will provide real-time information on the wait time or the service status [3].

It assists service providers in managing customer flow efficiently. Its primary function is to streamline the queuing process, benefiting both the service provider and the customers by reducing waiting times and improving overall service delivery.[8]

2.3 Editing of Photos

Nowadays, many photo editing services have membership plans with recurring monthly or yearly costs, which guarantee consumers receive regular upgrades and new features. On the other hand, consumers can own their editing tools indefinitely with one-time purchase software like Affinity Photo, although it might not contain regular product upgrades [2].

Photo Editing user interfaces allow designers or users to understand the sets of interface objects and actions that will help them produce the perfect edited picture that they prefer. Their goal is to organize and present the features so that everyone can effectively edit their photos. A good user interface can provide a photo editing service to non-designers, allowing them to create beautiful photos without any significant effort [6].

Software solutions can enhance various aspects of film production, including image clarity, color accuracy, noise reduction, and overall aesthetic appeal. It also addressed the issue of software flaws and application malfunctions, emphasizing the need to use dependable software to avoid disruptions and improve photo editing quality. [12]

Managing a large number of photographs involves arduous tasks such as selecting good-quality photos and classifying and labeling each photo. Generally, users put their photos into certain user-designated folders on their local PC without considering any classified information. One of the main problems related to this management method is that users do not create their photo folders systematically because they are careless and apathetic. This practice confuses when users want to find their photos. One method to overcome this problem is to construct a central photo management system that can manage many photos on the user's local PC. It also can provide smart functions such as automated clustering and summarized visualization for many photos. [23]

Studies have examined the impact of photo editing behavior on self-esteem and self-perception in the context of social network sites (SNSs). Tiggemann and Slater (2014) found that frequent photo editing can lead to unrealistic beauty standards and self-objectification, particularly among women. Fardouly et al. (2015) also suggested that photo editing increases physical appearance comparisons, which can negatively affect self-esteem and self-perceived attractiveness[27]

To address the computational demands of NST, several studies have explored web-based systems that allow users to perform style transfer on mobile devices with a standard web browser and an internet connection. These systems move the processing load to remote servers, making it possible to generate artistic images without requiring high-performance hardware on the user's device (Liu et al., 2020)[28].

Photographic images are important in shaping customer perceptions of products and influencing purchasing decisions. In the hotel industry, digital images play a key role in the booking decision process. While previous research has examined the impact of hotel images on customer behavior, there is limited understanding of the specific aesthetics, content, and composition of these images and their effects on booking decisions. Earlier studies often used surveys and experiments to explore how hotel images affect customer perceptions and booking intentions[29].

2.4 Secure Photo Access Systems

A highly dependable way to secure photos is by using end-to-end encryption. This method safeguards images during transmission and ensures they are stored in an encrypted form, accessible only to authorized recipients. Platforms like Proton Drive

utilize advanced encryption techniques, guaranteeing that even the service provider cannot view the stored images without the user's explicit permission[14].
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Protecting personal photos goes beyond encryption and biometric authentication; it also requires comprehensive privacy controls. Platforms like Photobucket provide users with advanced privacy settings, allowing them to control who can access and share their photos[15]. Encryption is one of the primary techniques used in secure photo access systems. For instance, client-side encryption architectures, such as the Easy Secure Photos (ESP) system, encrypt images before they are uploaded to cloud services like Google Photos. This system utilizes a format-preserving image encryption algorithm that allows images to remain in standard formats, such as JPEG, thus maintaining compatibility with popular photo storage services. The encryption ensures that even if user credentials are compromised, attackers cannot access the stored images without the encryption keys. [20]

In today's digital age, photo sharing is widespread, but it comes with notable privacy and security challenges. Implementing restricted sharing ensures sensitive content remains protected by granting access only to trusted individuals, reducing the risk of misuse or unintended exposure. With the continuous growth of digital footprints, controlling who can access personal photos is more crucial than ever[19].

Cloud storage represents a powerful tool for modern photographers, offering reliable data protection, convenient access, and advanced tools to enhance their workflows. By leveraging cloud storage, photographers can efficiently manage their growing digital libraries while focusing on their craft.[22]

2.5 Promotions and Offers in Digital Platforms

Promotions play a crucial role in driving customer engagement and influencing purchasing decisions. Studies show that discounts and sales promotions boost store traffic and improve conversion rates by delivering a sense of value to customers. Additionally, well-executed promotions can instill a sense of urgency, encouraging swift purchases, particularly when tied to limited-time offers. [16]. The key to maximizing the effectiveness of these promotions lies in understanding consumer behavior and preferences; for instance, targeted ads can significantly enhance conversion rates by providing personalized offers based on customer data [17].

Personalization not only increases the relevance of promotions but also improves customer satisfaction and loyalty, as customers feel more valued when they receive offers tailored just for them[17]. Transparency in advertising and promotions is crucial; consumers need to be informed about how their data is used and the nature of the promotions offered[18].

The significant advantage of photos is their ability to connect what users see on the web page with a real world of physical things and live people. Photos have been a part of human reality for many decades, much before the Internet’s advent, so this kind of visuals is fairly native, close, and clear for us. What’s more, with all those devices that let any of us capture something in a second, photography is really a part of everyday life for many people – so, being used on a website, it sets strong connections and associations.[21]

The evolution of digital promotions reflects changes in consumer behavior and technological advancements. Initially limited to simple advertisements, the landscape has evolved into a rich tapestry of interactive experiences that include contests, sweepstakes, instant-win games, and more. Today, brands utilize these promotions to not only attract new customers but also to drive engagement and foster loyalty among existing ones[24].

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3. METHODOLOGY

3.1 Requirement Analysis Procedure

An interview and onsite observation were done to gather the organization's needed information and processes. The target of the study is a small self-service photo booth named "EASYPIX", located in Gasan, Marinduque. The owner of the organization was requested to oversee the interview. To start the gathering of data, a letter of interview (Appendix A) was given to the owner, followed up with a face-to-face interview with the owner of the business using the precomposed open-ended questions (Appendix B). The developers asked permission to video record the interview beforehand for the future, and the answers were also written down. A small glimpse of the process or step they do in their daily workflow was also observed.

Following the interview and observation, the developers analyze and summarize the data gathered to better understand the organization's needs.

By using the Ishikawa Diagram (Appendix C), the problems and their causes were broken down into sections to further widen the understanding of the issues. First, having good humor is a must, and each member of the team must have a role in the process to build better relationships and design a definitive solution.

For the developer to have an effective and straightforward way to plan, organize, and visualize the timeline of a project they used the Gantt chart (Appendix D)

For a better illustration of how the user will interact with the system/process the developers used Use Case Diagram (Appendix E).

3.2 Feasibility Analysis Procedure

A feasibility analysis was conducted to assess the viability of the proposed photo booth system. An interview was conducted at the EasyPix Photo studio at Barangay Dili, Gasan Marinduque to analyze the operation of the studio. A formal letter (Appendix A) was sent to the studio owner for approval to conduct interviews with key personnel, including the owner and staff. These interviews utilized open-ended questions (Appendix B) to gather insightful information on the organization's business processes, operational requirements, and technical infrastructure.

Operational Feasibility was assessed to determine and ensure that the organization meets the development requirements. This involved evaluating the studio's current workflow, client interaction, and photo editing processes. The data collected was analyzed to determine whether the organization's operation was feasible. Available technical resources were also considered to ensure that the existing infrastructure, such as hardware and software, can support the system's requirements.

SWOT Analysis (Appendix G) was conducted to identify the organization's strengths, weaknesses, opportunities, and threats in adapting to the changes that the system may bring. Technical Feasibility was evaluated through Gap Analysis (Appendix H), ensuring that the necessary technical resources, including hardware and software, are available and compatible with the proposed system. The specifications were inspected and compared to the minimum technical specifications.

In addition, Economic Feasibility was determined by estimating benefits and costs (Appendix I). The studio's supply costs, operational expenses, and potential revenue increases were analyzed, and potential savings were calculated.

The analysis was conducted by assessing the technical, economic, operational, and social feasibility of the proposed system. Technical feasibility was evaluated by reviewing the compatibility of existing hardware and software with the system's requirements. Economic feasibility involved estimating development and implementation costs and comparing these with projected revenue and return on investment (ROI). Operational feasibility was determined by analyzing how the system integrates with current business workflows, including the minimal training required for staff. Social feasibility was assessed by examining how the system would enhance customer interactions and support positive social outcomes.

3.3 Development and Testing Procedure

The Web-Based System for Online Booking and Personalized Photo Editing is modeled after an iterative plan, using the prototyping model to allow continuing feedback from stakeholders to shape and improve the system. The whole development process begins with conducting interviews with the business owner and staff of the photo booth service to gather data and have a much better understanding of the problems through observation on-site to capture the workflow and indicate problems in the business. These findings will be used to display the core features of the system, which include online booking for photo shoots, photo upload functionality, real-time photo editing, and user account management. To meet the user expectations and the business requirements, the developers will analyze this information with tools such as the Ishikawa Diagram and SWOT Analysis to find the root cause and what can be improved. Other development planning tools are employed, namely the Gantt Chart, to visualize the time frame of the system, meet the expectations.

The developers will create a prototype of the system. This prototype has integrated core functionalities that allow users to book photography sessions, upload images, and edit pictures easily. Received feedback will represent crucial steps to providing better decision-making, a user-friendly system, and functionality. The feedback will be used to refine the prototype by adding new features and enhancing it to match the needs of the users.

The entire system will be a cloud-based system, which allows real-time synchronization among devices, enabling seamless interaction over multiple devices. A customer can schedule appointments, upload photos, and edit photos on different devices without delay and feel no loss of service. Cloud storage ensures no delay and fast access to images when it comes to photo editing.

The user authentication feature allows only an authorized user to view sensitive areas in the platform like payment information and customer information. Various databases will be used for database operation. However, SQL will be exclusively managed for structured data, like user information with bookings and past photo edits, and NoSQL for unstructured data, like raw image files, that demand flexible storage.

After all the system development is finished, total system testing is performed to ensure all functions are working as planned. This testing includes verifying the correctness of the booking system, photo upload, and editing features. System testing is executed on some browsers such as Google Chrome, Mozilla Firefox, and Safari to ensure the system works well on various platforms. Problems that may appear during this phase will be fixed.

Finally, allowing real users to interact with the system ensures user acceptance testing (UAT), giving feedback to find other improvements that might be applied before it proceeds to release for system completion. The established software quality standards like the ISO 9126 Software Product Quality Standard focus on the assessment of functionality, performance, and usability, must be focused on. IT consultants will review it, so the software code improvement can be done to enhance long-term efficiency and reliability.

Finally, real-world testing is intended to guarantee that the system under testing is exercised properly. It's done by confirming that users can book sessions without trouble and edit photos and that cloud storage and editing workings are as they should be in real-time. The developers will keep monitoring and testing the system as necessary to ensure that it remains in line with the businesses and customer’s needs.

This comprehensive development and testing process of the Web-Based System for Online Booking and Personalized Photo Editing should ensure an interface that is user-friendly, easy to operate, and consistent with the general business and technical specifications, allowing an effective and properly functioning photo booth service for its customers.

3.4 Implementation Plan

The implementation of the EASYPIX system will follow after its development and testing phases. This section outlines the steps for deploying

the system to ensure proper installation and functionality.

The first step involves ensuring the required technologies are in place. The EASYPIX system will be hosted on a cloud-based platform. The necessary web hosting service will be set up to store client data securely. The backend system will be configured for managing bookings, photo uploads, and client data. All data will be encrypted to maintain security.

The front-end system, including the booking interface and photo editing tools, will be tested for responsiveness on desktop, tablet, and mobile devices to ensure accessibility across different platforms.

Domain registration will be completed, and a cloud hosting service will be selected to support the expected web traffic during booking and photo retrieval processes.

The system's operation will depend on the network configuration. Developers will verify that the studio's internal network can support the necessary functions, such as real-time booking and photo uploads. The system's load capacity will be tested to ensure it performs well under various conditions.

The studio's network devices, including routers and firewalls, will be tested for compatibility to ensure proper integration with the system's requirements.

Once the system is set up, training will be provided for the photo studio staff, administrators, and clients who will use the system. The training will cover how to input and manage bookings, how clients can access their stored photos, and how to use the mobile ID picture feature. Also, users will be instructed on how to use the platform's editing features to customize their photos. To guarantee that users are comfortable with the system throughout multiple platforms, the training will be delivered using step-by-step instructions and live demonstrations on laptops and mobile devices.

A user manual will be provided to assist with training. The manual will cover system features and troubleshooting. A technical manual will also be available for IT staff, detailing system setup, data management, and maintenance.

Before the system is launched, developers will conduct final integration tests to ensure that the platform works seamlessly with the studio's existing infrastructure. The booking system, photo upload/retrieval system, and client access will be tested across different devices and browsers.

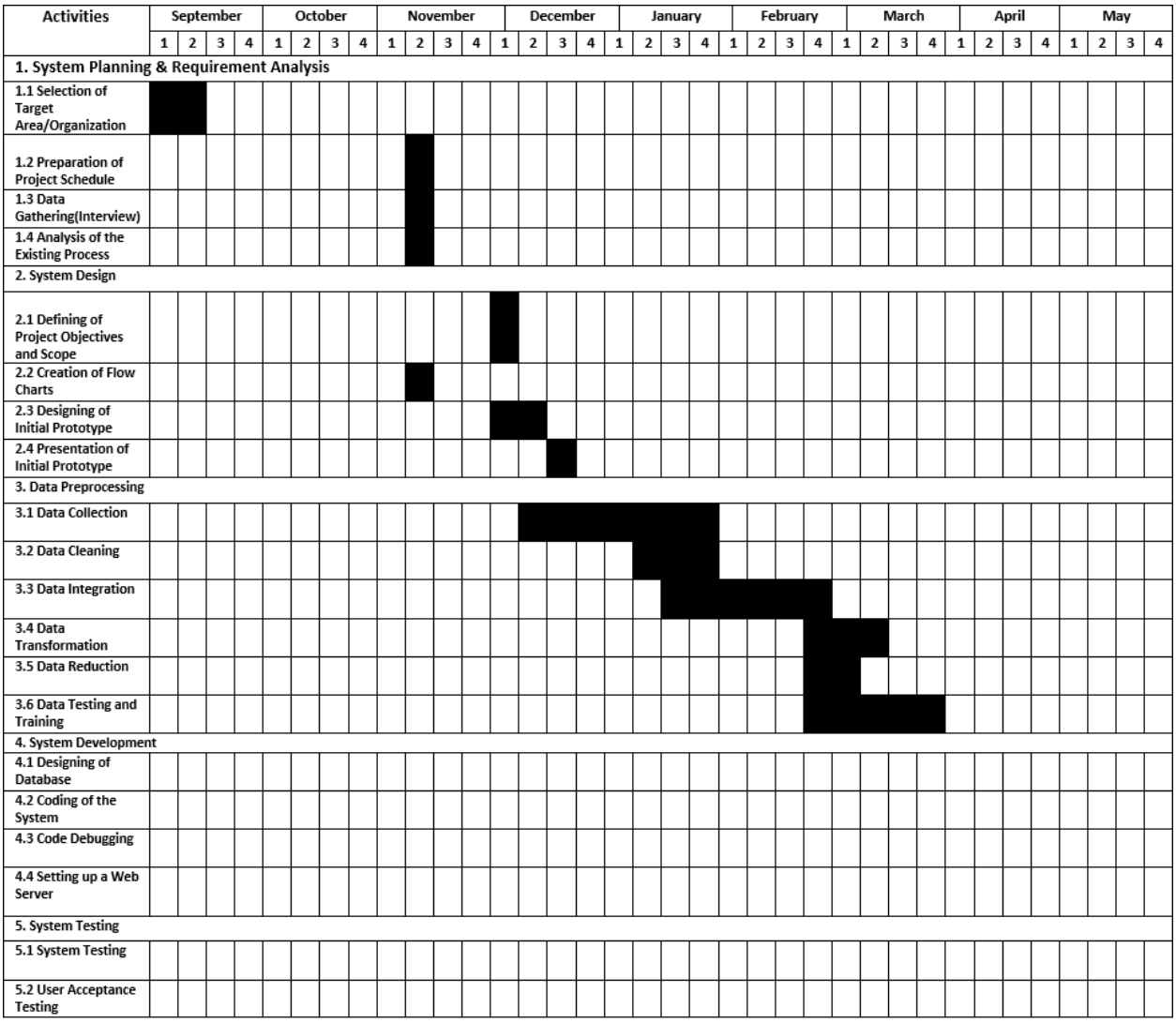
A final review will be conducted to confirm that all features are functioning as intended, including the mobile ID portal and client access to photos.

Once the system has passed the integration checks, it will be deployed for use. Developers will monitor the system during the initial phase of deployment to ensure it operates correctly. Any issues or questions raised by users will be addressed during this phase.

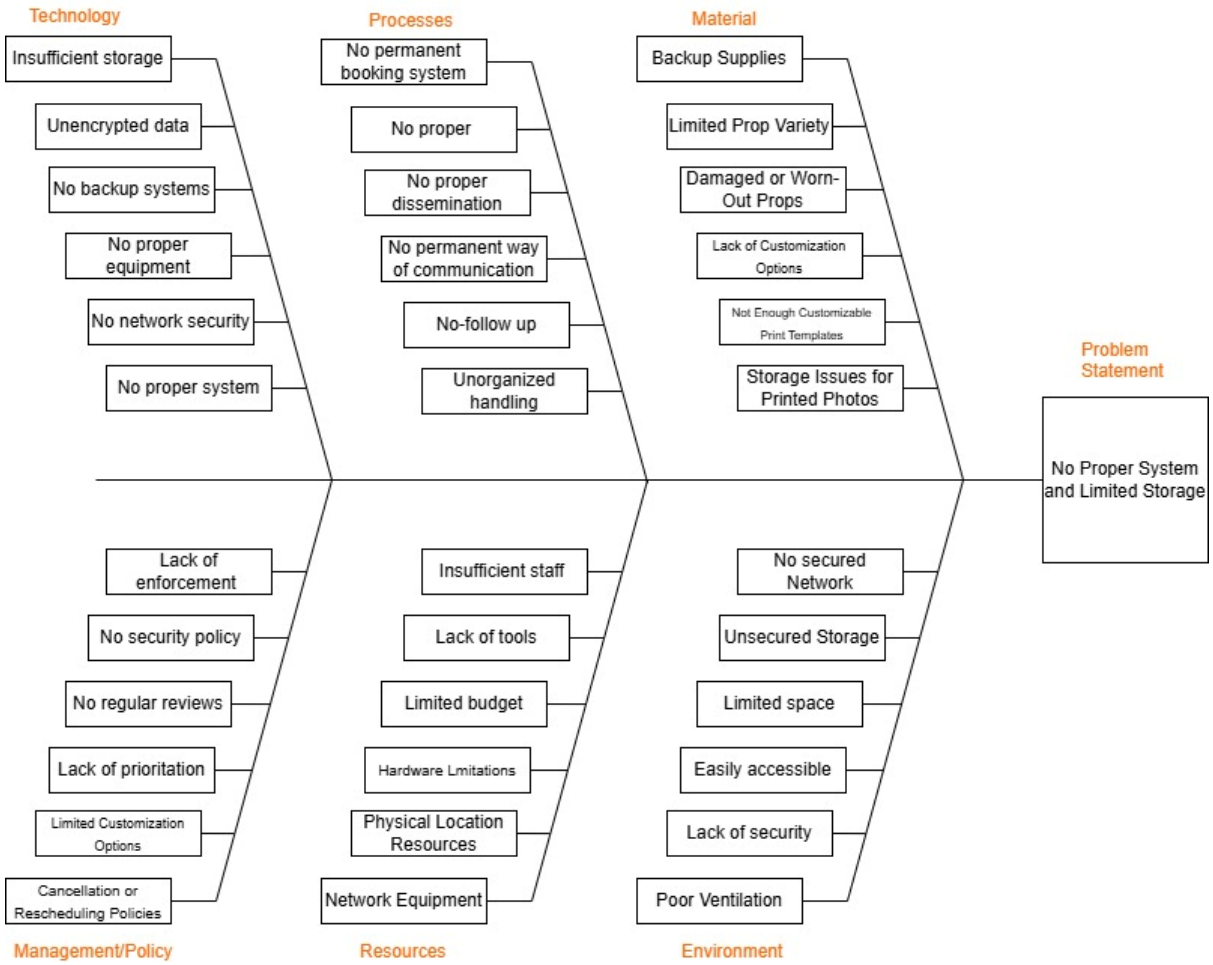
After deployment, developers will provide ongoing support to resolve any issues that arise. This will include bug fixes and troubleshooting for the system's functionalities.

The system's backend will be maintained with regular updates for security patches and improvements. Feedback from users will be collected to identify areas for enhancement and to ensure the system meets the studio's needs over time.

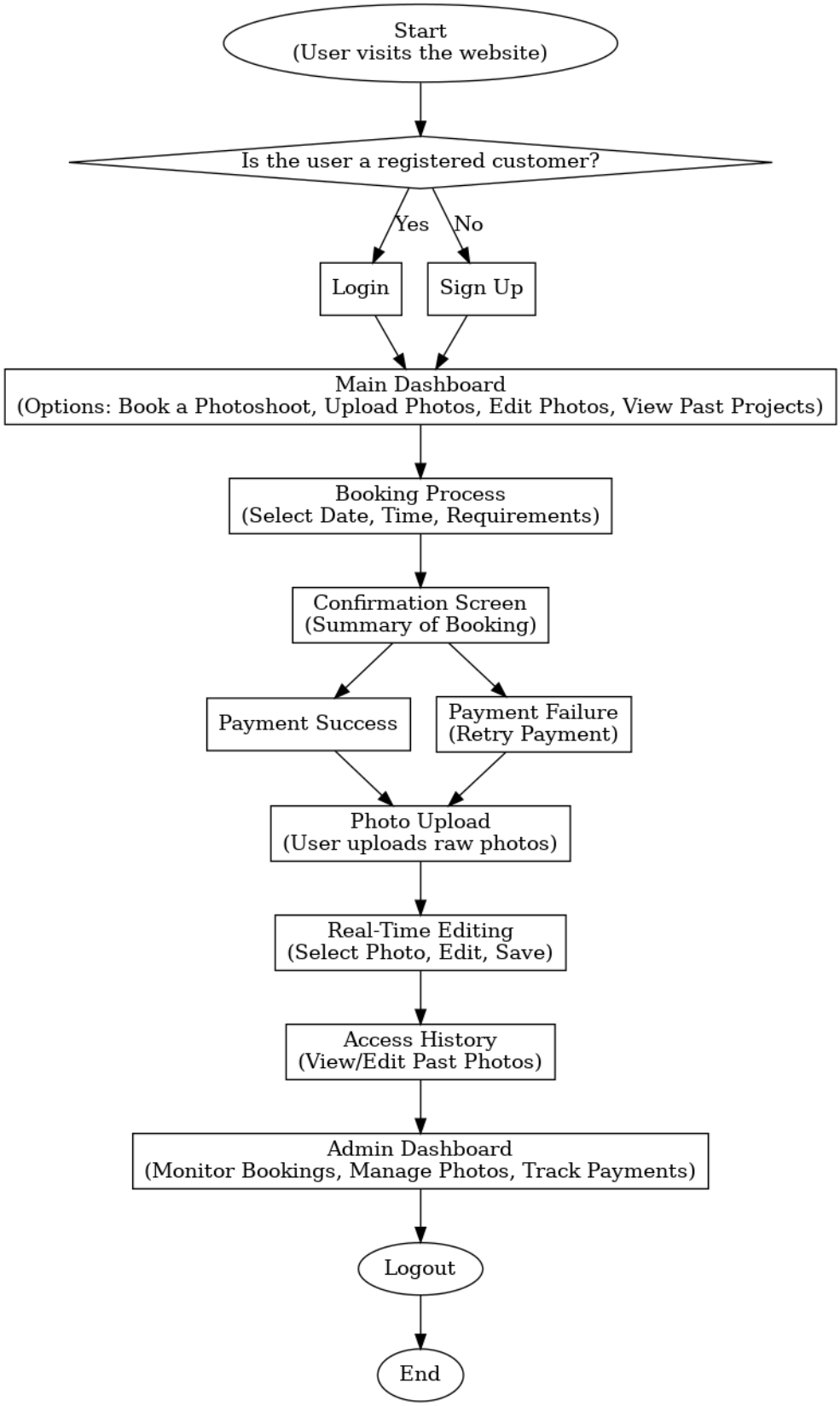
GANTT CHART


Activities
September
October
November
December
January
February
March
April
May
1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
1. System Planning & Requirement Analysis
1.1 Selection of Target Area/Organization
1.2 Preparation of Project Schedule
1.3 Data Gathering(Interview)
1.4 Analysis of the Existing Process
2. System Design
2.1 Defining of Project Objectives and Scope
2.2 Creation of Flow Charts
2.3 Designing of Initial Prototype
2.4 Presentation of Initial Prototype
3. Data Preprocessing
3.1 Data Collection
3.2 Data Cleaning
3.3 Data Integration
3.4 Data Transformation
3.5 Data Reduction
3.6 Data Testing and Training
4. System Development
4.1 Designing of Database
4.2 Coding of the System
4.3 Code Debugging
4.4 Setting up a Web Server
5. System Testing
5.1 System Testing
5.2 User Acceptance Testing

ISHIKAWA DIAGRAM



FLOW CHART


Start
(User visits the website)
Is the user a registered customer?
Yes
No
Login
Sign Up
Main Dashboard
(Options: Book a Photoshoot, Upload Photos, Edit Photos, View Past Projects)
Booking Process
(Select Date, Time, Requirements)
Confirmation Screen
(Summary of Booking)
Payment Success
Payment Failure
(Retry Payment)
Photo Upload
(User uploads raw photos)
Real-Time Editing
(Select Photo, Edit, Save)
Access History
(View/Edit Past Photos)
Admin Dashboard
(Monitor Bookings, Manage Photos, Track Payments)
Logout
End

Technical Feasibility – SWOT Analysis

Table 1. Result of SWOT Analysis for Technical Feasibility

Strength	**Weakness**
• Uses already existing technologies, thereby lessening the need for major new outlay. • Provides instantaneous synchronization, hence enabling uninterrupted usage on different gadgets. • Expandable according to the fluctuations in workloads and user requirements. • Data encryption is included as a means of protection for private information such as customer data and payment details.	• The system's dependence on unchanging online connectivity can pose problems in regions with unstable internet. • Good for micro or medium-sized enterprises, the system might be unable to manage large businesses without extra updates. • The studio staff and admins would need detailed training to adopt and use the system optimally.
Opportunities	**Threat**
• The technology of AI or machine learning can be used for the enhancement of predictive analytics, advanced editing, and customer behavior insights. • If the system is extended by a dedicated mobile application, it could lead to an increase in accessibility and user satisfaction. • The capability of the system to be usable in other industries with the same online booking and editing requirements.	• Hackers, data breaches, or malware attacks pose potential threats by compromising sensitive data and the integrity of systems. • Technology that rapidly develops might make the architecture of the current system obsolete unless it is regularly updated. • The lesser skilled staff may oppose the adoption of the new system which could affect its completion.

Technical Feasibility – Gap Analysis

Table 1.2. Gap Analysis of the Available Resources of the Developers

Technical Specifications needed for the Proposed System	**Technical Specification of the Available Resources**	**Action Needed**
Processor: Intel Core i5 or AMD Ryzen 5 (or higher)	Meets requirements	Utilize the available resources
RAM: 8GB (16GB recommended for smoother multitasking)	Meets requirements	Utilize the available resources
Hard Disk Drive Capacity: SSD (Solid State Drive) with at least 256GB of space (or more)	Meets requirements	Utilize the available resources
Operating System: Integrated graphics or dedicated GPU is better	Meets requirements	Utilize the available resources
Network: A reliable internet connection	Depends on the chosen environment	Make sure to select a decent environment

Operational Feasibility – SWOT Analysis

Table 2.1. Result of SWOT Analysis for Operational Feasibility

Strength	**Weakness**
• Allows for online booking, uploading, and editing of photographs, thus, lessening the manual workload and heightening the efficiency. • Satisfaction is met by the simplified control and functionality based on the cloud in real time. • The platform includes functions that meet the needs, such as custom photo adjustments and accessibility on mobile devices.	• Some staff members could require time and training to get used to the new system. • Companies may still be unsure about the acceptance of cloud storage, its compatibility with the existing system, and data security. • The system is rather dependent on a stable internet connection that is sometimes unavailable in certain locations.
Opportunities	**Threat**
• The key features of this system are convenient online booking and real-time editing, giving the studio a competitive edge. • More customers can be drawn in by improved efficiency and service quality, as well as reduced missed bookings. • The system can be further developed to incorporate features such as advanced photo editing tools and social media integration.	• Sometimes the software can have bugs, the system can go down, or it may not be compatible with some devices. • Dealing with client information, such as pictures and payment information, is a big concern for privacy and security. • Individuals using the system, whether clients or staff, might need some support with the changes.

Operational Feasibility – Gap Analysis

Table 2.2 Gap Analysis of the Available Resources in EASYPIX Photo Studio

Current State	Desired Future State	Actions Needed
Manual booking system (phone, walk-ins)	Automated online booking system	Need for a reliable internet connection for bookings
Staff manually uploads and edits photos	Cloud-based system for photo upload and real-time editing	Need for training in new photo editing software
Local storage for photo files (limited space)	Cloud storage for photo files (unlimited or larger capacity)	Need to set up a secure and scalable cloud storage solution
No automated customer notifications or reminders	Automated notifications for bookings, reminders, and updates	Need to implement a messaging or notification system
Staff unaware of cloud-based tools	Staff must be trained on cloud tools and new software	Need to provide staff with relevant training

Cost Baseline

Table 3. Breakdown Representative of the Total Cost of the Existing System

Particular	Unit Cost	Quantity	Unit	Total Cost
Editing Software Tools (Existing)	₱12,000.00/year	1	Set	₱12,000.00
Internet Subscription	₱1,000.00/month	12	Months	₱12,000.00
Electricity Cost	₱1,500.00/month	12	Months	₱18,000.00
Miscellaneous Office Expenses	₱500.00/month	12	Months	₱6,000.00
Laptop Maintenance	₱1,500.00/month	4	Quarters	₱6,000.00
Printer Maintenance	₱500.00/month	4	Quarters	₱2,000.00
Device Maintenance	₱2,000.00/Quarter	4	Quarters	₱8,000.00
Paper and Printing Supply Costs	₱3,000.00/month	12	Months	₱36,000.00
Miscellaneous Supplies	₱2,000.00/month	12	Months	₱24,000.00
Total:				₱124,000.00

Table 3.1 Breakdown Representative of Supplies and Materials of the Developed System

Particular	Unit Cost	Quantity	Unit	Total Cost
Cloud Hosting (1 Year)	₱5,988.00/year	1	Year	₱5,988.00
Development Tools	₱20,000.00/one-time	1	Unit	₱20,000.00
Paper and Printing Supplies	₱3,000.00/year	1	Ream	₱3,000.00
Photo Editing License	₱5,976.00/year	1	License	₱5,976.00
OS Subscriptions	₱1,500.00/year	1	Subscription	₱1,500.00
Total:				₱45,500.00

Table 3.2 Operational Cost of the Developed System

Particular	Year 1	Year 2	Year 3	Year 4	Year 5
Cloud Hosting	₱10,000.00	₱11,000.00	₱12,100.00	₱13,310.00	₱14,641.00
Photo Editing License	₱8,000.00	₱ 8,800.00	₱9,680.00	₱10,648.00	₱11,712.8
Software Subscriptions	₱4,000.00	₱4,400.00	₱4,840.00	₱5,324.00	₱5,856.4
Maintenance Costs	₱3,000.00	₱3,300.00	₱3,630.00	₱3,993.00	₱4,392.3
Electrical Consumption	₱13,200.00	₱14,520.00	₱15,972.00	₱17,569.2	₱17,569.2
Total:	₱38,200.00	₱42,020.00	₱46,222.00	₱50,844.20	₱54,171.70

Table 3.3 Total Development Cost

Description	Cost
Domain Name	₱750.00
Initial Supplies	₱13,000.00
Internet Setup Fee	₱9,000.00
Electric Consumption	₱7,000.00
Total Cost:	₱29,750.00

Table 3.4 Cost and Benefit Analysis

Year	Year o	Year 1	Year 2	Year 3	Year 4	Year 5
Operational Cost of Existing System	₱128,000.00	₱139,520.00	₱152,076.8	₱165,764	₱180,682.76	₱196,944
Operational Cost of Developed System	₱69,750.00	₱38,200.00	₱42,020.00	₱46,222.00	₱50,844.20	₱54,171.70
Total Development Cost	₱69,750.00	-	-	-	-	-
Cost Project Benefit	-	₱101,320.00	₱110,056.80	₱119,542.00	₱129,838.56	₱142,772.30
Cumulative Benefit	-₱69,750.00	-₱6,630.00	₱61,406.80	₱134,726.80	₱213,721.16	₱302,321.76
Break Even Ratio	-	-	-	-	-	-
Break Even Year			Year 2			
Break Even Point			3 years			

Table 3.4 demonstrates the cost and benefit analysis of the developed system compared to the existing system. The break-even point of when the system will benefit is within year 3.

Break Even Year = 2

$$\text{Break Even Ratio} = \frac{\text{Project benefit} - \text{Cumulative Benefit}}{\text{Project Benefit}}$$

$$\text{Break Even Ratio} = \frac{-₱110{,}056.80 - (₱6{,}630.00)}{₱110{,}056.80} = \frac{116{,}686.80}{110{,}056.80} = 1.0602$$

Break Even Point = Break Even Year + Break Even Ratio
= 2 + 1.0602
= 3.06 or 3 years

Chapter 4: Results and Discussion

The EASYPIX system will be developed to address the everyday challenges a photo studio in Dili, Gasan, Marinduque is facing. By taking a close look at how the studio operates, we aim to identify key areas where improvements can be made, not just to solve the current problems but to create a better experience for the customers. The goal of the system is to introduce more automation and simplify the studio's operations, focusing on aspects like appointment booking, easy access to photos, and improved customer management. By moving to a digital platform, the studio will be able to offer a smoother, more secure environment for both customers and staff.

This section examines the main features of the system, such as online booking, simple photo editing tools, secure photo access, a queuing system for walk-in clients, and a promotions section. These features are designed to address the current system's flaws and create a more streamlined, customer-friendly service. By implementing these upgrades, the system will not only make the studio run more smoothly but also increase customer engagement and improve the overall service provided.

Requirement Specification

The EASYPIX system is proposed to address the day-to-day challenges faced by a photo studio in Dili, Gasan, Marinduque. After taking a close look at the studio's operations, key areas were identified that needed improvement, not just to solve existing problems but to enhance the overall experience for customers. The system's primary goal is to make the studio's operations simpler and more automated, focusing on aspects like easier appointment scheduling, better access to photos, and more efficient customer management. By shifting everything to a digital platform, EASYPIX aims to offer a more seamless and secure experience for both customers and staff. This section explains the essential features that the system is intended to include, such as:

Functional Requirements:

- **Online Booking System**: Lets customers easily book appointments, cutting down on scheduling conflicts and reducing wait times.
- **Photo Editing Tools**: Gives customers basic editing features like cropping, resizing, and applying filters to their photos.
- **Secure Photo Access**: Ensures customer privacy by providing a secure way to access and download photos.
- **Queuing Management**: Helps manage walk-in clients efficiently, so wait times are minimized.
- **Promotions and Offers Section**: Displays current promotions to engage customers and encourage sales.

Non-Functional Requirements:

- **Performance:** The system must support at least 50 concurrent users without performance issues.
- **Scalability:** The system should be capable of expanding to accommodate more users and data.
- **Security:** Customer data and photos must be encrypted and protected against unauthorized access.
- **Usability:** The system interface should be straightforward for both customers and staff.
- **Availability:** The system should have an uptime of 99% or higher.

Description of the Existing System

The studio currently uses manual methods for booking and managing photos, which results in several challenges. Clients book appointments either by phone or in person, often leading to scheduling conflicts and double bookings. There is no platform available for clients to securely access their photos remotely, causing delays in photo retrieval. Walk-in clients experience extended wait times due to the absence of a formal queuing system. Promotions are shared through social media or in-person visits, which limits their overall reach. These challenges illustrate the need for a more efficient and automated system.

Result of Feasibility Analysis

The feasibility study of the proposed EASYPIX system uncovered several important insights:

- **Technical Feasibility**: The studio's current hardware and software can support the system, and **cloud hosting** will make it scalable and reliable.
- **Economic Feasibility**: The cost-benefit analysis shows that the system will break even in **about three years**, proving that it's financially viable.
- **Operational Feasibility**: The system integrates easily into the studio's daily operations, with **minimal training** needed for both staff and customers.
- **Social Feasibility**: The system boosts **customer satisfaction** by making services more secure and convenient.

Description of the Proposed Project

The proposed EASYPIX system is designed to address the studio's existing challenges by implementing several key functions. The system includes a web-based platform that allows customers to book appointments online and access their photos securely, eliminating the need for manual scheduling and in-person visits. This platform provides real-time availability and simplifies the booking process. Cloud storage is integrated into the system, enabling users to access and retrieve photos across multiple devices. This feature allows clients to manage their photos remotely without relying on physical storage methods. A queuing system will be introduced to organize and manage walk-in clients, reducing confusion and ensuring that customers are served in an orderly manner.

The system also includes a dedicated promotions section, which displays current offers and discounts to customers. This function helps the studio inform customers about promotions efficiently. Enhanced security measures, such as encryption and user authentication, are included to protect customer data and ensure that only authorized individuals can access sensitive information.
These functions collectively aim to improve the studio's processes and provide a more efficient system for managing operations and serving clients.