

# THE POWER OF ADAPTABILITY: ACHIEVING AGILITY AND QUALITY IN WEB BASED COMPANY PROFILES THROUGH EXTREME PROGRAMMING

Harjunadi Wicaksono <sup>1</sup>; Jafar Shadiq <sup>2</sup>; Dwi Ismiyana Putri <sup>3\*</sup>; Rina Sayekti <sup>4</sup>

Sistem Informasi <sup>1,4</sup>; Rekayasa Perangkat Lunak <sup>2,3</sup>

Universitas Bina Insani

[www.binainsani.ac.id](http://www.binainsani.ac.id)

harjunadi.wicak@binainsani.ac.id <sup>1</sup>, jafarshadiq@binainsani.ac.id <sup>2</sup>, dwiismiyana@binainsani.ac.id <sup>3\*</sup>, sayrin387@gmail.com <sup>4</sup>



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**Abstract**— This study explores the utilization of Extreme Programming (XP) methodology, coupled with black box testing, in developing a Web-Based Company Profile as a supportive medium for information and promotional purposes. The objective is to optimize the effectiveness and usability of the company's online profile through an adaptive and collaborative approach. However, successful implementation of XP methodology in developing Web-Based Company Profiles relies not solely on methodological approaches. Effective project management, good team communication, and support from management are equally essential to achieve optimal outcomes. In conclusion, the integration of Extreme Programming methodology, together with black box testing, enables companies to enhance their Web-Based Company Profiles as effective mediums for information and promotional purposes. This study emphasizes the importance of adaptability, collaboration, and quality assurance in achieving successful online profiles.

**Keywords:** Company Profile, Extreme Programming (XP), Web Based, Black Box, Brand Identity.

**Intisari**—Penelitian ini mengkaji penggunaan metodologi Extreme Programming (XP) yang dikombinasikan dengan black box testing dalam pengembangan company profile berbasis web sebagai sarana informasi dan promosi penjualan. Tujuannya adalah untuk mengoptimalkan efisiensi dan kegunaan profil bisnis online melalui pendekatan adaptif dan kolaboratif. Namun, keberhasilan penerapan metodologi XP dalam pengembangan profil perusahaan berbasis web tidak hanya bergantung pada pendekatan metodologi, manajemen proyek yang efektif, komunikasi tim yang baik, dan dukungan manajemen sama pentingnya untuk mencapai hasil yang optimal. Singkatnya,

integrasi metodologi Extreme Programming bersama dengan pengujian kotak hitam memungkinkan perusahaan untuk meningkatkan profil perusahaan berbasis web mereka sebagai alat komunikasi dan promosi yang efektif. Studi ini menggarisbawahi pentingnya kemampuan beradaptasi, kolaborasi, dan jaminan kualitas untuk mencapai profil online yang sukses.

**Kata Kunci:** Profil Perusahaan, Extreme Programming (XP), Website, Black Box, Brand

## INTRODUCTION

The world of information technology and promotional media is currently growing increasingly rapidly (Infante & Mardikaningsih, 2022). This is evidenced by the large number of people who need this information, as a result of which human activities are gradually starting to switch from manual systems to fully computerized systems (Alda, 2023). The types of promotional media sources that exist today are very diverse, one of which is a website that can be accessed via the internet from anywhere and anytime.

Nowdays, almost every agency or institution around the world already has a website which is a means of communication between the company and customers (Hidayat & Handayanto, 2019). This is very much needed by an agency in publishing the profile of the agency itself to parties in need, both inside the agency and outside the agency (Fahril & Farhan, 2021). One of the solutions used as a means of conveying information is by making a profile or what is called a company profile. Several studies that have been conducted related to the design of the company profile information system show that with the development of the company profile owned by PT Gotrans Logistics (Fahril & Farhan, 2021) with the company profile information system, what

is highlighted is the delivery of company profile information, Other studies (Eko Valentino & Jodi Hardiansyah, 2020) by using company profile, the information provided is easier to understand for the general public who want to know in advance about hotels or places to stay. (Santoso & Dewi, 2021) said implemented company profile website as a media marketing information system and school introduction online during a pandemic. With the company profile information system, what is highlighted is the delivery of detailed information media online, so that prospective customers get this information easily because it can be accessed online (Nugraha et al., 2021).

Company Profile is a summary description of a company's information where the company can choose what information it wants to convey openly to the public according to its objectives (Eko Valentino & Jodi Hardiansyah, 2020). Company Profile is also an asset of an institution or company that can be used to improve an image or image of the company to establish cooperation with company relations, institutions and other related agencies. In general, the Company Profile is made in the form of a well-organized book using visual communication design elements using a combination of elements of shape, color, typography and other supporting aesthetic elements arranged in a dynamic compositional order.

This era really needs to be considered in the utilization and development of information technology, namely the internet, to carry out business process activities. One of the advantages of using the internet is that it provides market coverage that is no longer limited by distance, time, and space, but is global with local, national, and even international coverage. It is hoped that with this website, it can make customers more familiar with the products and services owned by the company (Hidayat & Handayanto, 2019).

**MATERIALS AND METHODS**

This research collects relevant information and facts by identifying data sources derived from documentation of the results of interviews and observations made at the object of research, namely one of the companies in Indonesia. Sources taken from the literature method are books, papers, national and international journals, and online media.

The software development method has several approaches that can be done, in this study the method used is Extreme Programming (XP) which is a process with an object-oriented approach (Putri et al., 2022) so that it has a target in the form of a team that can be formed on a small to medium scale, and this method is also suitable if in the development process there are changes in system

requirements that do not require too long a time (Sayfullloh, 2021), this is depicted in the Figure 1.

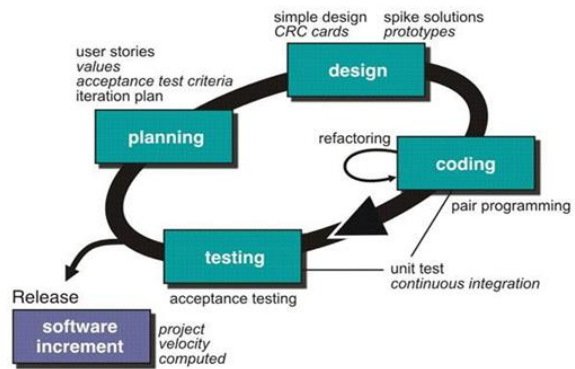


Figure 1. Software Development Life Cycle of XP

According to Ahmad et al (Sefina Samosir et al., 2022), XP is a scientific software development method that is predictable, fast, efficient, low-risk, flexible. The extreme programming development method is one of the agile methods (Borman et al., 2020).

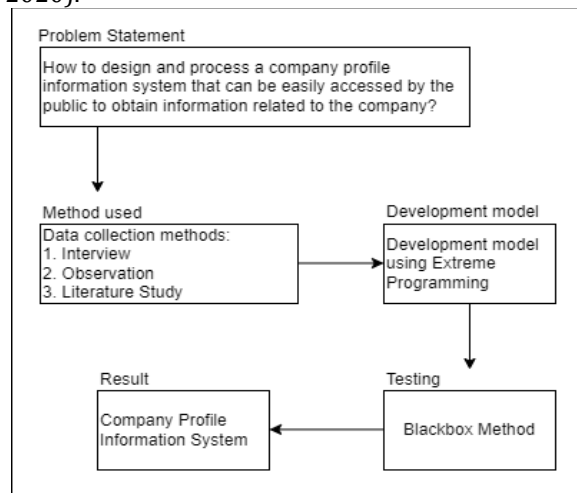


Figure 2. Design of Thinking

Figure 2 describes the stages of this method are Planning, at this stage the initial user needs are collected by identifying problems, creating user stories (Risma et al., 2021), determine the purpose and use of the software, determine the information needed, and analyze application requirements.

Next is design, by describing the system using UML models in the form of usecase diagrams and activity diagrams. Design here is a representation of the system to facilitate developers in building the system. After design, followed by coding, the system development process directly implements the design that has been made before. The activities carried out are creating a database and user interface.

Finally, testing, the system testing stage uses the black box testing method (Setiyani, 2019). The

results of the research will be tested first so that errors can be found that may occur. Testing is done to find out whether users can learn and use the system to achieve their goals (Ningrum et al., 2019) and how big is the level of user satisfaction with the usability and use of the system created.

## RESULTS AND DISCUSSION

### PLAN

Planning based on the results of interviews with sources about the current system can be used as a reference for system developers in building a customer complaint data processing system so that the business context of the system can be known. The results of listening to the answers to several questions to the sources, then compiled in the form of a functional needs analysis. Functional requirements are needed to find out what processes can be carried out by the system, as well as who can use the system being built.

The following are the functional requirements of the system to be developed:

1. Admin, has the task of processing the information submitted on this company profile website, including:
  - a. Processing categories of information submitted such as profile, information center, project, customer feedback and contact.
  - b. Apart from the information category, the admin processes data that will be conveyed to all visitors from the subcategories provided, including company profile, vision and mission, management profile, news, project gallery, document download, organizational structure, project goals, list of customer comments, and contact information that can be contacted.
  - c. Information by the admin can be done on the administrator page configuration, which consists of master data to transaction data.
  - d. Admin holds full rights to changes in information that has been submitted
2. Visitors can survey information on the website and download documents if needed as additional information material. In addition, visitors can send an email to the company if they need other additional information beyond the existing information. Based on observations, interviews and user and functional identification that will be made as the basis for research on designing a website-based company profile, the following data identification such as:
  - a. Company history data
  - b. Photo data of company officials
  - c. Image data
  - d. Contact data
  - e. Company service type data
  - f. Client data
  - g. Organizational structure data
  - h. Additional information

### DESIGN

Design stage using UML models in the form of usecase diagrams and activity diagrams.

#### 1. Usecase Diagram

Usecase diagrams are used to explain the function of the system seen from the actor side for more specific purpose. Figure 3 illustrates the 2 actors owned in this information system, consisting of admin and visitors.

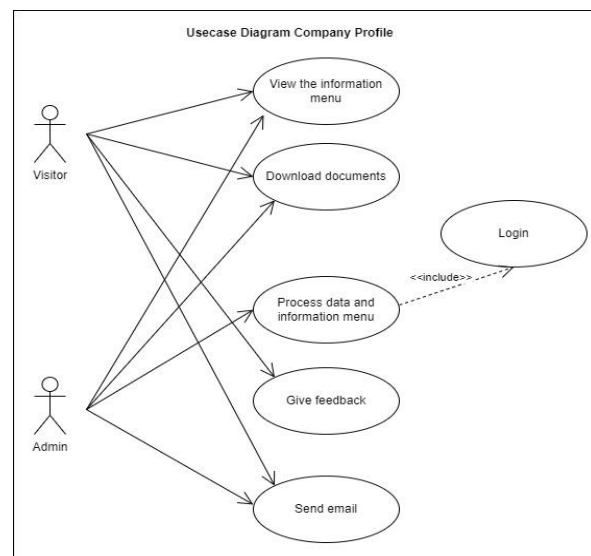


Figure 3. Usecase Diagram of Company Profile Website

The usecase diagram from Figure 3 describes what functions or services can be performed by the administrator or admin and visitors from the system. To perform user data management, the admin is required to register first and then can log in, if successful it will proceed to the dashboard page. On the dashboard page, the admin can process customer complaint data input, manage master data, manage customer complaint transactions, and recap customer complaints.

In the customer usecase, there is a function of processing customer complaint data input, here the intention is that the customer receives a complaint report notification after the data input process from the admin. In the technician usecase, there is a function of managing customer complaint transactions, this includes technicians receiving customer complaint reports from the admin after the process of inputting customer complaint data and providing feedback on repair progress.

#### 2. Activity Diagram

Activity diagrams are used to describe the activities that exist in a system. To understand more

about the system being created, it is necessary to make an activity diagram of the system that will be proposed. The activity diagram that is being proposed is as follows:

A. Activity Diagram – Login

User login then the system will verify the username and password entered by the user as admin. The following Figure 4 is the proposed Login Activity Diagram:

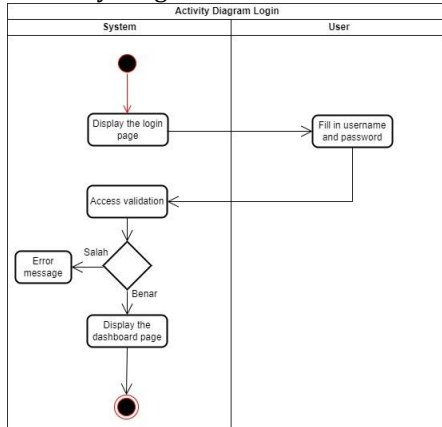


Figure 4. Activity Diagram Login

B. Activity Diagram – Processing information data

The administrator page has features to process information data that will be submitted to visitors to this website. The way for the admin to enter the administrator page is only by adding a login slash at the end of the website url. Then the admin will choose from the available features to make changes or add data as needed. The following Figure 5 is the proposed Activity Diagram:

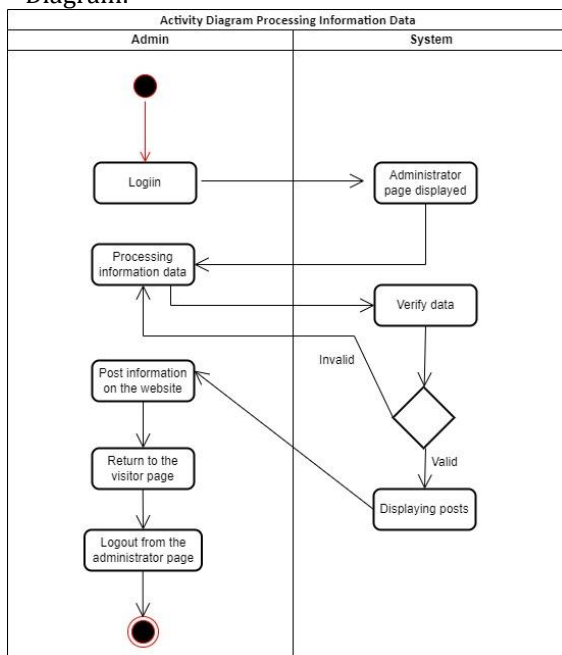


Figure 5. Activity Diagram Processing information data

C. Activity Diagram – Document Download  
 Visitors can download documents that have been provided by the owner through the admin as additional information about the company. the document list is on the visitor's web page. The following Figure 6 is the proposed Activity Diagram:

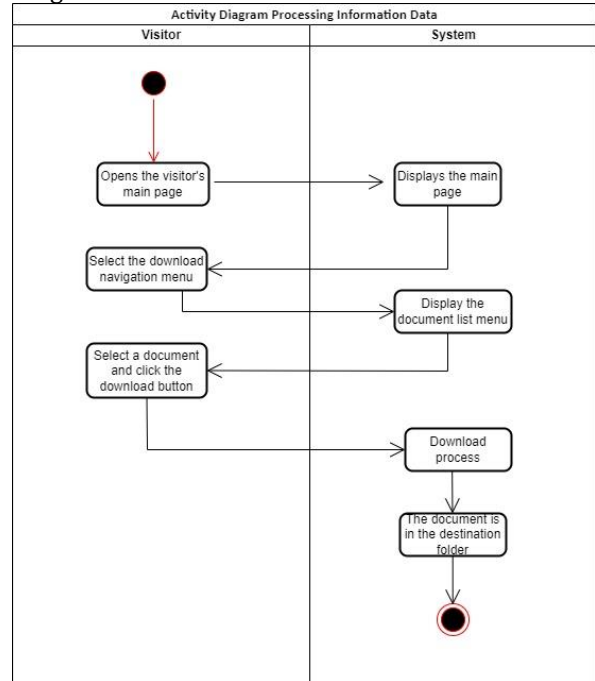


Figure 6. Activity Diagram of Document Download

CODING

The completed program must run well for the user. In the design of the information system Visual Studio Code as software that supports system design that produces the appropriate application program. Operation is carried out by activating the software as a server of the application that has been created then calling the file to be executed.

1. Dashboard Page



Figure 7. Visitor Page

Figure 7 describes the first display encountered by visitors when opening the company link. On this visitor page there are several sub menus that can be seen by visitors which contain various information needed by visitors if cooperation continues.



## 2. Profil Page



Figure 8. Company Profil Page

The profile page in Figure 8 has information related to the history and field of the company. In addition, the profile page contains information related to the field of projects that can be provided with services that are described in detail.

## 3. News Page



Figure 9. News Page

A news page on a website in Figure 9 is a page that serves to display the latest news or other informative content. This page is designed to give visitors easy access to current news, related topics, and possibly additional features such as search, news categories, or other customization options. Here are some of the elements contained in a news page:

- Headline and Date:** Every news story has a headline that grabs the visitor's attention, usually followed by the date of publication to indicate the newness of the information.
- Summary/Lead:** This section contains a summary or lead that gives a brief overview of the news content. The lead aims to attract visitors' interest and explain the gist of the news.
- Images and Media:** News stories are often accompanied by images or other media such as video or audio that support the story and enhance the reading experience.
- News Content:** This section is the core of the news story, containing further explanation of the topic. It should be informative, clear, and well-organized, usually by using organized paragraphs and subheadings for easy reading.
- Related News:** Some news pages may feature a list of related news or related articles that can

interest readers and direct them to relevant content.

- Search:** A search feature that allows visitors to search for news by certain keywords can also be added to the news page.
- News Archive:** This section can include a list of past news stories that have been published, usually organized by date or category, for easy navigation and access to older stories.

The news page on the website should be designed with an attractive appearance, good user experience, and ease of navigation in mind so that readers can easily access the news they are looking for and engage with the content.

## 4. Gallery Page

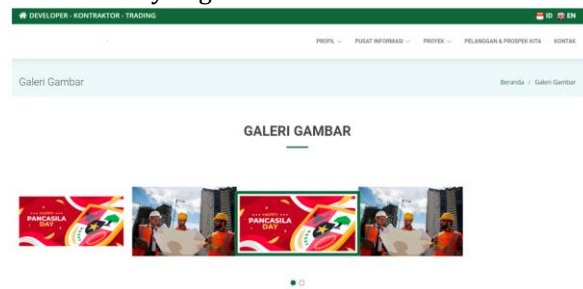


Figure 10. Gallery Page

Figure 10 described the gallery page on a website is intended to display a collection of images or visual media from the form of all company activities or projects. This page allows visitors to see and enjoy various artworks, photos, or other visual content presented by the company. In addition, the gallery page is designed to showcase visual works in an attractive way and make it easier for visitors to explore the collection. It is important to consider an attractive layout, intuitive navigation, and focus on the quality of the images or visual content to provide an optimal experience for visitors.

## 5. Organization Structure Page

The organizational structure page on a website presents information about the hierarchical structure and relationships between parts or work units in the company. This page provides an overview of how the company is organized, who is responsible for each part, and how the relationship between these parts. The organizational structure page aims to provide a clear understanding of the structure and relationships within an organization. The design should be easy to navigate, informative, and give a professional impression that matches the image of the organization.

## 6. Document Download Page

The Document Download page on this website was created with the aim of providing easy and convenient access for visitors to download relevant

or important documents. This page presents a list or direct links to documents available for download, such as PDF files, Word documents, presentation files, forms, guides, or other materials.

There are some of the reasons why a Document Download Page is created on a website, namely easy access for visitors to download the documents they need without having to search for them throughout the site or go through a complicated navigation process. Visitors can quickly see a list of available documents and download them in a few clicks, sharing more detailed or comprehensive information in a downloadable document format, Visitors can read the document offline or save it for future reference, time, and resource savings in accessing information instantly and without having to contact or submit a special request to the company.

It is also important to keep the downloaded documents secure and pay attention to any copyright or usage permissions associated with the documents. In addition, it is also important to provide a clear description or caption on each available document so that visitors can understand the content and benefits of the document they are about to download.

### 7. Our customer and Prospect page

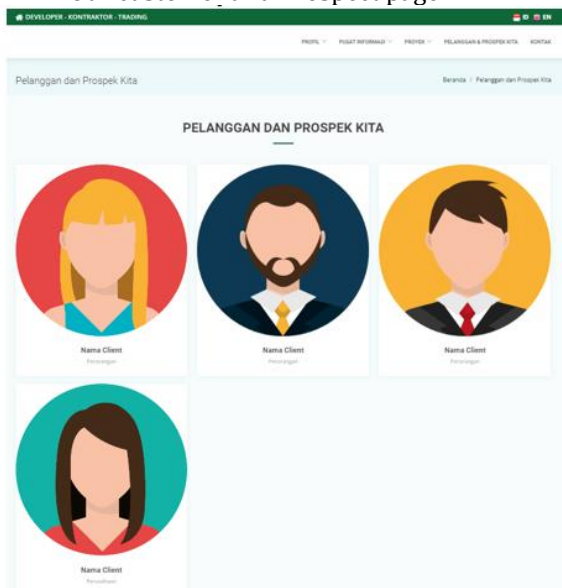


Figure 11. Our customer and Prospect page

Figure 11 described the "Our Customers and Prospects" page on a website is created with the aim of providing information about customers and business prospects who have worked with or are interested in the company or organization that owns the website. This page can include a list or brief description of customers that have been served by the company as well as potential

customers or partners that the company is focusing on.

It is important to ensure that the information presented on the "Our Customers and Prospects" page is accurate and relevant. The Company should obtain consent or permission from customers before including their names or logos in the customer list. In addition, it is necessary to maintain the confidentiality of sensitive information that may relate to such customers or business prospects.

Users can register on the login page if there are new users who will process on this website. Prospective users can fill in their full name, email, and password, then in the last section prospective users can choose a session according to the needs of prospective users. After filling in these data, the admin will verify the prospective user's data so that at the next stage change the status of the prospective user to a user with login access according to the session.

### TESTING

Testing is one of the most important parts of making a program. Testing is done to ensure quality and also find out the weaknesses of the program. The purpose of software testing is to ensure that the software built has reliable quality, which is able to present the main studies of specifications, analysis, design, and coding of the software itself.

Blackbox testing on this company profile website is done by focusing on testing the functionality and performance of the website without paying attention to the implementation details or the code behind it. The purpose of black box testing is to ensure that the website functions properly and in accordance with user expectations. Here are some steps that can be taken in blackbox testing for a company profile website:

#### 1. Testing Plan

Testing this program uses the Black Box testing method. Black Box testing focuses on the functional requirements of the application created as shown in Table 1 as follows:

Table 1. Black Box Test Plan

Test Class	Testing	Type Testing
Navigation Testing	Ensure website navigation works properly	Black Box
Display and Responsiveness Testing	display the website on various devices and screen resolutions to ensure good responsiveness	Black Box

Test Class	Testing	Type Testing
Document Download Testing	Users can download documents that are provided as additional information.	Black Box
Browser Compatibility Testing	make sure the download link works properly and users can download the document without any problems	Black Box
Speed and Performance Testing	pages do not take too long to load	Black Box
Link and Link Testing	no links are broken or lead to the wrong page	Black Box

## 2. Implementation and Results Test

Navigation Testing: Testing the website menus that have been provided functions can be accessed such as the main menu, company profile menu, information center menu, project menu, customer menu and our prospects, and contact menu, and the explanation in Table 2 is as follows:

Table 2. Navigation Testing

Input Data	Which expected	Observation	Conclusion
Select the navigation menu	Display information according to the selected navigation	In accordance with What to expect	[X] Accepted [ ] Rejected
Test Result (Faulty data)			
Input Data	Which expected	Observation	Conclusion
Select the navigation menu	Display information that does not match the selected navigation	Display the selected navigation	[ ] Accepted [X] Rejected

3. Display and Responsiveness Testing: Testing the website display on various devices such as smartphones, notebooks and personal computers and the resolution layer of each device can adjust in the sense that the responsiveness of the website is functioning properly, and the explanation in Table 3 is as follows:

Table 3. Display and Responsiveness Testing

Input Data	Which expected	Observation	Conclusion
Website accessed on <i>smartphones</i> , <i>notebooks</i> , and <i>personal computers</i>	The responsiveness function of the website works according to the device used.	In accordance with What to expect	[X] Accepted [ ] Rejected
Test Result (Faulty data)			
Input Data	Which expected	Observation	Conclusion
Website accessed on <i>smartphones</i> , <i>notebooks</i> , and <i>personal computers</i>	Responsiveness The website does not work when opened on <i>smartphones</i> , <i>notebooks</i> , and <i>personal computers</i> .	Responsive website adjusts to the device being used	[ ] Accepted [X] Rejected

4. Document Download Testing: If the website provides downloadable documents, ensure that the download link works properly and users can download the documents without any issues.

Table 4. Document Download Test Results

Input Data	What to expect	Observation	Conclusion
Select the file to be downloaded on the Download Document page.	The file is downloaded and matches the one selected by the user	In accordance with What to expect	[X] Accepted [ ] Rejected
Test Result (Faulty data)			
Input Data	Which expected	Observation	Conclusion
Select the file to be downloaded on the Download Document page.	It takes a long time to download what you want.	The document download page displays quickly	[ ] Accepted [X] Rejected

5. Browser Compatibility Testing: Test on a variety of commonly used browsers (such as Chrome, Firefox, Safari, and Internet Explorer) to ensure that the website displays properly and works on all these platforms.

Table 5. Browser Compatibility Testing Results

Input Data	Which expected	Observation	Conclusion
Website accessed on browsers including Chrome, Firefox, Safari, and Internet Explorer	Website can display properly on Chrome, Firefox, Safari, and Internet Explorer browsers	In accordance with What to expect	[X] Accepted [ ] Rejected

**Test Result (Faulty data)**

Input Data	Which expected	Observation	Conclusion
Website accessed on browsers including Chrome, Firefox, Safari, and Internet Explorer	Different website views from different types of browsers namely Chrome, Firefox, Safari, and Internet Explorer	Website display remains consistent even though different browsers Chrome, Firefox, Safari, and Internet Explorer	[ ] Accepted [X] Rejected

- Speed and Performance Testing: Check the loading speed of the website to ensure that pages do not take too long to load. Ensure that images and content are well compressed and the cache is set correctly to improve website performance.

Table 6. Speed and Performance Testing Results

Input Data	What to expect	Observation	Conclusion
Opens the gallery page and news page.	Open and display pages quickly	In accordance with What to expect	[X] Accepted [ ] Rejected

**Test Result (Faulty data)**

Input Data	Which expected	Observation	Conclusion
Open the gallery page and news page	It takes a long time to load the desired images, videos, and news.	Gallery and news pages display quickly as well as images and news	[ ] Accepted [X] Rejected

- Link Testing: Check all the links within the website to ensure that none of the links are broken or lead to the wrong page.

Table 7. Link Testing Results

Input Data	Which expected	Observation	Conclusion
Click links and one by one	Go to the appropriate view or page	In accordance with What to expect	[X] Accepted [ ] Rejected

**Test Result (Faulty data)**

Input Data	Which expected	Observation	Conclusion
Click on links and by one	Go to the wrong view or page	Go to the page according to the link and link destination	[ ] Accepted [X] Rejected

Blackbox testing helps ensure that the company profile website functions properly and provides a good user experience. It is also important to test it using representative and diverse data, so as to identify any issues or shortcomings that may arise when used by actual users.

**CONCLUSION**

The development of a company profile information system has significant benefits for companies. With increased visibility, relevant information provided, enhanced professionalism, and wide marketing reach, the company can strengthen its brand image. The system assists the company in effective presentation to the audience, increases the trust of potential clients and business partners, and provides easy access to company information. Thus, the development of a company profile information system is an important investment that brings long-term benefits and helps companies build a strong and successful reputation in today's digital era.

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