



**PRACTICAL WORK - IF184801**

**Website Building for Monitoring Performance on Business Government and Enterprise Service at Telkom Regional II**

PT. Telekomunikasi Indonesia, Tbk.  
Graha Merah Putih  
Jl. Jend. Gatot Subroto Kav. 52  
Jakarta 12710, Indonesia  
Period: 16 January 2023 - 16 March 2023

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DEPARTMENT OF INFORMATICS  
Faculty of Intelligent Electrical and Informatics Technology  
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**VALIDITY SHEET  
PRACTICAL WORK**

**Website Building for Monitoring Performance on  
Business Government and Enterprise Service at Telkom  
Regional II**


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## **ABSTRACT**

This practical work report focuses on the development of a website for monitoring performance on Business Government and Enterprise Service in Telkom Regional II. The objective of this project is to provide a user-friendly platform that enables real-time data and analytics on performance, improving customer experience, and providing access to information about the company's services. The report discusses the problem formulation, which includes the lack of real-time data and analytics, inefficient methods for accessing information, poor customer experience, and the need for an effective website. The report then outlines the architecture design for the website, including the front-end, back-end, database, analytics, and security components. The report concludes with a discussion of the implementation process and the testing and evaluation of the website's functionality and performance. Overall, the practical work demonstrates the importance of website development in monitoring performance and improving the customer experience in the telecommunications industry.

**Keywords:** Website building, monitoring performance, business government and enterprise service, real-time data, telecommunications industry

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## INTRODUCTION

Praise the author to Allah SWT for His inclusion and gift so that the author can complete one of the author's obligations as a student of the ITS Informatics Department, namely Practical Work entitled: Website Building for Monitoring Performance on Business Government and Enterprise Service at Telkom Regional II.

The author realizes that there are still many shortcomings in both carrying out practical work and preparing this practical work report book. However, the author hopes that this report book can add insight to readers and can be a source of reference.

Through this report book, the author would also like to express his gratitude to the people who have helped compile practical work reports both directly and indirectly, including:

1. Author's parents.
2. Mrs. Siska Arifiani, S.Kom., M.Kom. as Lecturer Supervisor.
3. Mr. Widya Gunawan, S.T. as Field Supervisor.
4. Author's teammates who always give encouragement and insights when the author carries out practical work.

Jakarta, 16 March 2023

Author's

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# **CHAPTER I PRELIMINARY**

## **1.1. Background**

The development of technology has greatly impacted the way businesses operate and communicate with customers. In response to this, companies have turned to digital platforms to monitor performance. In the telecommunications industry, Telkom Indonesia provides government, regional enterprises, and business services through its website. To ensure the effective monitoring of performance, the company has decided to build a dedicated website. This website will provide real-time data and analytics on performance, allowing the company to make informed decisions and improve its services. The website will also provide a platform for customers to access information and services, improving the overall customer experience. The aim of this project is to build a user-friendly and efficient website for Telkom Regional II that will help the company monitor performance more effectively especially in the field of regional enterprise, government, and business services.

## **1.2. Purpose**

The purpose of this practical work is to complete the obligation of the practical work value of 2 credits and assist the PT. Telekomunikasi Indonesia, Tbk. to monitoring the performance of one of their fields in the form of a website.

### **1.3. Benefit**

The benefit obtained by having a website to monitor the performance is the website designed to be user-friendly and efficient, allowing staff to access all information and data needed quickly and easily. This will save time and increase productivity. The website will provide real-time data and analytics on performance, allowing the company to make informed decisions and identify areas for growth and improvement.

### **1.4. Problem Formulation**

The problem formulation of this practical work is as follows:

1. How to display data in real time in the form of website application services?
2. How to visualize real time data to monitor the performance of a product?

### **1.5. Location and Time of Practical Work**

This practical work is carried out at the following times and places:

Location : Graha Merah Putih Office  
Time : 16 January 2023 – 16 March 2023  
Working days : Monday – Friday  
Working hours : 08.00 – 17.00 WIB

### **1.6. Practical Work Methodology**

In this chapter, it will be explained about the methodology used in this practical work.



### **1.6.1. Formulation of the Problem**

To find out the needs of the website, we met with Mr. Widya and several colleagues. They asked for the creation of a website that can display data in real time and visualize the data so that it can be analyzed how the performance of product sales that have been carried out so far.

### **1.6.2. Literature Study**

After getting an idea of how the system works, we are told what things will be implemented to make the website operate. This includes raw data in the form of google sheets. In addition, we were asked to make the website look user-friendly so that it will be easy to use for the others in need as well. So, the process of research, learning, and information gathering related o the implementation of the system is carried out.

### **1.6.3. Analysis and Design**

Once what is needed has been notified as well as the results of the literature study, we analyze and create a website interface design. For the website itself uses the HTML programming language wrapped with Tailwind CSS and JavaScript. As for the real time data section we take the API from google spreadsheet according to the existing data.

### **1.6.4. System Implementation**

Implementation is the realization of the previous design stage. At this stage we do the implementation of what we designed earlier and do the deployment.

### **1.6.5. Testing and Evaluation**

After the website has been completed, it is necessary to have an evaluation to test whether the website has displayed data in real time correctly or not. Both for the real time data and for the data visualization.

### **1.6.6. Conclusion and Recommendation**

In this chapter, the conclusions that can be drawn and recommendations for carrying out practical work are presented.

## **1.7. Report Systematic**

In this chapter, a systematic report writing will be explained.

### **1.7.1. Chapter I Preliminary**

This chapter contains the background, objectives, benefits, problem formulation, location and time of practical work, methodology, and systematics of the report.

### **1.7.2. Chapter II Company Profile**

This chapter contains an overview of PT Telekomunikasi Indonesia, Tbk. from the profile to the location of the company where we are working in this practice.

**1.7.3. Chapter III Literature Review**

This chapter contains the theoretical basis of the technology used in completing practical work projects in PT. Telekomunikasi Indonesia, Tbk.

**1.7.4. Chapter IV Analysis and Design Infrastructure System**

This chapter contains the analysis and design of systems used in completing practical work projects in PT. Telekomunikasi Indonesia, Tbk.

**1.7.5. Chapter V System Implementation**

This chapter describes the stages carried out for the implementation process of creating a website for monitoring performance.

**1.7.6. Chapter VI Testing and Evaluation**

This chapter contains the results of trials and evaluations of the website that has been developed during the implementation of practical work.

**1.7.7. Chapter VII Conclusion and Recommendation**

This chapter contains conclusions and recommendations obtained from the process of implementing practical work.

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## **CHAPTER II COMPANY PROFILE**

### **2.1. PT. Telekomunikasi Indonesia Profile**

PT. Telekomunikasi Indonesia, Tbk. (Telkom Indonesia) is a leading telecommunications company in Indonesia, offering a wide range of services to government, regional enterprise, and business customers. Established in 1884 and headquartered in Jakarta, the company provides services such as fixed and mobile telecommunications, internet and multimedia services, information and communication technology services, and infrastructure services. Telkom Indonesia is the largest telecommunications company in Indonesia, with a significant market share in the Indonesian telecommunications industry and a strong presence in Southeast Asia. The company is publicly traded and listed on the Indonesia Stock Exchange (IDX), reporting strong financial performance with consistent revenue and profit growth. Telkom Indonesia is committed to corporate social responsibility, implementing various initiatives aimed at contributing to the sustainable development of the communities in which it operates. The company is dedicated to innovation and is recognized as a leader in the Indonesian telecommunications industry for its investments in research and development and its commitment to bringing new and innovative services and products to market.

## 2.2. Company Logo

The company logo can be seen as mentioned in Figure 2.1.



Figure 2.1. Company logo

## 2.3. Company Vision and Mission

In this chapter, it will be described about vision and mission of the company.

### 2.3.1. Vision

Being the digital telco of choice to advance society.

### 2.3.2. Mission

1. Accelerate the development of infrastructure and intelligent digital platforms that are sustainable, economical, and accessible to the entire community.
2. Develop superior digital talents that help drive the nation's digital capabilities and digital adoption rates.
3. Orchestrate the digital ecosystem to provide the best customer digital experience.



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## **CHAPTER III LITERATURE REVIEW**

### **3.1. Web Programming**

The Web or World Wide Web is an information space that contains documents and other web resources that can be identified through a URL (Uniform Resource Locators, for example [www.google.com](http://www.google.com)) and accessed when connected to the internet. The page of the document provider on the web can be referred to as a website that can be connected to each other (hyperlinks).

Web programming is the process of creating these pages so that they can be accessed by everyone. In creating a website, a standard is needed on the website so that everyone can read information in different circumstances. The standard is HTML (Hypertext Markup Language). So, web programming has the task of creating a page according to HTML standards so that everyone has access to the information on the page.

### **3.2. HTML**

HTML stands for HyperText Markup Language. It is a standard markup language for web page creation. It allows the creation and structure of sections, paragraphs, and links using HTML elements (the building blocks of a web page) such as tags and attributes. It's also worth noting that HTML is not considered a programming language as it can't create dynamic functionality. It is now considered an official web standard. The World Wide Web Consortium (W3C) maintains and develops HTML specifications, along with providing regular updates.

HTML has undergone several revisions, with the latest version being HTML5. HTML5 provides several new features and capabilities, including the addition of multimedia elements (such as `<audio>` and `<video>`), improved semantic elements (such as `<header>` and `<nav>`), and improved forms and data management.

### **3.3. JavaScript**

JavaScript is a scripting or programming language that allows you to implement complex features on web pages every time a web page does more than just sit there and display static information for you to look at displaying timely content updates, interactive maps, animated 2D/3D graphics, scrolling video jukeboxes, etc. you can bet that JavaScript is probably involved. It is the third layer of the layer cake of standard web technologies, two of which (HTML and CSS) we have covered in much more detail in other parts of the Learning Area.

In addition to its client-side capabilities, JavaScript can also be used on the server-side using Node.js, which allows for the creation of full-stack web applications. JavaScript is an object-oriented language that supports event-driven and functional programming styles, making it a versatile and powerful tool for web development.

### **3.4. Tailwind CSS**

Tailwind CSS is basically a utility-first CSS framework for rapidly building custom user interfaces. It is a highly customizable, low-level CSS framework that gives you all of the building blocks you need to build bespoke designs without any annoying opinionated styles you have to fight to override. The beauty of this thing called tailwind is it

doesn't impose design specifications or how your site should look, you simply bring tiny components together to construct a user interface that is unique. What Tailwind simply does is take a 'raw' CSS file, process this CSS file over a configuration file, and produces an output.

One of the key benefits of Tailwind CSS is its customizability. The framework provides a set of configuration options that allow developers to adjust and fine-tune the styles to meet the specific needs of their project. Additionally, the framework includes a set of plugins that can be used to add additional functionality, such as grid layout and hover effects. Tailwind CSS includes classes for a wide range of styles, such as font size, color, spacing, layout, and more. This approach allows for a much faster and more efficient workflow compared to traditional CSS, where styles must be written from scratch.

### **3.5. Google Sheet**

Google Sheets is a web-based application that enables users to create, update and modify spreadsheets and share the data online in real time. Google's product offers typical spreadsheet features, such as the ability to add, delete and sort rows and columns. But unlike other spreadsheet programs, Google Sheets also enables multiple geographically dispersed users to collaborate on a spreadsheet at the same time and chat through a built-in instant messaging program. Users can upload spreadsheets directly from their computers or mobile devices. The application saves every change automatically, and users can see other users' changes as they are being made.

### **3.6. Query**

A query is a request for data or information from a database table or combination of tables. This data may be generated as results returned by Structured Query Language (SQL) or as pictorials, graphs, or complex results, e.g., trend analyses from data-mining tools.

One of several different query languages may be used to perform a range of simple to complex database queries. SQL, the most well-known and widely used query language, is familiar to most database administrators (DBAs).

### **3.7. GitHub**

GitHub is a for-profit company that offers a cloud-based Git repository hosting service. Essentially, it makes it a lot easier for individuals and teams to use Git for version control and collaboration. GitHub's interface is user-friendly enough so even novice coders can take advantage of Git. Without GitHub, using Git generally requires a bit more technical savvy and use of the command line.

GitHub is so user-friendly, though, that some people even use GitHub to manage other types of projects – like writing books. Additionally, anyone can sign up and host a public code repository for free, which makes GitHub especially popular with open-source projects.

As a company, GitHub makes money by selling hosted private code repositories, as well as other business-focused plans that make it easier for organizations to manage team members and security. We utilize GitHub extensively at this project to manage and develop the website.

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## **CHAPTER IV ANALYSIS AND DESIGN INFRASTRUCTURE SYSTEM**

### **4.1. System Analysis**

In this chapter, it will be explained about the stages in building a website infrastructure to monitor performance, namely an analysis of the system infrastructure to be built. This is explained into the general definition of the application.

#### **4.1.1. General Application Definition**

In general, the website project that we created is a website that displays real-time sales data. This website consists of only 1 view, namely admin. Employees who need to see sales data can immediately enter as admin on this website.

### **4.2. System Infrastructure Design**

In this chapter, it will be explained about the system flow and system design on making the monitoring performance website.

#### **4.2.1. System Flow**

For the flow system on the website project, it starts from logging in as an admin. If the credentials are correct it will go to the main page dashboard. If the credentials are incorrect, it will be tried to log in again. After entering the main dashboard page, the admin can see the statistics, line chart, detail data as table, and the agenda. When admin want to look at the full agenda of

the month, admin can go to calendar page. There will be a full description agenda of the month and the agenda list besides of it. The system flow of this website project can be seen as mentioned in Figure 4.1.

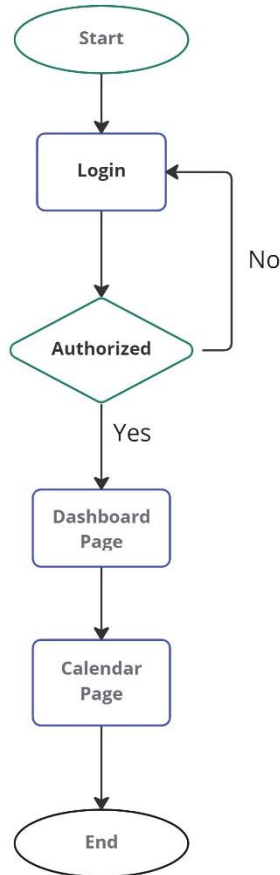


Figure 4.1. System workflow

### 4.2.2. System Design

For the design system on the website project, it starts by making the wireframe first. It contains of lay outing the figure, text, and shapes. So, the result will be a prototype of the website itself. By wireframing, we can customize and choose which component that fit with the website requirements. After the wireframing complete, the next step is to realize the wireframing into the User Interface / UI. By making the user interface, it means we can finalize our prototype.

First, make the wireframe for the login page. That must contain some information for the login step. The wireframe of login page can be seen as mentioned in Figure 4.2 **Error! Reference source not found.** While for the UI of login page can be seen as mentioned in Figure 4.3.



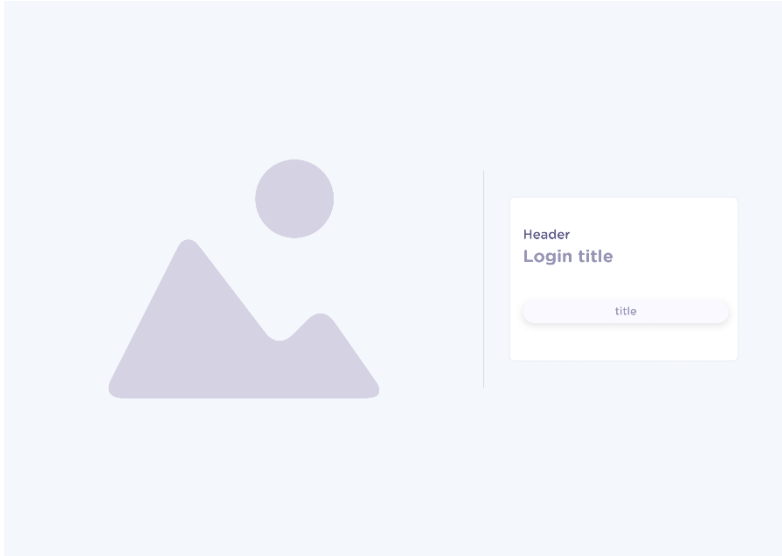


Figure 4.2. Login page wireframe

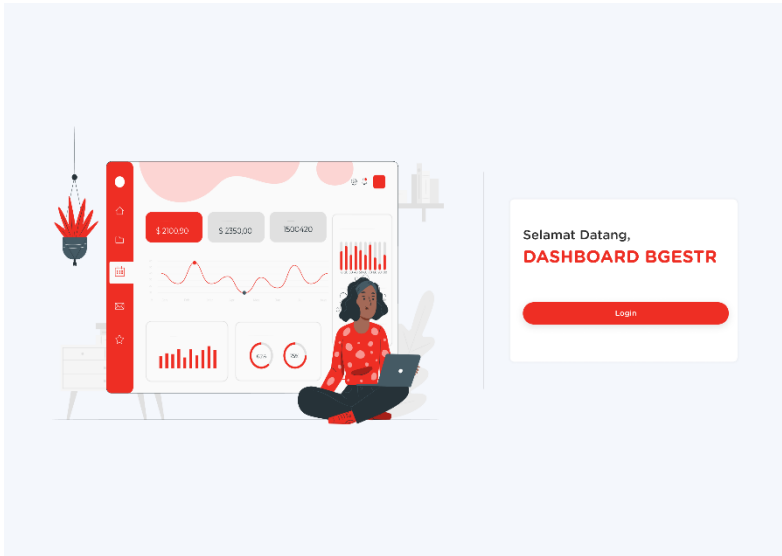


Figure 4.3. Login page user interface

After successfully login, it will be redirect to the dashboard page. In this page there will be a lot of information about the sales data. Some of it in the form of statistics, but some of it in the form of line chart. If the admin wants to look at the detail of transaction it can be seen in the table. Also, there is a list of agenda on besides the line chart in case admin want to look at upcoming agenda it can be seen there. The wireframe of dashboard page can be seen as mentioned in Figure 4.4. While for the user interface of dashboard page can be seen as mentioned in Figure 4.5.

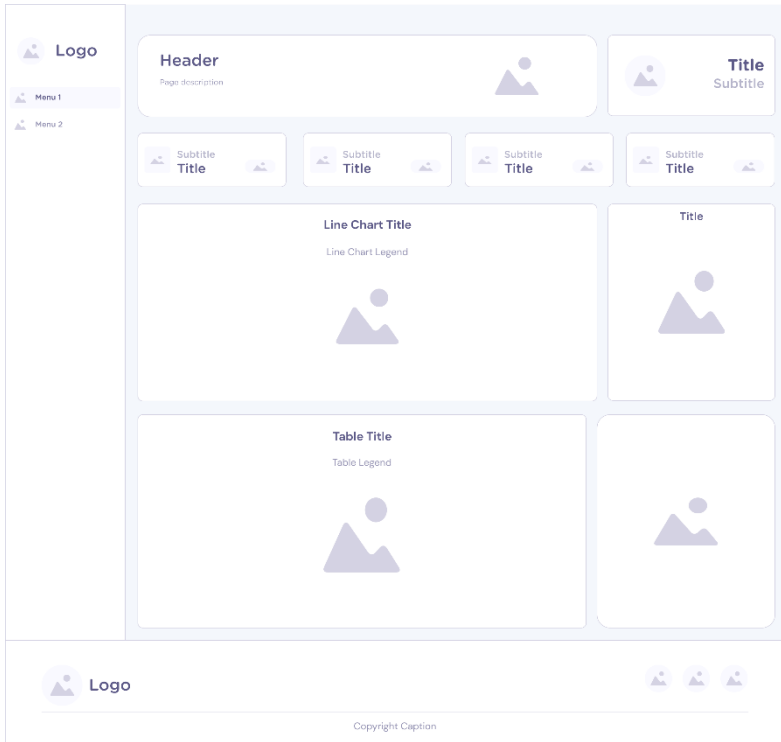


Figure 4.4. Dashboard page wireframe

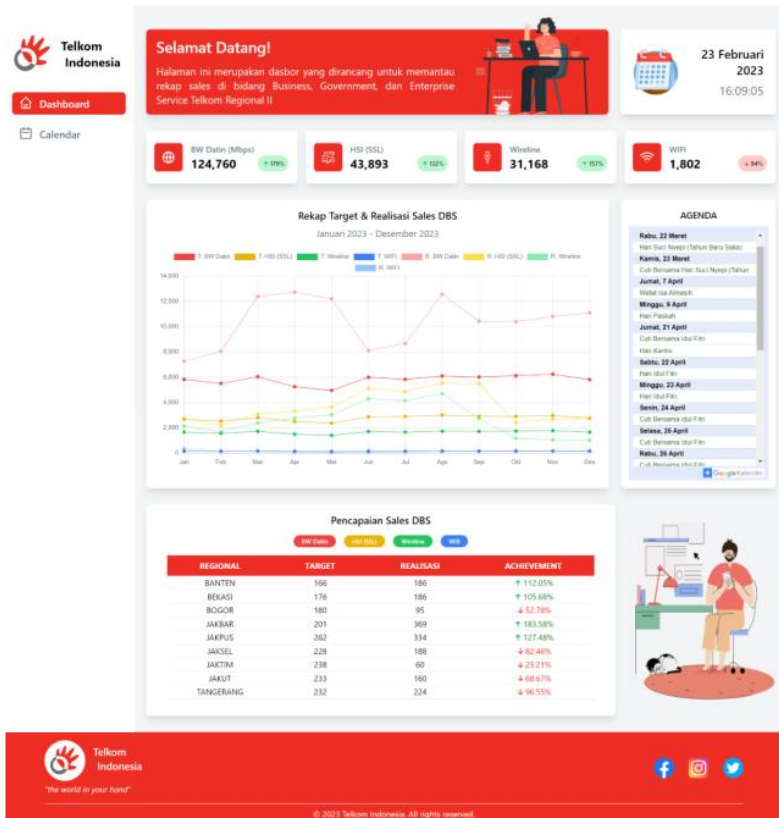


Figure 4.5. Dashboard page user interface

While when admin want to check the full agenda of the month it can be accessed by agenda page. On this page there will be a full calendar of the month and provide the list of agenda besides of it. The wireframe of agenda page can be seen as mentioned in Figure 4.6. While for the user interface of agenda can be seen as mentioned in Figure 4.7.

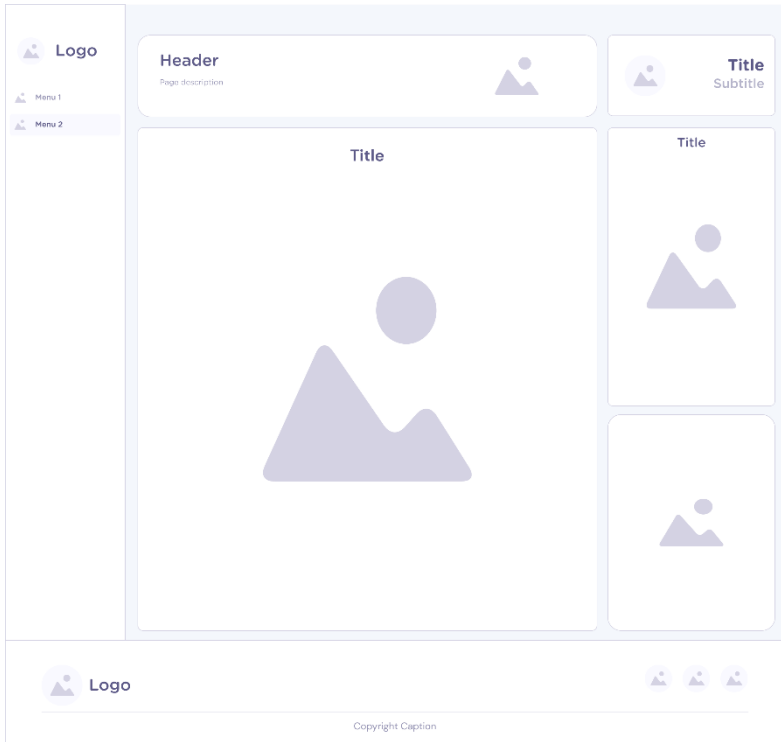


Figure 4.6. Calendar page wireframe

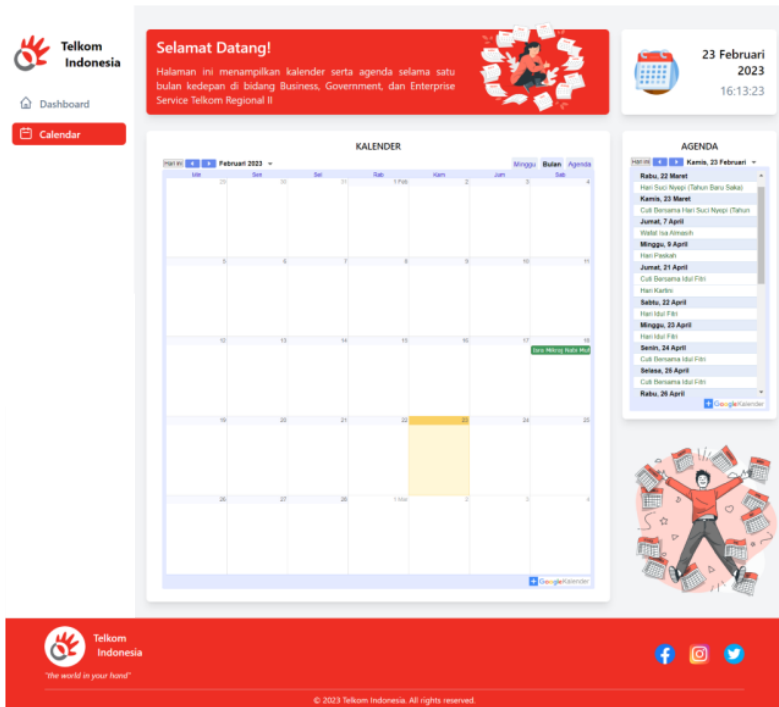


Figure 4.7. Calendar page user interface

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## CHAPTER V

### SYSTEM IMPLEMENTATION

In this chapter, we will explain the implementation stages of making a monitoring performance website using HTML, CSS, and JavaScript.

#### 5.1. Initialize Project

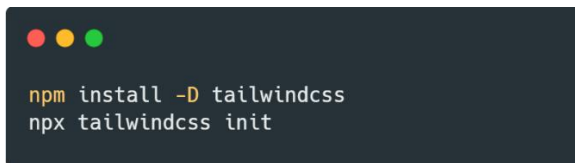
To make a new project, create ‘package.json’ using command line ‘npm init’. The command line can be seen as mentioned in Source Code 5.1.

A terminal window with a dark background and three colored window control buttons (red, yellow, green) at the top left. The text 'npm init' is displayed in a light-colored font.

Source Code 5.1. Initialize project

#### 5.2. Installing Tailwind CSS

Install ‘tailwindcss’ via npm and create the ‘tailwind.config.js’ file. The command line can be seen as mentioned in Source Code 5.2.

A terminal window with a dark background and three colored window control buttons (red, yellow, green) at the top left. The text 'npm install -D tailwindcss' and 'npx tailwindcss init' is displayed in a light-colored font on two separate lines.

Source Code 5.2. Installing tailwind CSS



Add the paths to all of template files in ‘tailwind.config.js’ file. The source code can be seen as mentioned in Source Code 5.3.

```
/** @type {import('tailwindcss').Config} */
module.exports = {
  content: ["/public/**/*.html,js"],
  theme: {
    extend: {},
  },
  plugins: []
}
```

Source Code 5.3. Configure template path

Add the ‘@tailwind’ directives for each of Tailwind’s layers to the main CSS file. The source code can be seen as mentioned in Source Code 5.4.

```
@tailwind base;
@tailwind components;
@tailwind utilities;
```

Source Code 5.4. Add tailwind directives

Add this line of code to ‘scripts’ in ‘package.json’ with name ‘dev’. So, whenever we want to run the project, it must run ‘npm run dev’ command in the terminal. The command line can be seen as mentioned in Source Code 5.5.

```
npx tailwindcss -i ./src/styles.css -o ./public/styles.css --watch
```

Source Code 5.5. Start tailwind CLI build process

Then, start using tailwind in html page by link it to the appropriate page. The source code can be seen as mentioned in Source Code 5.6.

```
<link href="styles.css" rel="stylesheet" />
```

Source Code 5.6. Link stylesheet to html

## 5.3. Creating Login Page

On this step, we create the login page for admin to login to website. This page contains some information for login. After successfully login, admin will be redirect into the dashboard page.

### 5.3.1. Layouting

First thing that need to do is create the layout for all the component in login page. The design refers to the user interface that has been made before. The source code can be seen as mentioned in Source Code 5.7. The result of login page is shown in Figure 5.1.

```

<div class="flex h-screen bg-gray-100">
  <div class="flex w-1/2 mx-20 justify-center items-center">
    
  </div>
  <div class="flex justify-center items-center">
    
  </div>
  <div class="flex justify-center items-center w-1/2">
    <div class="bg-white rounded-3xl shadow-lg py-14 px-14">
      <div class="text-2xl text-gray-700 font-sembold">Selamat Datang,</div>
      <div class="text-3xl text-red-500 font-bold">DASHBOARD BGESTR</div>
      <a href="dashboard.html">
        <div class="bg-red-500 rounded-full shadow-md mt-14">
          <div class="text-white text-xl font-sembold px-32 py-2">Masuk</div>
        </div>
      </a>
    </div>
  </div>
</div>
</div>

```

Source Code 5.7. Layouting login page

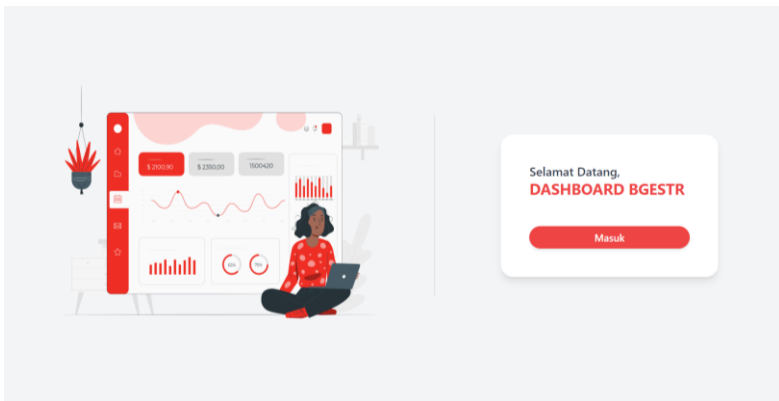


Figure 5.1. Login page implementation

## 5.4. Creating Dashboard Page

On this step, we create the dashboard page for admin to view the data of company performance. The kind of data are some data in the form of statistics, chart, and tables.

### 5.4.1. **Layouting**

Next, create the layout for all the component in dashboard page. Starts from :

- Sidebar
- Greeting cards
- Date and time
- Statistics
- Line chart
- List agenda
- Data table
- Footer

The source code can be seen as mentioned in Source Code 5.8. The result of login page is shown in Figure 5.2. (Data is censored for company privacy)

```

<div class= "dashboard">
  <div class= "main">
    <div class= "sidebar">
      <!-- sidebar goes here -->
    </div>
    <div class= "content">
      <div class= "content1">
        <div class= "greetings">
          <!-- greetings goes here -->
        </div>
        <div class= "date-time">
          <!-- date-time goes here -->
        </div>
      </div>
      <div class= "content2">
        <div class= "statistics-card">
          <!-- statistics-card goes here -->
        </div>
      </div>
      <div class= "content3">
        <div class= "line-chart">
          <!-- line-chart goes here -->
        </div>
        <div class= "agenda">
          <!-- agenda goes here -->
        </div>
      </div>
      <div class= "content4">
        <div class= "data-table">
          <!-- data-table goes here -->
        </div>
      </div>
    </div>
  </div>
  <div class= "footer">
    <!-- footer goes here -->
  </div>
</div>

```

Source Code 5.8. Layouting dashboard page

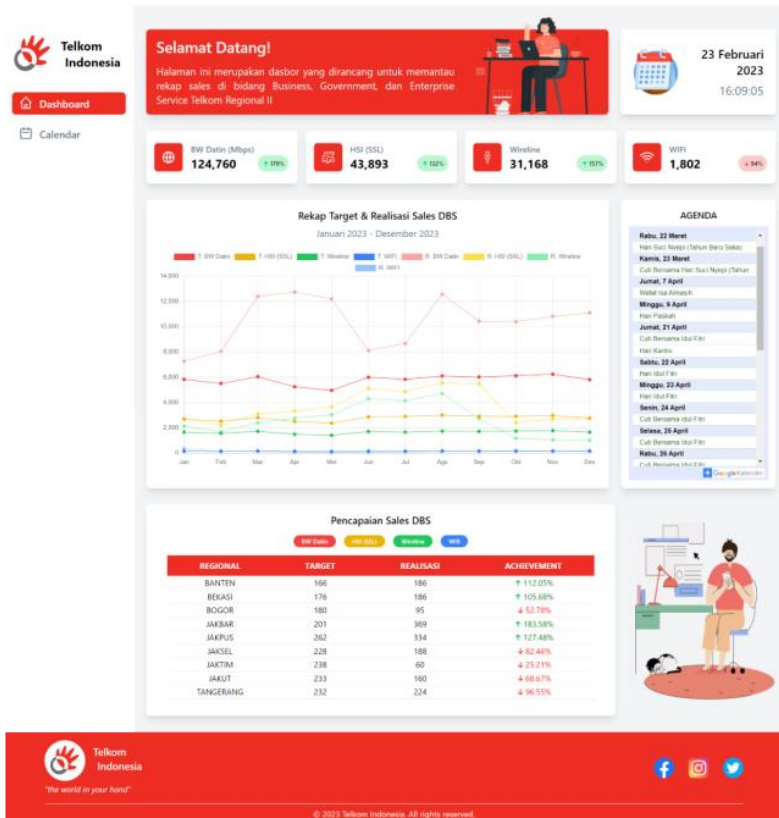


Figure 5.2. Dashboard page implementation

## **5.5. Creating Calendar Page**

On this step, we create the calendar page for admin to view the full agenda of the month. Admin can also add new agenda by clicking the calendar and it will redirect admin to google calendar.

### **5.5.1. Layouting**

Next, create the layout for all the component in calendar page. Starts from :

- Sidebar
- Greeting cards
- Date and time
- Calendar
- List agenda
- Footer

The source code can be seen as mentioned in Source Code 5.9. The result of login page is shown in Figure 5.3.

```
<div class= "calendar">
  <div class= "main">
    <div class= "sidebar">
      <!-- sidebar goes here -->
    </div>
    <div class= "content">
      <div class= "content1">
        <div class= "greetings">
          <!-- greetings goes here -->
        </div>
        <div class= "date-time">
          <!-- date-time goes here -->
        </div>
      </div>
      <div class= "content2">
        <div class= "full-calendar">
          <!-- full-calendar goes here -->
        </div>
        <div class= "full-agenda">
          <!-- full-agenda goes here -->
        </div>
      </div>
    </div>
  </div>
  <div class= "footer">
    <!-- footer goes here -->
  </div>
</div>
```

Source Code 5.9. Layouting calendar page



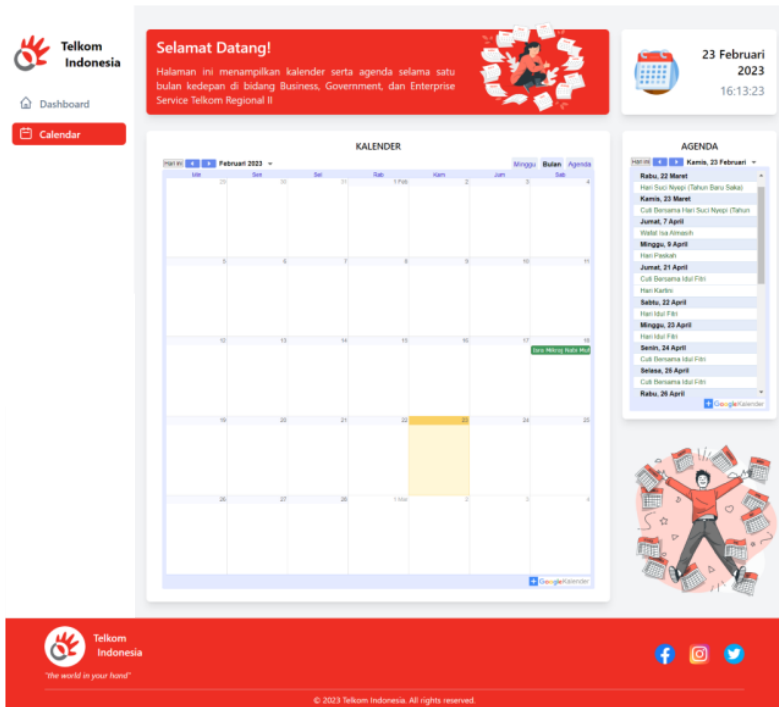


Figure 5.3. Calendar page implementation

## 5.6. Fetching Data

On this step, we fetch the data from google sheets as the database. We use query to get the data and display it using JavaScript. The source code can be seen as mentioned in Source Code 5.10.

```

// global variable for data fetching
const SHEET_ID = SHEET_ID_GOES_HERE;
const SHEET_NAME = SHEET_NAME_GOES_HERE;
const BASE =
`https://docs.google.com/spreadsheets/d/${SHEET_ID}/gviz/
tq?`;

// query1 for fetching statistics-card data
const QUERY1 = QUERY1_GOES_HERE;
const URL1 = `${BASE}&sheet=${SHEET_NAME}&tq=${QUERY1}`;
document.addEventListener("DOMContentLoaded", fetchStat);

function fetchStat(){
  // fetching data for statistics-card
}

fetchStat().then((res) => {
  // display the data for statistics-card
})

// query2 for fetching line-chart data
const QUERY2 = QUERY2_GOES_HERE;
const URL2 = `${BASE}&sheet=${SHEET_NAME}&tq=${QUERY2}`;
document.addEventListener("DOMContentLoaded",
fetchChart);

function fetchChart(){
  // fetching data for line-chart
}

fetchChart().then((res) => {
  // display the data for line-chart
})

// query3 for fetching data-table
const QUERY3 = QUERY3_GOES_HERE;
const URL3 = `${BASE}&sheet=${SHEET_NAME}&tq=${QUERY3}`;
document.addEventListener("DOMContentLoaded",
fetchTable);

function fetchTable(){
  // fetching data for data-table
}

fetchTable().then((res) => {
  // display the data for data-table
})

```

Source Code 5.10. Fetch data using query

## 5.7. Fetching Google Calendar

On this step, we fetch the data from google calendar as a monthly agenda. After getting the data, display the data in the form of calendar to the webpage. The source code can be seen as mentioned in Source Code 5.11.

```
<div class= "google-calendar">
  <iframe src="GOOGLE_CALENDAR_URL_GOES_HERE"
    style="border-width: 0"
    width="275"
    height="500"
    frameborder="0"
    scrolling="no">
  </iframe>
</div>
```

Source Code 5.11. Fetching google calendar

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## **CHAPTER VI TESTING AND EVALUATION**

This chapter describes the trial stage of creating a website to monitor performance in Business Government and Enterprise Service at Telkom Regional II. Testing is carried out to ensure the functionality and suitability of the results of architectural implementation with architectural analysis and design.

### **6.1. Testing Purpose**

Testing was carried out on the creation of a website to monitor performance in Business Government and Enterprise Service at Telkom Regional II to test the website's ability to display the real time data as requested.

### **6.2. Testing Criteria**

The assessment of the achievement of the test objectives is obtained by considering the following expected results :

- a. Architectural ability to serve the appearance of the website.
- b. Architectural ability to login into website.
- c. Architectural ability to display real time data in various forms.
- d. Architectural ability to display agenda of activities in real time.

### **6.3. Testing Scenario**

The test scenario is done by performing the role of the admin who will run the features. The steps for each functionality need are as follows:

1. Admin can open the website.
2. Admin can login into the website.

3. Admin can access the real time data in various forms.
4. Admin can access the agenda of activities in real time.

#### **6.4. Testing Evaluation**

The test results were carried out on observations regarding the behavior of the monitoring performance application in the case of the trial scenario. Table 6.1 below describes the test results of applications that have been created.

Table 6.1. Test evaluation table

| <b>Test Criteria</b>                                  | <b>Test Results</b> |
|---|---------------------|
| Website can be opened by admin                        | Achieved            |
| Admin can login into the website                      | Achieved            |
| Website can provide real time data in various forms   | Achieved            |
| Website can provide agenda of activities in real time | Achieved            |

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## **CHAPTER VII**

### **CONCLUSION AND RECOMMENDATION**

#### **7.1. Conclusion**

The conclusions obtained after developing monitoring performance website on practical work activities at PT Telekomunikasi Indonesia are as follows:

- a. The system architecture built has been in line with the demand.
- b. With the performance monitoring website, Telkom Indonesia's Business Government and Enterprise Service division can easily monitor and manage data to maximize sales potential in the regional II field.

#### **7.2. Recommendation**

Suggestions for designing an architecture monitoring performance website are as follows:

- a. On pages that display the agenda table, a caching mechanism should be carried out so that it does not need to be re-rendered after refreshing the page.
- b. The databases used can be migrated to MySQL, PostgreSQL, or MongoDB to be more secure than previous databases.



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