

**Tribhuvan University**

**Institute of Science and Technology**

**A Final Year Internship Report**

**On**

**“Website Usage Log Dashboard”**

**At**

**Alternative Technology Pvt. Ltd.**

**Submitted To:**

Office of the Dean

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*In the partial fulfillment of the requirement for the Bachelor of Science in Computer Science and Information Technology* *(BSc. CSIT).*

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# ACKNOWLEDGEMENT

This report has been prepared as part of the requirements for my Bachelor's degree in Computer Science and Information Technology, in fulfillment of my internship at **Alternative Technology Pvt. Ltd**. This internship has been an invaluable opportunity for learning and professional growth, and I have had the privilege of working alongside some exceptional individuals who have guided me throughout this journey.

I would like to extend my heartfelt gratitude to my mentor and senior Software Developer, **Ms. Archana Tuladhar**, whose unwavering support and guidance made my transition into the workplace seamless. Her mentorship has been instrumental in enhancing both my theoretical knowledge and practical skills.

I also wish to express my appreciation to my supervisor, **Mr. Chakra Rawal**, for his guidance during the internship and assistance in the preparation of this report. Additionally, I would like to acknowledge the encouragement and support of our college principal, **Er. Anil Lal Amatya**, in fostering our growth.

I consider this internship experience a significant milestone in my career development, and I am committed to applying the knowledge and skills I have acquired in the best possible way.

With Regards,

Ashish Maharjan

(T.U. Roll No. 20984/075)

# ABSTRACT

This report documents the development of a Website Usage Log Dashboard, designed to provide a comprehensive analysis of user interactions with a website. The dashboard allows company to seamlessly monitor and analyze various aspects of website usage, including daily hits, button and link clicks, operating system distribution, IP addresses, and the geographic location of visitors. The information is visualized through various dynamic charts, such as line charts, pie charts, and other interactive Google Charts.

In today's world, where using data to make smart choices is really important, it's vital to know how users behave on a website so that we can make the website's content, design, and features even better. The Website Usage Log Dashboard presented in this report presents the vital metrics stored in a database in an accessible and user-friendly format.

This report outlines the architecture, development process, and technical details of the Website Usage Log Dashboard. Additionally, it discusses the potential benefits and applications of such a tool in web analytics. The Usage Log Dashboard empowers website administrators and analysts with valuable insights into user behavior, facilitating data-driven decisions and continuous improvement in the online user experience.

*Keywords: Dashboard, Charts, Visualization, Analytics, Metrics*

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# LIST OF ABBREVIATIONS

APIApplication Programming Interface

ASPActive Server Pages

ATAlternative Technology

AWSAmazon Web Services

CEO Chief Executive Officer

DOM Document Object Model

HTML Hypertext Markup Language

HTTP Hypertext Transfer Protocol

HTTPS Hypertext Transfer Protocol Secure

IEEE Institute of Electrical and Electronics Engineers

IPInternet Protocol

JSJavaScript

JSON JavaScript Object Notation

JSX JavaScript Extensible Markup Language

MDManaging Director

NPMNode Package Manager

OSOperating System

ROI Return on Investment

SQL Structured Query Language

TSV Tab-Separated Values

UIUser Interface

UI/UXUser Interface/User Experience

URL Uniform Resource Locator

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# CHAPTER 1: INTRODUCTION

## 1.1 Introduction

The importance of websites in interacting with our target audience is more than ever in today's digitally-driven corporate environment. We are aware that the key to improving our internet presence is data-driven decision-making. Understanding how users interact with our website is fundamental to our success. As a result, we are pleased to create our Website Usage Log Dashboard, an advanced tool designed to view detailed insights into user behavior.

This report explores the conceptualization and implementation of our Usage Log Dashboard, a solution that empowers our team with essential knowledge for optimizing content, refining design elements, and enhancing overall functionality. Here, we explore the extensive capabilities of the dashboard, emphasizing its ability to display essential data, such as daily website visits, user engagement with buttons and links, operating system preferences, IP addresses, and the geographic locations of our website visitors.

## 1.2 Problem Statement

The primary issue was the complexity of handling large volumes of text-based data, creating a challenge for administrators in both accessing and visualizing the information. Additionally, the data was scattered across various locations for different months. In contrast, the usage dashboard offers the flexibility to easily view data from any month or year, addressing this issue.

## 1.3 Objectives

* To visualize data.
* To analyze user behavior.
* To make decision on the basis of user behavior analysis.

## 1.4 Scopes and Limitations

### 1.4.1 Scopes

The scope of the Website Usage Log Dashboard is wide-ranging, addressing various critical aspects of website analytics and user behavior monitoring. The collection of data is done beforehand, capturing essential information pertaining to website usage, including user interactions, IP addresses, and the geographic locations of visitors. The dashboard then transforms this raw data into easily understandable visualizations, such as charts and graphs, facilitating informed decision-making. Moreover, it offers in-depth insights into user behavior, tracking how users engage with the website, including interactions with buttons and links.

Furthermore, historical data access provides valuable insights for trend analysis and strategic planning.

### 1.4.2 Limitations

The limitations of the project can be listed out as follows:

* Limited historical data.
* Privacy concerns as the data is stored without the consent of the users.
* Accuracy of data collected may be affected as the hits may also contain the office IPs.

## 1.5 Report Organization

Altogether the report is divided into four different chapters, each representing different phases of the internship report. The chapters can be described as, in **Chapter 1**, it deals with the introductory part of the report and explains what the report is about, what are problem statements, scope and limitation. **Chapter 2** is all about the organization, introduction to the organization, what hierarchy that particular organization follow, working domains of the organization and description of the intern department. **Chapter 3** deals with the internship activities, what are our roles and responsibilities, what are the things we perform over the period of intern and the description of the project we did and the task or activities we performed. **Chapter 4** is all about the conclusion and the things we learned during our internship period.

# CHAPTER 2: ORGANIZATION DETAILS AND LITERATURE REVIEW

## 2.1 **Introduction to Organization**

Alternative Technology is a global company focused on computer graphics innovation for custom carpets. Their solution for custom carpets has significantly empowered the custom rug industry and has transformed the way carpets are designed, produced, and marketed.

Their Virtual Carpet Software Suite is one of the very few global standards for designing and illustrating rugs to clients and exchanging carpet data between the manufacturer and the buyer. The topmost companies dealing with custom rugs worldwide, as well as leading rug producers in Nepal use their software.

In 1997, they started writing a piece of a computer program to convert computer artwork into a graph for hand knotting. Suddenly, a process that took days, sometimes weeks, could be done in minutes. For more than 2 decades, AT have been pushing the boundaries of what can be done through technology in the world of rugs. AT have transformed the way custom carpets are designed, manufactured, and marketed.

AT's mission is to enhance the design, production, and marketing capabilities of custom carpet makers for facilitating a cost-effective and sustainable carpet industry (Alternative,2010).

Table 2.1: Contact Details of the Company

|  |  |
| --- | --- |
| Company Name | Alternative Technology Pvt. Ltd. |
| Address | Khusibun, Nayabazar |
| Contact | 01-4989747 |
| Mail | info@galaincha.com.np |
| Website | https://alternative.com.np/ |

## 2.2 **Organizational Hierarchy**

The company's hierarchical organizational structure is structured with the Chairman at the pinnacle, overseeing the entire operation. Below the Chairman, there are two key leadership roles: the CEO and the Managing Director (MD).

The CEO is responsible for the overall direction and strategic vision of the company, while the MD focuses on key operational aspects.

Under the CEO, there are two critical departments: Development and Operations, each led by a dedicated manager.

The Development Manager supervises a team of Research and Development Engineers and Senior Software Developers. These professionals are responsible for driving innovation and creating cutting-edge products. Additionally, within the Senior Software Developer role, there is an opportunity for interns to gain valuable experience and contribute to the development process.

On the other hand, under the MD's jurisdiction, there are two essential departments as well: Design and Administration, managed by their respective leaders.

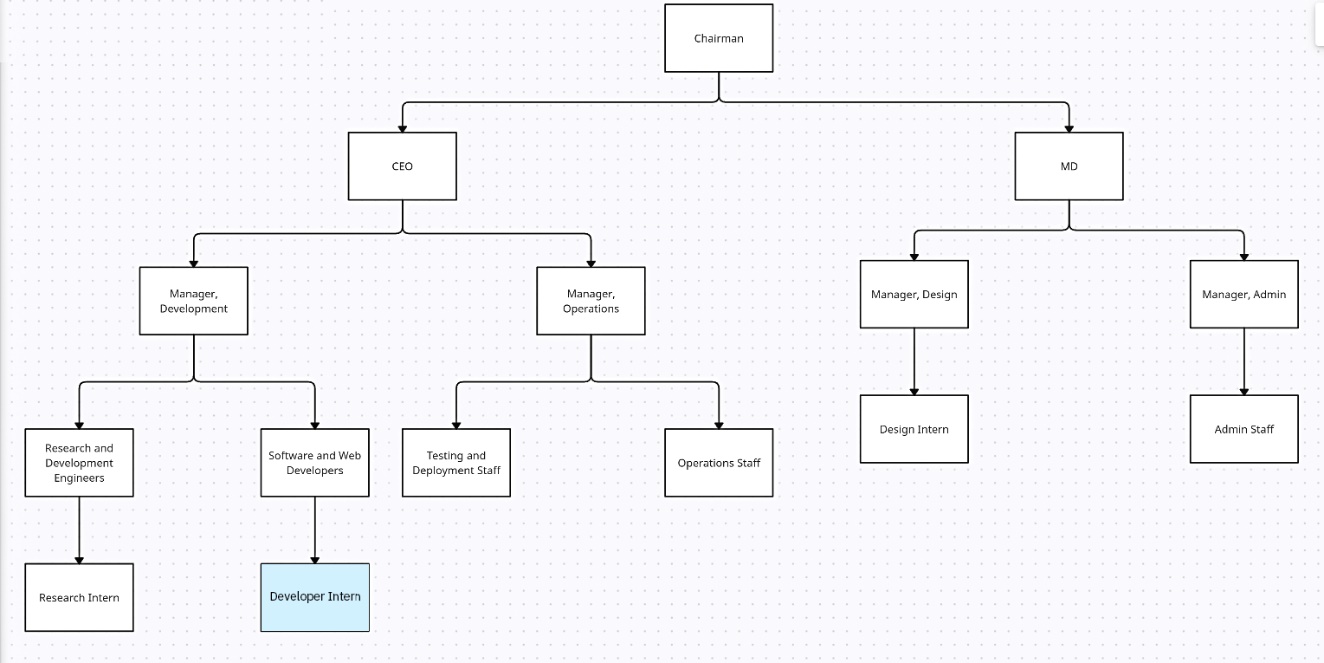


Figure 2.1: Hierarchical Structure of Organization

## 2.3 **Working Domains of Organization**

Alternative Technology Pvt. Ltd. offers a variety of services like Web Development, Mobile Application Development, Digital Marketing, and others such as:

1. Website Development

* React
* ASP .Net
* Python

1. Mobile Application Development

* Flutter

1. Database

* Microsoft SQL Server
* SQLite

1. Task Management

* Trello

1. Code Management

* Bitbucket and Github

1. Deployment

* AWS

## 2.4 **Description of Intern Department**

As a web developer intern at Alternative Technology Pvt. Ltd., the intern will encounter various opportunities within the field of web development. Throughout the internship, the intern will gain practical experience with various technologies and participate in multiple projects, which will significantly deepen the intern's understanding of website development and deployment. The initial phase will focus on becoming acquainted with the company and its ongoing projects. Subsequently, the assigned project will become the primary area of collaboration with fellow interns, as well as junior and senior frontend and backend developers. Senior developers within the organization will assume a critical role in providing guidance and oversight to ensure effective and efficient performance. To successfully fulfill the tasks assigned by the supervisor, maintaining a high level of productivity will be crucial. Furthermore, daily meetings with supervisors will serve as a platform for the intern to provide comprehensive updates on the progress of work.

Table 2.2: Duration of Internship

|  |  |
| --- | --- |
| Start Date | 15th May |
| End Date | 20th August |
| Total Duration | 14 Weeks |
| Position | Web Developer Intern |
| Supervisor | Ms. Archana Tuladhar |
| Office Hours | 9 AM – 5:30 PM |

## 2.5 **Literature Revie w**

React, a powerful JavaScript library for interface development, has significantly influenced modern web development practices. Its official documentation, readily accessible online (React – A JavaScript library for writing interfaces, 2014), serves as an invaluable resource for developers seeking to harness its capabilities. React's unique approach to building user interfaces centers on the concept of components and props, enabling modular and reusable code (Components and Props – React, 2014). This foundational concept facilitates the construction of complex applications with ease, allowing developers to break down the UI into manageable, self-contained elements. Moreover, the introduction of JSX (Introducing JSX – React, 2014), a syntax extension for JavaScript, has streamlined the creation of UI components by combining HTML-like syntax within JavaScript code. This innovative blend enhances code readability and maintainability, fostering more efficient development processes.

React's power extends beyond component-based architecture and JSX syntax. Its management of state and lifecycles (State and Lifecycles – React, 2014) is fundamental to creating dynamic and responsive user interfaces. Understanding how components update and re-render in response to state changes is essential for crafting interactive web applications. React's documentation on thinking in React (Thinking in React – React, 2014) offers valuable insights into designing applications with a React mindset. It encourages developers to think in terms of component hierarchies, data flow, and reusability, ultimately leading to more robust and scalable applications. In sum, React's official documentation plays a pivotal role in educating developers about its core concepts and best practices, empowering them to leverage its capabilities effectively in building modern web interfaces.

Google Analytics, an enterprise-class web analytics tool, has become essential in the digital world for its ability to offer transparent insights into website traffic and marketing effectiveness. It simplifies the collection, analysis, and reporting of data on visitor behavior, page views, and more. Google Analytics is renowned for its user-friendly interface and advanced features, empowering website owners and marketers to optimize site design, drive targeted traffic, and boost profits. In today's internet-dependent landscape, understanding and optimizing web usage through tools like Google Analytics are critical for enhancing the quality of websites, increasing efficiency in marketing efforts, and ultimately improving website ROI. Nonetheless, it is important to acknowledge its limitations and seek better approaches to address specific challenges (Verma D. & Seal D., 2012).

Dashboards, whether in automobiles or organizational contexts, share the primary function of delivering essential information to users without disrupting their core tasks. In organizations, dashboards are pivotal decision-making tools, visualizing data to aid in effective choices. The optimal dashboard strikes a balance between aesthetics and utility, aligning with users' objectives and employing suitable data selection and visualization techniques. While some dashboards may prioritize impressive data presentation, the ideal dashboard prioritizes usefulness by presenting the right data and employing appropriate visualization methods, ensuring users efficiently attain their goals without being overwhelmed by excessive information, ultimately enhancing their decision-making capabilities (Janes, Andrea & Sillitti, Alberto & Succi, Giancarlo, 2013).

# CHAPTER 3: INTERNSHIP ACTIVITIES

## 3.1 **Roles and Responsibilities**

The allocation of tasks assumes the intern's readiness for dashboard development. On a weekly basis, a task review is conducted, and task assignment to the intern is the responsibility of the supervisor. Upon completing each task, the supervisor undertakes a comprehensive review and validation process.

Some of the assigned tasks and responsibilities during the internship period included:

* Engaging in communication with an iframe using the postMessage method.
* Gaining a foundational understanding of Reactjs.
* Developing a URL tool for generating URLs based on provided parameters.
* Creating a Website Usage Log Dashboard.
* Working on the deployment process of the dashboard.

## 3.2 **Weekly Log**

The following section provides a brief overview of the weekly logs for the intern report. Throughout the course of the internship, the intern diligently recorded their activities and tasks on a weekly basis, providing a detailed account of their journey, progress, and contributions to the organization. These logs serve as a valuable record of the intern's hands-on experiences, skill development, and project involvement during the 14-week internship program.

The logs for each week provide a glimpse into the intern's assigned tasks and responsibilities, offering valuable insights into how their role within the organization evolved over time. From initial onboarding and project familiarization to the successful deployment of key projects, these weekly logs capture the dynamic nature of the internship experience.

Table 3.1: Weekly Log of Internship

|  |  |  |
| --- | --- | --- |
| **Week** | **Topic** | **Activity** |
| 1st Week | Onboarding and Initial Tasks | * Introduction to team members and company * Brief study of the products of the company (Galaincha, exploRUG, Ramro Designs, Only 1 Dollar Designs, ONLY hundred) * Setting up an email id, Bitbucket, Trello accounts. * Understanding Html Iframe message. |
| 2nd Week | Design of a basic inhouse React project “URL Tool” | * Requirement analysis of the project * Communicated with designer for the design of the site. * Started React js basics. * Finalized Design. |
| 3rd Week | Project setup | * Installed the necessary packages. * Started building UI of the site. * Reviewed UI progress and made necessary adjustments. |
| 4th Week | Coding Progress and Review | * Continued coding the UI components. * Reviewed the code and optimized. * Finalized the code. |
| 5th Week | Final testing and Deployment | * Test the code and solve the bugs. * Deployed after successful testing to https://developer.explorug.net/url-tool/ |
| 6th Week | New project setup (“Website Usage Log Dashboard”) | * Analysis of the project and understand the workflow of the website. * Communicated with designers for the templates. * Communicated with the backend developer for the APIs. * Setup the tools for the project. |
| 7th Week | Design Finalization and UI coding | * Create a static layout first. * Check for responsiveness. * Study of different npm packages of charts and selecting react-google-charts. * Using primereact as a UI tool. |
| 8th Week | API Integration | * Learn about axios package. * Fetching the usage log file in txt format and converting it into object. * Collaborated closely with backend developers. |
| 9th Week | Coding continuation | * Worked on line chart for daily hits in a month and yearly hits. * Worked on dynamic data fetch according to projects. |
| 10th Week | Pie chart and Map Exploration | * Continued working on OS filter. * Show the number of accessed country with hits on the Maps. * Also, show the hits in the form of table as well. |
| 11th Week | Month and Year dropdown | * Make a dynamic month and year where user can fetch data in any month and year they want. * Show each object in a table format. |
| 12th Week | Add Summary tab | * Add summary tab to compare the hits of all the products. * Handle the error by showing proper error message. |
| 13th Week | Finalizing the code and review | * Code optimization * Review with the supervisor and other teammates for bugs and issues. * Testing and quality checks for improvements. |
| 14th Week | Final Testing and successfully deployed. | * Known bugs and issues solved. * Communicated with supervisor regarding deployment platform. * Deployed the project using file manager tool, FileZilla. |

## 3.3 **Description of the Project(s) Involved During Internship**

The Website Usage Log Dashboard represents a powerful in-house tool designed to provide our company with a visually intuitive means of tracking and comprehending our client's usage patterns. This ambitious project is created utilizing the React.js library in conjunction with a series of APIs, which return data in a text-based format. Previously, the company had faced the challenge of interpreting and visualizing log data presented solely in text format. This limitation led to inefficiencies in decision-making processes and a lack of clarity for our administrators. To bridge this gap, an approach is taken to create this transformative dashboard, aimed at rendering our data in a visually comprehensible format, empowering administrators to make informed decisions and much more.

Within this dynamic dashboard, administrators possess the remarkable ability to filter data based on various criteria, including product lines, specific months, and years. Furthermore, it provides an insightful summary of all products, enabling a high-level view of our website's performance. The dashboard's features are as comprehensive as they are powerful, offering a daily breakdown of hits within a month, hit statistics per operating system, monthly hit metrics, a world map displaying countries with access, individual hit details, and number of buttons, links, and images clicked. This visionary dashboard revolutionizes how company used interact with and interpret their data, ultimately fostering more informed decision-making and enhancing understanding of user behavior on the website.

Key features and functionalities of the Usage Log Dashboard include:

1. **Daily Hit Tracker**: Company can monitor daily website traffic trends, gaining insights into peak usage times and identifying potential performance issues.
2. **Button and Link Click Analysis**: The dashboard records and visualizes user interactions with buttons and links, aiding in the assessment of the most engaging and effective website elements.
3. **Operating System Breakdown**: Company can view the distribution of different operating systems used by visitors, helping in optimizing website compatibility.
4. **IP Address Tracking**: The dashboard logs IP addresses of users, which can be valuable for security monitoring and personalization.
5. **Geographic Insights:** Utilizing Google Maps integration, company can see the geographical locations of website visitors, enabling targeted marketing efforts and content localization.
6. **Interactive Charts:** Data is represented through dynamic charts, including line charts for trend analysis, pie charts for category distribution, and Google Maps for geographic visualization.

## 3.4 **Task / Activities Performed**

Throughout the internship, the intern focused on gaining a solid understanding of the fundamental workflow of web applications. During the internship, the intern worked on understanding how web applications function. They learned how different parts of a web app, like the front-end, back-end, and database, all work together. They also got to see how web apps are put on the internet using AWS.

Here's a breakdown of the tasks and activities undertaken:

1. **Project Initiation**

Before initiating the project, a series of essential preparatory steps were undertaken. It commenced with a thorough requirement analysis and feasibility study, involving collaboration with teammates and senior professionals. As it was an in-house project, there were no client requirements, allowing for some flexibility to make minor project changes. The team responsible for the project was finalized during this phase.

One of the prerequisites for project initiation was the availability of data, which had already been collected and stored in the backend systems. This data would serve as the foundation for the dashboard's functionality, making it imperative to ensure its accessibility and readiness.

The design phase was really important because it helped decide how the project would look. The design team worked carefully to create the pictures and layout for the dashboard. Once they finished a basic prototype, the building of dashboard started.

The first step in development was setting up the development environment. This involved configuring the Visual Studio Code with the appropriate settings and extensions, ensuring that the development environment was optimized for efficiency and productivity. After the environment was configured, the intern proceeded to kick-start a React project, laying the technical foundation for the dashboard.

1. **Package Selection**

The project involved the selection of npm packages to simplify the development process. These npm packages were chosen to simplify development, improve the user interface, and enable key features such as handling HTTP requests, navigation, and creating visually appealing charts for the dashboard project. Here's an overview of the chosen npm packages:

* **Axios:** Axios is a widely-used JavaScript library for handling HTTP requests. It was utilized in the project to facilitate communication with APIs, making it easier to send and receive data from the server.
* **Primereact:** Primereact serves as a set of pre-designed UI components tailored for React applications. These components are customizable and helped in building the project's user interface efficiently, saving valuable time and effort.
* **React-Google-Charts:** This library enables the integration of Google Charts into React applications, offering various chart types like line charts and pie charts. It was employed to create visually appealing and informative charts for the dashboard.
* **React-Router-Dom:** React-Router-Dom is a package designed for navigation in React applications. It was crucial for creating dynamic, single-page applications with multiple views, allowing seamless navigation between different sections or pages within the dashboard.
* **Primeicons:** This library complements Primereact. It provides an extensive collection of icons to enhance the visual elements of the dashboard.

1. **API Integration**

Axios was used to retrieve log data from a database via a specific URL. The response received from this URL contained a collection of TSV data. Each row within this dataset provided detailed information, including:

* **IP Address:** This field recorded the IP address of the user who accessed the website.
* **Country:** It indicated the country from which the website was accessed, providing geographical context.
* **Access Date and Time:** This timestamp noted when the access to the site occurred, capturing both the date and time.
* **Product Name:** This entry specified the name of the product being accessed or interacted with on the website. The product may be alternative, galaincha, only1dollar and ramrodesigns.
* **Operating System (OS):** It documented the type of operating system used by the user when accessing the website.
* **Event Triggered:** This part of the data indicated which specific button, link or image was triggered during the user's interaction with the website.

The data retrieval process was organized on a monthly basis. This meant that there were separate APIs or endpoints for each month, allowing for the retrieval of log data specific to that particular month.

1. **TSV to JSON Conversion**

A function named “convertTSVtoJSON” was created to transform TSV data into a JSON (JavaScript Object Notation) format.

Here's how the function works:

* It takes tsvData as input, which is the TSV data to be converted.
* The TSV data is split into an array of lines using regular expressions (/\r\n|\r|\n/g). Empty lines are filtered out to ensure data integrity.
* An array named tsvHeaders is defined, which represents the keys (headers) for the resulting JSON objects. These headers correspond to the different pieces of information in the TSV data.
* The formattedData array, containing arrays of TSV values, is mapped to JSON objects. For each line of TSV data, a new JSON object is created.
* Within the mapping process, the reduce function is used to iterate over the tsvHeaders and create key-value pairs in the JSON object. Each TSV value is assigned to its corresponding key (header).
* Finally, the function returns an array of JSON objects, where each object represents a row of TSV data converted into a structured JSON format.

1. **Development**

The focus was on the visual and interactive aspects of the web application's layout, ensuring that it was user-friendly, responsive, and provided the necessary features for data presentation and navigation. This layout included several key elements and features:

* **Navbar:** The navigation bar for the application was designed and implemented. The navigation bar contained products name that allow users to navigate to different products within the dashboard.
* **Charts Setup:** Various charts using React Google Charts were set up. These charts were likely used to visually represent data and statistics related to website usage. Charts can include different types like line charts, pie charts, and more.
* **Data Tables:** Data tables were created using PrimeReact components. Data tables are essential for displaying tabular data in an organized and user-friendly manner. They include features like sorting, filtering, and pagination.
* **Dropdown Logic**: Logic for dropdown menus, particularly for selecting months and years, was implemented. Dropdown menus are useful for allowing users to filter and view data for specific time month and year.
* **Responsiveness:** The layout design focused on ensuring responsiveness. This means that the web application was designed to adapt and display correctly on various devices, including mobile devices. Responsive design is crucial for providing a seamless user experience.
* **React Router DOM:** Routes were set up using React Router DOM. Routing allows different sections or pages of the web application to be accessible via specific URLs. It helps in organizing the application's structure and navigation.
* **Reducers:** Reducers were created to manage complex state changes. Reducers allows you to update parts of your component's state when certain actions are dispatched.

1. **Google Chart Implementation**

The responsibility was to implement the logic for displaying various types of charts within the web application. These charts were essential for visually representing data and statistics related to website usage, providing users to gain insights from the presented data in a user-friendly and visually engaging manner

The primary tool used for chart implementation was the React Google Charts library, which offers a range of chart types to choose from. The specific chart types included line charts, pie charts, and maps, and each type was employed based on the requirements of the dashboard.

To achieve this, careful data processing was required to ensure it conformed to the format expected by the <Chart /> component provided by React Google Charts. This data transformation was critical in making sure that the charts accurately reflected the underlying website usage data as the data must be passed in the format that can be read by the react-google-charts package.

The appearance and styling of the charts can also be changed as desired. This involved configuring various options within the <Chart /> component to control aspects such as colors, text labels, font sizes, and more. These styling choices aimed to make the charts visually appealing and easy to interpret for users.

1. **Deployment**

Two crucial aspects were addressed: code optimization and testing.

* **Code Optimization:** In this phase, the code underwent a review and enhancement process to improve its efficiency and performance. This typically involved identifying and rectifying any bottlenecks or areas where the code could be made more streamlined. Code optimization aims to reduce resource consumption, enhance response times, and ensure the application runs smoothly even when handling a substantial amount of data or user interactions.
* **Testing:** The testing phase is integral to ensure the web application's reliability and functionality. It involves systematically running various test cases to identify and rectify bugs, errors, or inconsistencies in the code. This encompasses unit testing, integration testing, and user acceptance testing, among others. The goal was to ensure that the application behaves as expected, meets all requirements, and is free from critical issues that could impact its usability.

Once the code was optimized and thoroughly tested, it underwent approval by senior team members to ensure it met the required standards and fulfilled the project's objectives. After obtaining the green light from senior reviewers, the website was ready for deployment.

For deployment, an Amazon Web Services (AWS) EC2 instance running Windows Server was created. The website's build folder was hosted on this server. Additionally, necessary security protocols such as HTTPS were implemented to safeguard data transmission and user interactions. Domain name updates were carried out by the senior team, ensuring that the website could be accessed via a user-friendly and recognizable web address.

This internship not only acquired a solid grasp of web application development but also gained practical experience in deploying applications, enriching skill set in this dynamic field.

# CHAPTER 4: CONCLUSION AND LEARNING OUTCOMES

## 4.1 Conclusion

The completion of this internship provided a valuable opportunity for gaining insights into web development and the corporate world. The experience deepened understanding of how projects begin, evolve, and adapt to changing needs. Besides web app development, it involved learning about the best ways to design systems, optimize code, and make it efficient. Networking played a crucial role in connecting with others in the field and expanding perspectives. This internship emphasized the importance of communication, teamwork, and open discussions for project success. It also highlighted the ongoing potential for improvement, showing that there's always room to get better. In essence, this hands-on experience helped shape a more well-rounded person. It acted as a mirror, revealing strengths and areas to work on, ultimately guiding the path for self-improvement. Gratitude is extended to everyone who contributed to making this internship educational. This experience not only taught technical skills but also instilled adaptability and a commitment to continuous learning, which will undoubtedly influence future endeavors.

## 4.2 **Learning Outcomes**

This internship provided a comprehensive learning experience encompassing technical skills, project management insights, and essential soft skills necessary for a successful career in web development and related domains. The learning outcomes of this internship report encompass several key areas:

* **Practical Web Development Skills:** Practical experience was gained in web development, including the use of React.js, Axios, Google Charts, and other relevant technologies. These skills are applicable to future web development projects.
* **Project Management Insights:** Valuable insights were obtained into project initiation, task allocation, and the overall project development process within a real-world corporate context.
* **Data Handling and Conversion Proficiency:** Proficiency was developed in handling and converting data, such as parsing TSV data into JSON format, which has broader applications in data processing and analysis.
* **UI/UX Design Principles:** The report highlights the creation of a user-friendly dashboard layout with a strong emphasis on responsiveness, demonstrating an understanding of fundamental UI/UX design principles.
* **Code Optimization and Testing Skills**: Participation in code optimization and testing processes underscored the importance of delivering efficient, error-free code.
* **Deployment and Hosting Proficiency:** Proficiency was achieved in deploying a web application on an AWS EC2 instance and configuring domain settings, which is a practical skill for future web projects.
* **Soft Skills Development:** The report highlights the significance of communication, teamwork, and open dialogues in project success, emphasizing the importance of these soft skills.
* **Problem-Solving Skills:** Addressing real-world challenges within the project bolstered my problem-solving acumen, a quintessential attribute in the IT industry.

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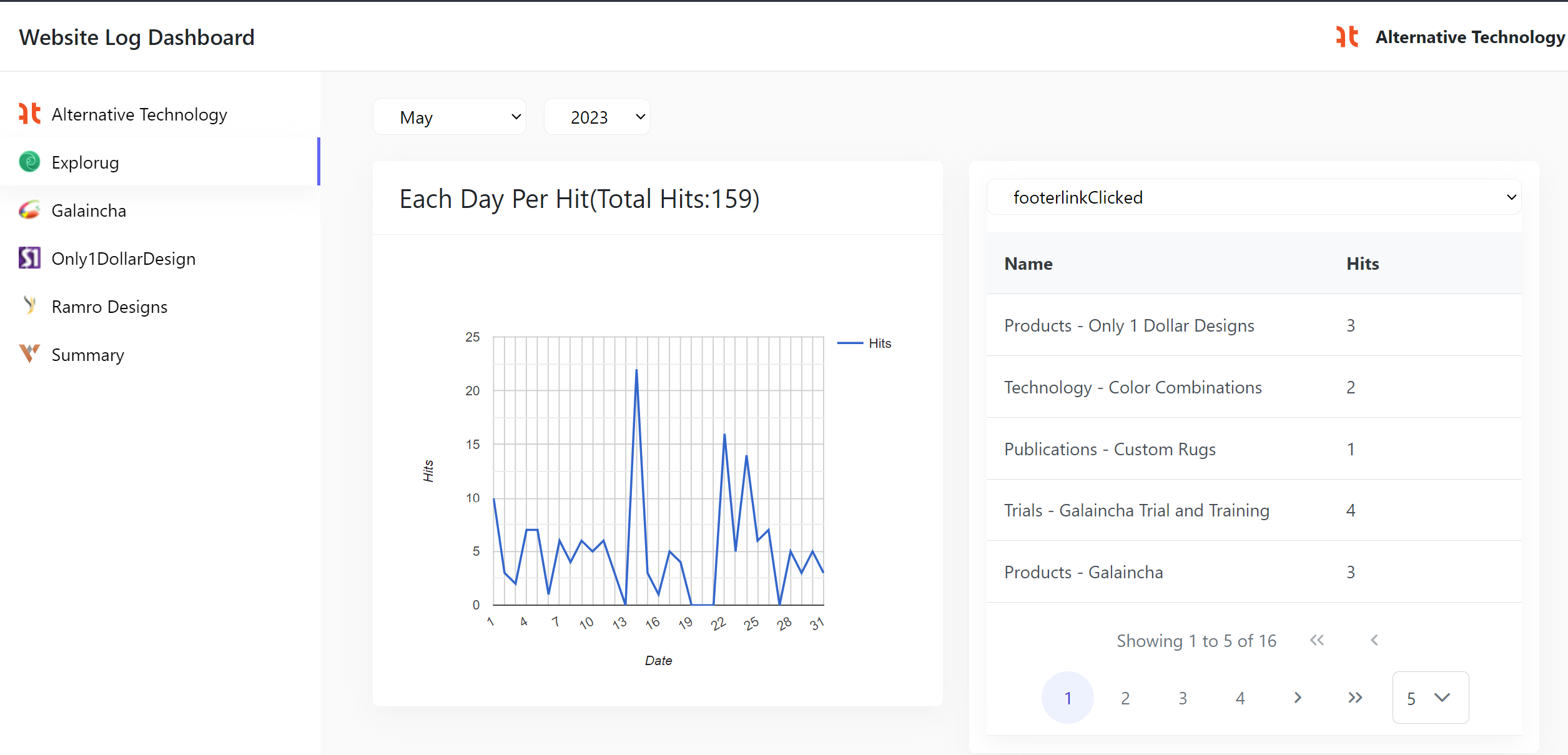
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# APPENDICES

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