

Final Thesis Report Internship as a Web developer Engineer

by

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in partial fulfillment of the requirements for the degree of
B.Sc. in Computer Science

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Declaration

It is hereby declared that

1. The thesis submitted is my own original work while completing degree at Brac University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

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Approval

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Abstract

This report highlights the way of creating a website structure during my internship as a web developer. The website structure is built in HTML and CSS. My main focus while making this report was to make it easy to access and accessible on different screens. This project involved designing the layout, building a navigation menu, and ensuring the site worked well on smaller screens. By doing this project, I learned valuable skills in web design. Additionally, it explains the features, challenges and the solution.

Keywords: website; HTML; CSS; navigation menu; Layout;

Acknowledgement

In the beginning, I would like to thank the almighty Allah for his kindness and help me to complete my report on time. I am really lucky to have interned at BDCOM Online Ltd. as a web developer. I would like to thank my internship supervisor and co-supervisor, Md. Saiful Islam and Arif shakil sir, for their unwavering support and guidance throughout my internship journey. I am also deeply grateful to the Department of Computer Science and Engineering at BRAC for arranging this internship opportunity and providing me with the necessary support and guidance throughout the process.

I would also like to thank the entire team at BDCOM for their warm welcome, camaraderie, and support during my internship period. I learnt a lot about the software development profession from their eagerness to share their knowledge and skills.

Finally, I am deeply grateful to my loved ones for their constant encouragement, support, and love throughout my academic and professional journey. I have been continuously motivated and inspired by their belief in me. Thank you to everyone who has contributed to my internship success and professional development. The chances and encounters I have experienced at BDCOM Online Ltd. are invaluable. I am very thankful for them. I am confident enough that the skill I gained from this internship will be invaluable to develop my career in web development.

Table of Contents

Declaration	i
Approval	ii
Abstract	iii
Acknowledgment	iv
Table of Contents	v
List of Figures	1
1 Introduction	2
1.1 Objectives of the Report	2
1.2 Background	2
1.3 Rational	3
2 CONSTRAINTS/CHALLENGES	4
2.1 Identified/Observed in the Organization	4
2.2 Academic Preparation	4
2.3 Personal/Professional Skills	5
2.4 Interpersonal Skills	5
2.5 Analytical Skills	5
3 Projects and Responsibilities	6
3.1 My tasks	6
3.1.1 PHP	6
3.1.2 HTML/CSS	9
3.1.3 Understanding Semantic Meaning:	10
4 My Final Project	11
4.1 Building a website:	11
4.2 Structure:	11
4.3 Header	11
4.4 Main Content Area	14
4.5 Footer	16
5 ACQUIRED KNOWLEDGE	17
5.1 Consequences to Organization	17
5.2 Implications to University's Internship Program	17

5.3	Effects on Personal/Professional Skills	18
5.4	Time Management	18
5.5	Soft Skills	19
5.6	Discipline	19
5.7	Attire	19
5.8	Learning Capability	19
6	Conclusion	20
6.1	Looking Forward	20
6.2	Highlighting Initiative and Problem-Solving	20
6.3	Concluding Words	20
	Bibliography	21

List of Figures

3.1	PHP-Inserting infix expression	8
3.2	PHP-Simplified result	8
3.3	CSS-Before hover	9
3.4	CSS-After hover	9
4.1	Website Header	12
4.2	Collapsed burger menu	13
4.3	Expanded burger menu	13
4.4	Website body/Main Content Area	15
4.5	Website Footer	16

Chapter 1

Introduction

1.1 Objectives of the Report

A report from an internship accomplishes two things. First of all, it serves as a professional portfolio that highlights my capacity to apply what I've learned in the classroom to actual circumstances. I am able to list the tasks I completed, the abilities I acquired, and the value I added to the company.

This report can also be described as a mirror. Writing this report allows me to clarify my problems and let me figure out the sections that I have to improve more. My ability to reflect on myself helps me improve both professionally and in writing communication.

1.2 Background

BDCOM Online Ltd. was established as a privately held company on February 12, 1997, in accordance with the Companies Act, 1994, and officially registered with the Registrar of Joint Stock Companies. Later on, the company underwent a conversion process in 2001, transforming into a Public Limited Company in order to offer its shares to the general public.

BDCOM is authorized by the Bangladesh Telecom Regulatory Commission (BTRC) to provide nationwide services including Internet, data communication, IP telephony, and vehicle tracking[1] It has acquired an ISP license from BTRC. Up until now, BDCOM has established its name by focusing on long-range systems operating at frequencies of 2.4 GHz and 5.8 GHz. BDCOM provides Layer 2 and Layer 3 connections, wireless services for IP VPN Wide Area Network (WAN), Internet access, and Virtual LANs (VLANs). BDCOM provides its clients with safe WAN connectivity by using industry-standard security equipment. BDCOM always prioritizes the quality of service and security, which are the primary factors for evaluating a wide area network (WAN) connection. BDCOM has obtained clearance from BTRC to provide Domestic Data Communication services. Currently, BDCOM has established its network in 493 out of 509 Thanas in the nation. Furthermore, BDCOM has a goal to extend its coverage to the remaining districts of the country within one year [1].

BDCOM is a reputable provider of nationwide internet service, secure data connectivity, IP telephony service, system integration, and managed service. BDCOM offers a range of services, including Software Development, Fleet Management and

Vehicle Tracking Solution, IT Infrastructure Development, BPO, and more. BDCOM has always embraced the notion of "Total Excellence" as its guiding philosophy, which influences all of its actions. BDCOM is a leading company in the service sector that focuses on providing high-value ICT solutions for both national and international markets.

BDCOM has a greater number of implementations, a team of devoted engineers, and a higher level of technical knowledge compared to any other Data Communication competitor in the industry.

BDCOM's robust financial position, seasoned management team, extensive range of solutions, and diverse customer base will further solidify its dominant position as the top provider of Data Communication Solutions in the Wireless Communication sector.

1.3 Rational

An internship report is a written document that showcases the intern's tasks and duties during the duration of their internship. This internship provided me with an exceptional chance to use my academic knowledge and assess my future professional path. I would acquire proficiency in the real world through the execution of responsibilities as an employee inside an enterprise.

Additionally, it would be the best way to learn about a different work environment which is helping me to figure out the suitable job for me. It would help me to build up a strong network which can improve my professional abilities easier. Employing this approach would greatly enhance my job search efforts and significantly improve my resume, maximizing my prospects of securing employment. I am deeply engrossed in the field of software development.

Chapter 2

CONSTRAINTS/CHALLENGES

During my internship at BDCOM Online Ltd., I experienced a range of challenges that helped my growth on a personal and professional level. Although these issues were first considered to be difficulties, they eventually offered enlightening teaching opportunities that enhanced my ability to be resilient, adaptable, and solve challenges.

2.1 Identified/Observed in the Organization

My first job at BDCOM Online Ltd. was full of difficulties, thrills, and satisfaction. I felt like home in the warm office environment, which helped me to adjust with the world of professional employment. I was able to concentrate on my work during the office time as they provided me with a personal sitting space. In the beginning, I faced a lot of trouble understanding what I had to do for work.

However, the sincere, friendly, and cooperative attitude of employees helped me to overcome these challenges with ease. While my trainer was my primary mentor, I also sought guidance from other team members to enrich my learning experience.

2.2 Academic Preparation

After completing my internship, I gained a clear understanding of the significant gap between the theoretical knowledge imparted in university courses and the practical realities of the workplace. Despite my satisfaction with my academic skills and knowledge, I realized that they were inadequate for navigating the complexities of a corporate environment. BRAC university played a pivotal role in bridging this gap by providing me with valuable insights into the competitive world and professional environment. This internship experience significantly enhanced my project-related software development and problem-solving abilities, preparing me for the challenges that lie ahead. I am deeply indebted to BDCOM Online Ltd. for providing me with this exceptional opportunity to gain hands-on experience and boost my confidence as an entry-level professional.

2.3 Personal/Professional Skills

One challenge I encountered was ensuring the responsiveness of the updated product page across different devices (desktop, mobile). With guidance from my supervisor, I researched basic media queries in CSS and implemented them to adjust the layout and styling based on screen size. This experience helped me understand the importance of responsive design for modern web development.

Although I entered the internship with limited knowledge and experience in this field, I emerged with a wealth of new skills and insights. Despite facing various challenges, I persevered and successfully completed my internship, demonstrating my resilience and adaptability.

2.4 Interpersonal Skills

Throughout my internship program, I experienced a significant improvement in my communication skills, fostered by the dynamic environment and interactions with individuals from diverse backgrounds. My interpersonal skills were further honed through regular interactions with my supervisor and senior colleagues. The internship provided me with invaluable opportunities to refine my communication approach when interacting with superiors and senior managers. These routine interactions played a pivotal role in enhancing my overall communication proficiency.

2.5 Analytical Skills

My internship at BDCOM Online Ltd. has fostered my analytical skills, encompassing both the application of theoretical knowledge to real-world scenarios and the ability to resolve challenges. Through engagement in diverse projects and the utilization of various technologies, I perceive a notable enhancement in my analytical capabilities.

Chapter 3

Projects and Responsibilities

In this section of my report, I systematically detail the key activities I engaged in during the internship program. Successfully completing these tasks within the allotted time frame required meticulous planning and scheduling. By meticulously adhering to a well-structured plan, I efficiently completed the program even within the limited time frame. This process significantly enhanced my understanding of time management and workload allocation, equipping me with valuable skills for future endeavors. Ultimately, the internship program provided valuable insights into how processes function, revealing the essential elements of efficient performance.

3.1 My tasks

3.1.1 PHP

PHP interpreters, which can be implemented as modules, scripts, or Common Gateway Interface (CGI) executable, are typically used on web servers to parse PHP code. The outcome of the interpreted and run PHP code on a web server may be any kind of data, including binary picture data or produced HTML, and it could make up all or part of an HTTP response. There are several web content management systems, web template systems, and web frameworks available that may be used to coordinate or expedite the creation of that answer. PHP may also be used for a wide range of programming activities that are not related to the web, such as controlling drones and creating standalone graphical programs. It is also possible to run PHP code straight from the command line [4].

PHP is a server scripting language, and a powerful tool for making dynamic and interactive Web pages. PHP is a widely-used, free, and efficient alternative to competitors such as Microsoft's ASP.

Basic PHP Syntax and Functionality: I gained an introductory understanding of PHP syntax, including variables, data types, operators, and control flow statements (if/else, loops). I learned how to perform simple calculations and string manipulations using PHP code.

However, my trainer wants me to provide him with a calculator that he could solve an infix expression. The calculator should make the expression infix to postfix

in the back end and then simplify. So, I started working on that. First of all, I figured out how a calculator works. After that, I implement php methods and for the calculation part, I use javascript. Furthermore, I design my calculator by using CSS.

Here is a demo of my work:

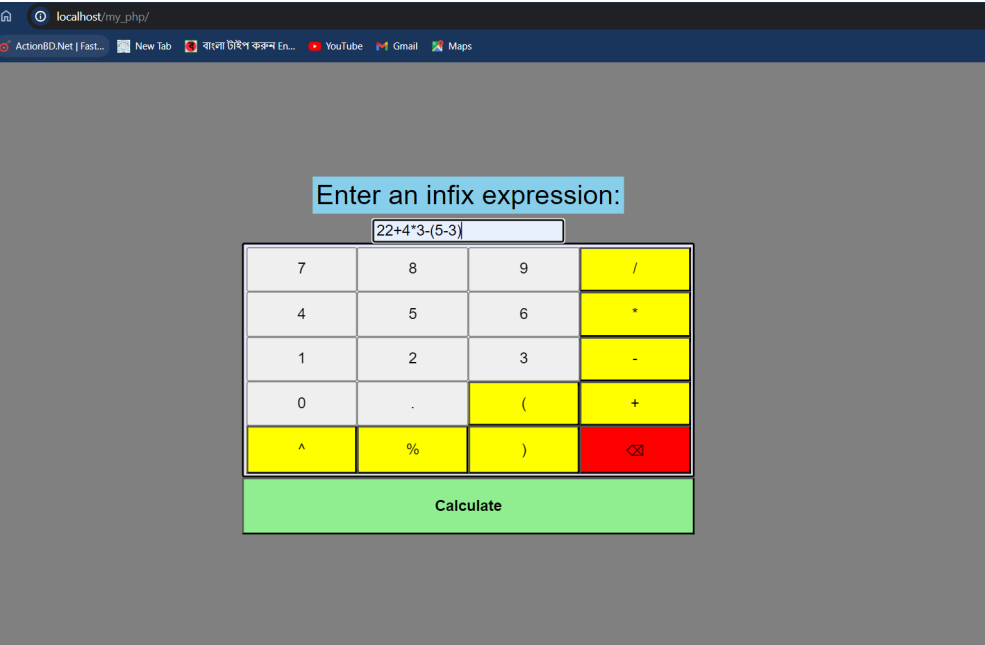


Figure 3.1: PHP-Inserting infix expression

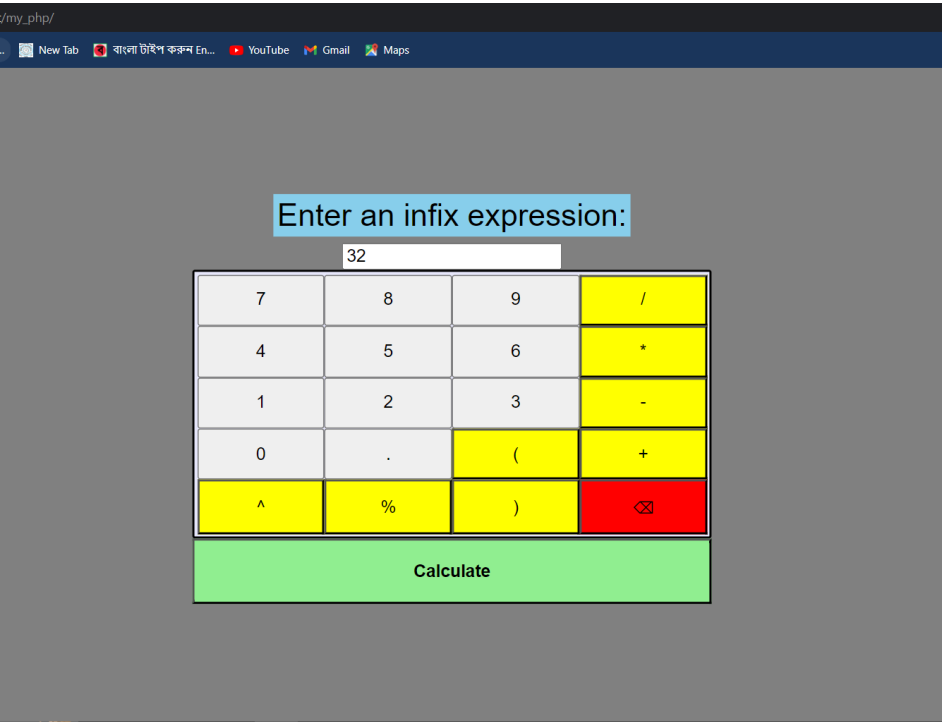


Figure 3.2: PHP-Simplified result

3.1.2 HTML/CSS

During my internship at BDCOM, I acquired valuable skills in the following areas:

HTML:HTML stands for Hyper Text Markup Language. It is the standard markup

language for creating Web pages. I learnt how to make headings, paragraphs, and links on web pages, as well as how to properly format text for websites using HTML tags.

CSS:Cascading Style Sheets (CSS) is used to format the layout of a web page.

With CSS, we can control the color, font, the size of text, the spacing between elements, how elements are positioned and laid out, what background images or background colors are to be used, different displays for different devices and screen sizes, and much more!

I became skilled in employing fundamental responsive styling methods, managing layout, applying CSS styles to web pages, and formatting text and other components [3].

I used simply HTML and CSS to construct a sliding window design. The information and details are displayed on the card when the author hovers over a window or card. It was a part of my front-end design project.

Here is the demo:



Figure 3.3: CSS-Before hover

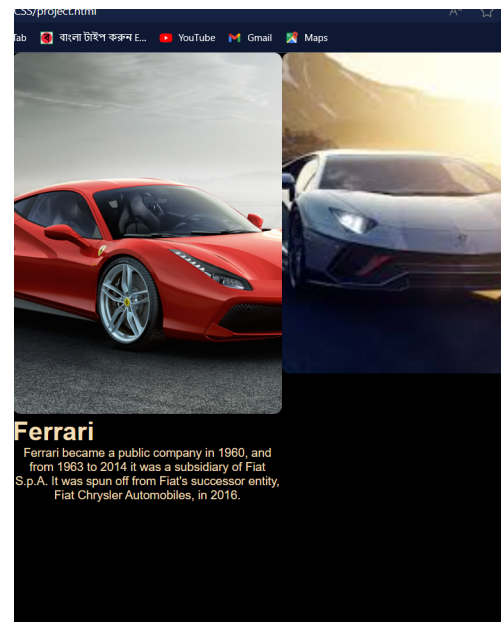


Figure 3.4: CSS-After hover

3.1.3 Understanding Semantic Meaning:

I explored the concept of semantic HTML, where tags go beyond just visual presentation and describe the meaning and purpose of the content. For example, using an h1 tag for a main heading conveys its importance to search engines and screen readers.

Chapter 4

My Final Project

4.1 Building a website:

I have chosen to focus on front-end web development in my role as a web developer engineer. With the guidance of my trainer, I began developing an outlook for a website. All I do is use simple HTML and CSS to create a framework.

This website offers the latest stock of new units that customers may buy, as well as references to the best automotive solutions.

4.2 Structure:

Creating a website generally requires a number of essential elements that make up the arrangement and structure. structure refers to the way it's pages are organized and interconnected. Important elements including the header, body, footer, and navigation menus are all included. A well-structured website assures that users can easily find information and navigate between different sections. A well-designed structure enhances the website's usability and technical efficiency.

First of all, I tried to figure out the components of a website. A website should have a header, main content area, and a footer.

4.3 Header

The top section of a web-page is known as the header. The primary navigation menu, the site's logo, sometimes a search bar, contact details, or social media links are all included. Key parts of the website are easily accessible from the header. Because it provides simple, straightforward navigation.

To build my website, I created the header section, which contains a company logo at the beginning. Additionally, I included the navigation bar within the header. A navigation bar is a key part of the header, used to provide links to other pages or sections of the site.

In addition, I made the navigation bar float, which helps improve user accessibility and ease of navigation.

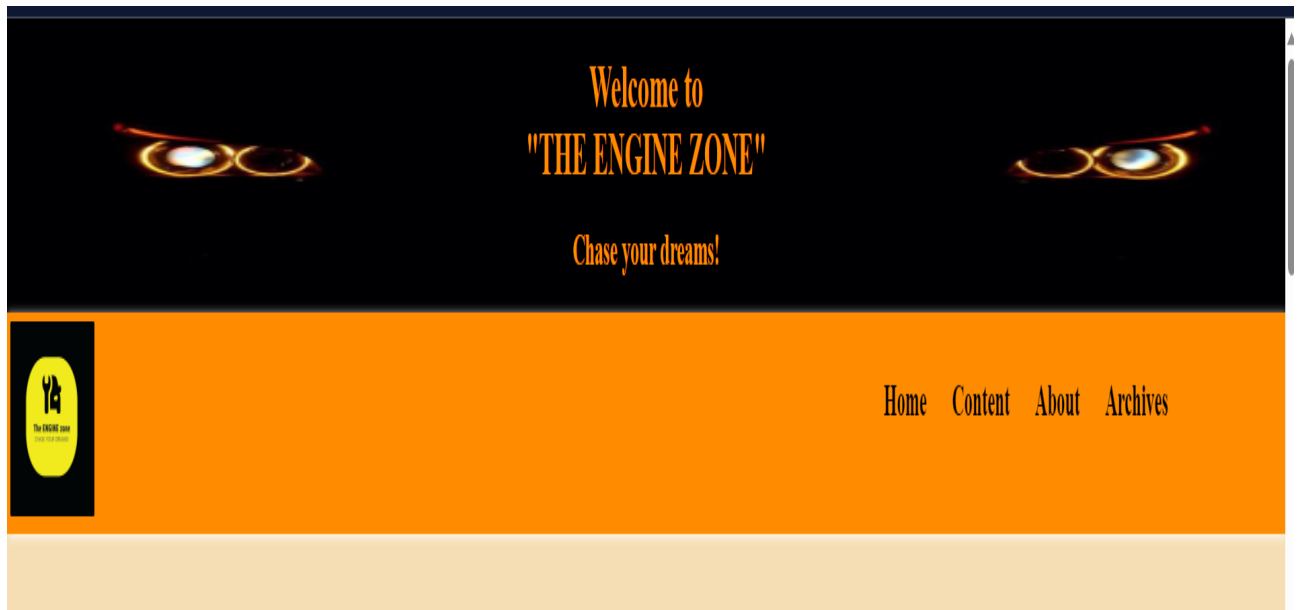


Figure 4.1: Website Header

On the other hand, I also designed this header to be responsive for smaller screens. When a user visits the site from a mobile or tablet, the menu will be shown as a navigation bar, which is also known as a "burger menu."

Here is the demo of the burger menu:



Figure 4.2: Collapsed burger menu



Figure 4.3: Expanded burger menu

4.4 Main Content Area

The main content, or body, of a website is the central part where the primary information is displayed. It usually consists of text, pictures, videos, and additional content that highlight the page's objective. The body is designed to engage visitors and provide them with the information or services they are looking for, such as blog posts, product listings, or upcoming products.

I made every effort to provide the services the website could offer in a simple to operate way in the body of the page. I split the body component into three portions. Initially, I included a few images along with a description of the company's offerings. Following that, I created a few tiles that display the services that are offered, including general repair, AC and electrical repair, painting and exterior work, automobile rental, and authentic parts with all the information. Lastly, I created a few templates showcasing the most recent releases of their new units. With the use of this website, customers may quickly identify the specific requirements for their vehicle [2].

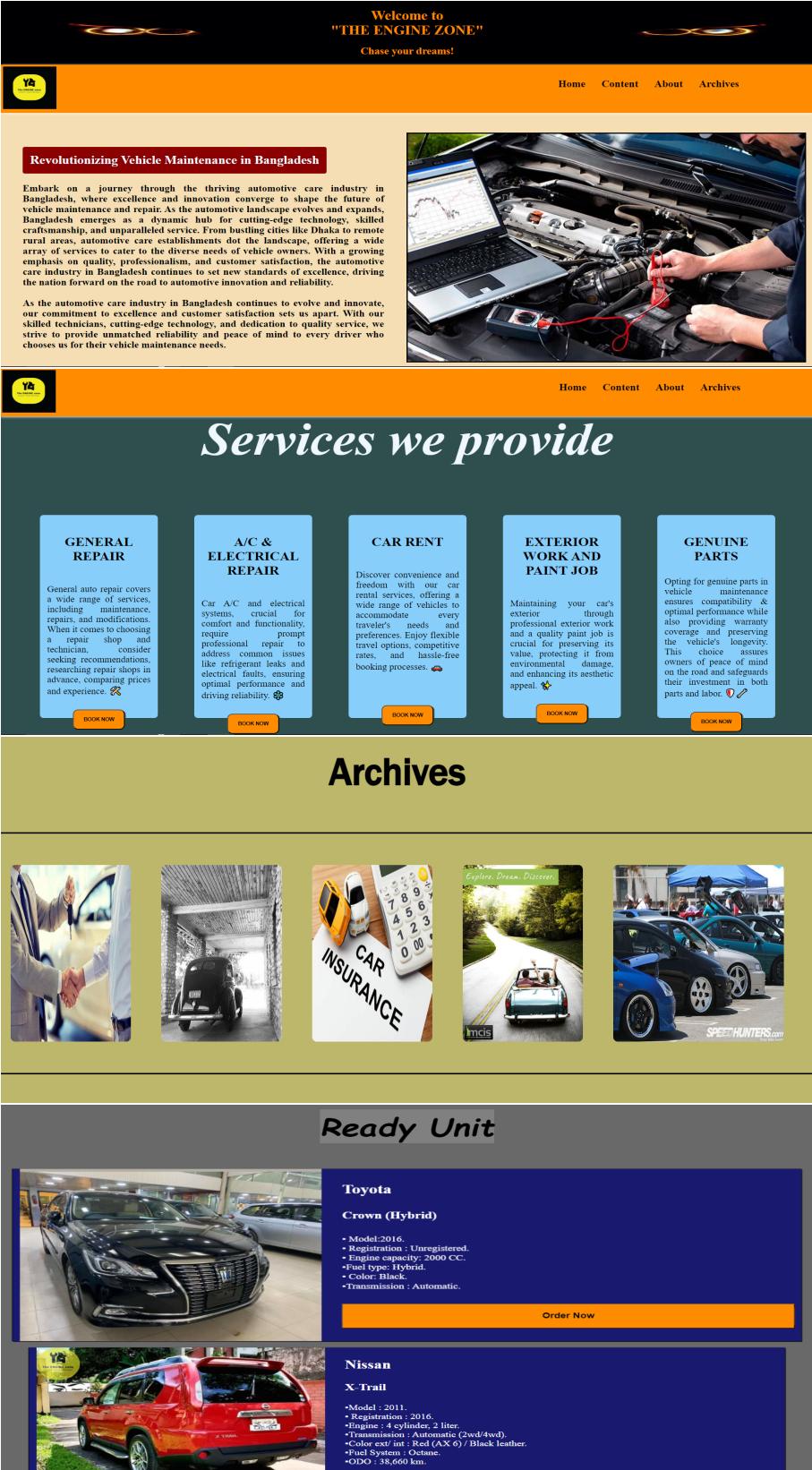


Figure 4.4: Website body/Main Content Area

4.5 Footer

A website footer is the section located at the bottom of a web-page that usually contains additional details. Important pages including the terms of service, privacy policy, contact information, and social networking icons are frequently linked from it. Additional navigation choices, corporate information, or copyright warnings may also be shown in the footer.

At last, I created the website's footer. In the end, I included the company's logo and inserted a "call now" button that makes it simple to get in touch with the supervisor or owners. Additionally, I include the complete address and social media link at the bottom. anyone can visit the official facebook page by clicking on the link.

Here is the demo of the footer:

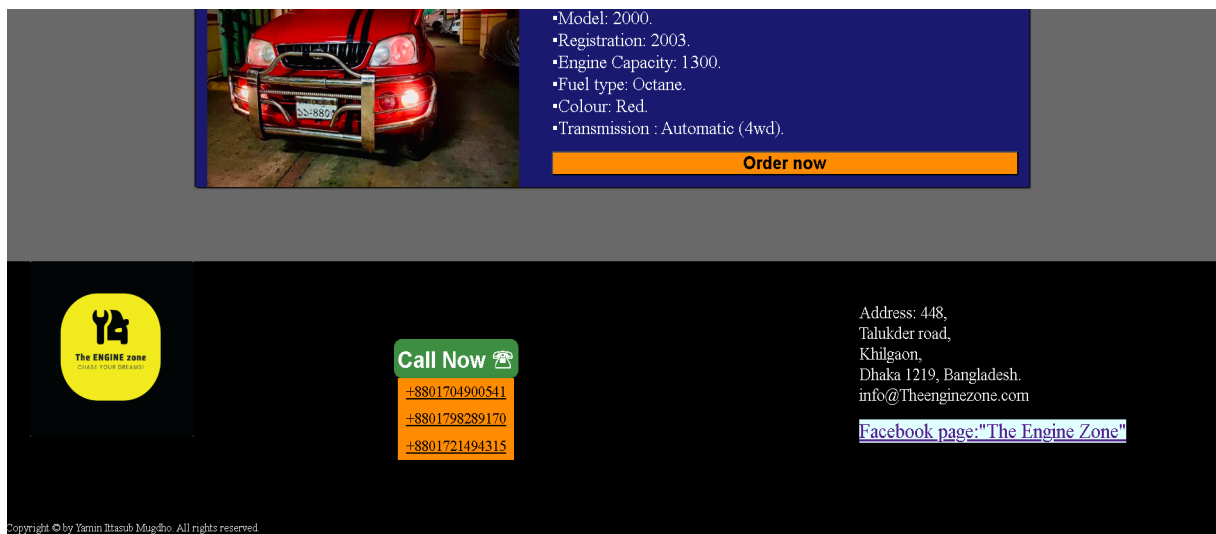


Figure 4.5: Website Footer

Chapter 5

ACQUIRED KNOWLEDGE

5.1 Consequences to Organization

I learnt a lot about software development and the value of cooperation during my internship as a web developer at BDCOM. From the very beginning, I was optimistic about the internship's potential to help me shape my career path and gain practical skills for my future endeavors.

During my internship, I actively sought opportunities to learn from my team members and observe their professional conduct. I was impressed by their dedication, expertise, and willingness to share their knowledge. This exposure to professionalism instilled in me a strong desire to emulate their qualities and strive for excellence in my own work.

The supportive environment at BDCOM played a significant role in my success. My superiors and colleagues were always willing to provide guidance and assistance, helping me overcome challenges and improve my skills. Their encouragement and support motivated me to push my limits and achieve my best.

My internship at BDCOM provided me with a taste of the challenges and rewards of being a web developer working in a collaborative environment. I gained useful knowledge regarding collaboration, time management, problem-solving, and effective communication. These skills will undoubtedly serve me well throughout my career. I am grateful for the opportunity to have interned at BDCOM Online Ltd. This 6 months of internship has not only enhanced my experience but also increased my capability of team work and professionalism.

5.2 Implications to University's Internship Program

The Computer Science and Engineering department's requirement for interns to complete their internship in a professional organization is a commendable step. This requirement ensures that students gain hands-on experience in a real-world setting, allowing them to apply their theoretical knowledge to practical scenarios.

During the period as an intern at BDCOM Online Ltd., I learnt a great deal about web development and the value of collaboration as a team. I am grateful for the opportunity to have completed my internship credits and earned a Bachelor of Sci-

ence in Computer Science and Engineering at BRAC University.

I wholeheartedly encourage the university to continue emphasizing internships as a crucial component of the undergraduate program. This initiative provides students with a great opportunity to develop a lot of skills, including problem-solving, communication, and teamwork etc.

Additionally, I propose the following suggestions to further enhance the effectiveness of the university's internship program:

- **Introductory Seminar:** Organize a seminar or webinar at the beginning of the internship period to provide students with career guidance and boost their confidence.
- **Extended Support:** Offer additional support and guidance to students who encounter difficulties in completing their internships within the stipulated time frame.
- **Experience Sharing Sessions:** Conduct seminars or webinars at the end of the internship term, allowing interns to share their experiences and insights with their peers who will be embarking on their internships.
- **Enhanced Supervisor-Intern Communication:** Encourage regular communication between supervisors and interns to ensure that interns receive ongoing feedback and support throughout their internship journey.

By implementing these suggestions, the university can further strengthen its internship program, providing students with an even more enriching learning experience.

5.3 Effects on Personal/Professional Skills

The internship provided me with invaluable hands-on experience that has significantly enhanced my professional and personal skills. I learned how to effectively collaborate and communicate with others as a team member, overcoming my communication challenges to successfully complete the internship program. This experience has equipped me with valuable lessons that will undoubtedly benefit my future career as a web developer.

5.4 Time Management

Each day before entering the office, one must register his or her attendance by fingerprint, face recognition, or ID scanner. Every employee is obligated to adhere to this policy. Therefore, I prepare to wake up early so that I may arrive at the office on time.

5.5 Soft Skills

I had to develop the following soft skills to successfully complete my internship program at BDCOM Online Ltd. –

- Communication
- Problem solving
- Adaptability
- Creativity
- Work ethics
- Analytical skill
- Integrity
- Planning

5.6 Discipline

Discipline is essential for the success of any company. In all aspects of work, BD-COM always exercises effective control over discipline.

5.7 Attire

I have learned how to dress formally for the office as part of the company's culture.

5.8 Learning Capability

An individual's ethical conduct determines their worth and legacy. This universal principle has profoundly impacted my life. My exceptional ability to learn quickly and complete assignments on time has been instrumental in my success. Utilizing various computer tools has opened doors to a myriad of new techniques and collaborative technologies, significantly enhancing my knowledge and capabilities.

Chapter 6

Conclusion

I learned a lot about web development through my internship with BDCOM, which was a fantastic experience. I developed a solid foundation in HTML and CSS at this time, which are essential elements of web sites. I gained knowledge on how to work with the development team, apply basic CSS style, and organize web-pages using HTML elements.

6.1 Looking Forward

My interest in web development has been enhanced by this internship. I'm excited to learn more and improve my skill set in areas like programming in JavaScript, advanced CSS, and even back-end development with frameworks like PHP. My excitement for this sector and my newly developed abilities will be a great benefit as I seek a career in web development.

6.2 Highlighting Initiative and Problem-Solving

I faced difficulties with infix postfix methods, integrating JS to my PHP code, and other issues throughout my internship. I overcame these challenges by doing research and putting strategies into practice, which showed that I could solve issues on my own and pick up new skills fast.

6.3 Concluding Words

To sum up, my BDCOM internship was a great way to get started in the fascinating field of web development. I have developed a strong foundation in HTML and CSS over the last six months, and I have also learned a lot about the collaborative element of web development.

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