



**An Internship Report On**  
**“WEB DEVELOPMENT”**

*Submitted in Partial fulfillment for the award of degree of*

**Bachelor of Engineering**  
**in**  
**COMPUTER SCIENCE AND ENGINEERING**  
**(DATA SCIENCE)**

Submitted by  
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Internship carried out at  
**“CODSOFTSERVICES PVT LTD”**  
Bangalore, Karnataka

**INTERNAL GUIDE**

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(Affiliated to Visvesvaraya Technological University, Belagavi  
Approved by AICTE, New Delhi, Recognized by UGC with 2(f) & 12(B) status  
Accredited By NBA and NACC.) **Whitefield, Near ITPB, Bangalore-67** and NACC.)  
**Whitefield, Near ITPB, Bangalore-67**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING  
(DATA SCIENCE)**

**CERTIFICATE**

This is to certify that the Internship report entitled “**WEB DEVELOPMENT**” is a bonafide work carried out by **Arun Reddy (1MJ21CD006)** in partial fulfillment for the award of the degree of Bachelor of Engineering in Computer Science And Engineering (Data Science) of Visvesvaraya Technological University, Belagavi during the academic year 2023 – 2024. It is certified that all the corrections/suggestion indicated for Internal Assessment have been incorporated in the report. The Internship report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the said degree

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**Signature of Internal Examiner**

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**Signature of External Examiner**



(An Autonomous Institute)  
(Affiliated to Visvesvaraya Technological University, Belagavi  
Approved by AICTE, New Delhi, Recognized by UGC with 2(f) & 12(B) status  
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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING  
(DATA SCIENCE)**

**DECLARATION**

I, **Arun Reddy**, [1MJ21CD006] hereby declare that the Internship titled “**WEB DEVELOPMENT**” embodied in this report has been carried out by me during VI Semester of B.E degree at MVJCE Bangalore affiliated to VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM. The work embodied in this report is original and it has not been submitted in part or full for any other degree in any University.

**Arun Reddy**

**1MJ21CD006**

Date:

Place: BANGALORE

# INTERNSHIP CERTIFICATE

C.ID: b628280



## CERTIFICATE

OF COMPLETION  
PROUDLY PRESENTED TO

**Arun Reddy**

has successfully completed 4 weeks of a virtual internship program in

**Web Development**

with wonderful remarks at **CODSOFT** from 01/11/2023 to 30/11/2023.

We were truly amazed by his/her showcased skills and invaluable contributions to the tasks and projects throughout the internship.



A handwritten signature in black ink, appearing to read "Arun Reddy", positioned above a horizontal line.

Founder



**MSME**  
MICRO, SMALL & MEDIUM ENTERPRISES  
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The satisfaction and euphoria that accompany a successful completion of any task would be incomplete without the mention of the people who made it possible, success is the epitome of hard work and perseverance, but steadfast of all is encouraging guidance.

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Thanking you

## **ABSTRACT**

This report outlines the experiences and accomplishments during my internship at Codsoft, with a focus on the development of a Calculator. The primary objective of this project was to create a Calculator using HTML & CSS, providing a practical understanding of Web development. The report details the implementation process, challenges encountered, and solutions devised, along with the insights gained throughout the project. Additionally, the report highlights other projects and tasks undertaken during the internship, emphasizing the technical skills and professional growth achieved. This internship has been a significant milestone in my journey towards learning web development, equipping me with both theoretical knowledge and practical experience in HTML CSS & JS. HTML and CSS form the cornerstone of web development, enabling the creation of well-structured, visually appealing, and responsive web pages. Mastery of these technologies is crucial for developing modern web applications that deliver engaging and accessible user experiences. This report explores the essential aspects of HTML and CSS, their functionalities, and their roles in the ever-evolving landscape of web development.

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## CHAPTER-1

### INTRODUCTION

HTML (HyperText Markup Language) and CSS (Cascading Style Sheets) are the foundational technologies of web development, essential for creating and designing web pages. They serve as the backbone of the web, defining the structure, content, and visual presentation of websites and web applications.

HTML is the standard markup language used to build the structure of web pages. It utilizes a system of elements and tags to define various types of content, including headings, paragraphs, images, links, and multimedia. Each HTML element is represented by tags, such as `

# ` for a main heading, ` ` for a paragraph, and `` for a hyperlink. The primary functions of HTML include:

- Semantic Structure: HTML elements provide meaning and structure to web content, making it easier for search engines and assistive technologies to understand and navigate.
- Hyperlinking: The `` tag allows the creation of hyperlinks, enabling users to navigate between web pages and within the same page.
- Multimedia Integration: HTML supports embedding multimedia elements like images, audio, and video, enhancing the richness of web content.
- Form Handling: HTML forms facilitate user interaction by collecting input through various controls, such as text fields, checkboxes, and buttons.

CSS is the stylesheet language used to control the visual presentation of web pages. While HTML provides the structure, CSS defines the appearance, including colors, fonts, layout, and overall design. CSS separates content from presentation, allowing developers to create visually appealing and consistent designs across multiple pages. Key features of CSS include:

- Styling: CSS enables customization of the look and feel of a web page, including typography, color schemes, and spacing.
- Layout: CSS provides powerful layout techniques such as Flexbox and Grid, which allow developers to create responsive designs that adapt to different screen sizes and devices.
- Animations and Transitions: CSS supports animations and transitions, adding dynamic effects and enhancing user interactions.

Together, HTML and CSS form the cornerstone of web development, enabling the creation of well-structured, visually appealing, and responsive web pages. Mastery of these technologies is crucial for developing modern web applications that deliver engaging and accessible user experiences. This report explores the essential aspects of HTML and CSS, their functionalities, and their roles in the ever-evolving landscape of web development.

## CHAPTER-2

# ABOUT THE ORGANIZATION

### 2.1 Introduction:

Codsoft Services Pvt Limited is a recognized startup by Startup India, committed to fostering innovation and entrepreneurship. The company holds an ISO 9001:2015 certification, reflecting its dedication to maintaining the highest standards of quality in its processes and services. As a registered MSME, Codsoft adheres to ethical business practices and contributes to the economic development of the community. The company is also approved by AICTE to offer internships, ensuring it provides valuable learning experiences and contributes to skill development. Incorporated with the Ministry of Corporate Affairs, Codsoft operates with full compliance and transparency. CodsoftServices Pvt Limited offers internships in various domains, providing comprehensive learning experiences that cater to diverse interests and skill sets.

### 2.2 Vision:

Codsoft Services Pvt. Ltd. believe in the power of collaboration and innovation. The dedicated team works closely with clients to understand their specific requirements and deliver solutions that exceed expectations. They are committed to providing high-quality services that are reliable, scalable, and secure. They aim to achieve this by offering innovative and industry-relevant courses, leveraging the latest technologies and teaching methods, and working closely with industry partners to ensure that their graduates are equipped with the skills and knowledge needed to succeed in their chosen fields.

### 2.3 Mission:

Codsoft Services Pvt. Ltd. is a company that provides technical training and education services in various fields such as engineering, aviation, robotics, and management. The company's mission is to nurturing the next generation of tech talent through their comprehensive internship programs offer students hands-on experience in real-world projects, mentoring from industry experts, and the opportunity to develop skills in a professional setting.

The specific objectives of Internshala's mission include:

- Bringing out the best in everyone we touch, motivate, inspire and empower each other to do things they never thought were possible.
- To leverage the latest technologies and teaching methods to deliver high-quality education and training that is both engaging and effective.
- To collaborate with leading universities, research institutions, and industry experts to stay up-to-date with the latest developments in technology and industry best practices.
- To foster a culture of innovation, creativity, and lifelong learning among students and professionals.
- To help students and professionals achieve their career goals and contribute to the growth and development of their respective industries.

## **2.4 Services:**

Codsoft Services Pvt. Ltd, a leading software and website development firm dedicated to innovation, quality, and personalized solutions Some of the services offered by Codsoft Services Pvt. Ltd include:

Some of the services offered by Codsoft services pvt limited include:

- Software Development
- Website Development
- Internship Programs
- Online Courses
- Consultancy services

### **2.4.1 Software Development:**

Codsoft Services Pvt. Ltd specializes in designing and developing customized software solutions that drive business growth and efficiency. With a focus on innovation and quality, we create tailored applications that meet the unique needs of each client. Our team of experienced professionals leverages the latest technologies to deliver scalable, secure, and user-friendly software. We partner with businesses across various industries, providing solutions that streamline operations, enhance productivity, and support strategic objectives. At Codsoft Services, our commitment to excellence ensures that our clients achieve their goals and stay ahead in a competitive market.

**2.4.2 Website Development:**

From sleek, modern websites to complex web applications, their team delivers outstanding digital experiences that cater to diverse client needs. With a meticulous eye for detail and a commitment to excellence, they transform ideas into visually stunning and highly functional digital solutions. Their expertise spans a wide range of technologies and platforms, ensuring that every project is not only aesthetically pleasing but also robust and scalable. By focusing on user experience, performance, and innovation, they consistently exceed expectations, providing clients with products that stand out in a competitive digital landscape and drive their business success.

**2.4.3 Online Courses:**

Codsoft Services Pvt. Ltd offers online courses that can be accessed from anywhere, at any time. These courses cover a variety of technical topics and are designed to provide flexible learning options for working professionals.

**2.4.4 Internship Programs:**

Codsoft Services Pvt. Ltd are passionate about nurturing the next generation of tech talent. Their comprehensive internship programs offer students hands-on experience in real-world projects, mentoring from industry experts, and the opportunity to develop skills in a professional setting.

**2.4.5 Consultancy Services:**

Codsoft Services Pvt. Ltd offers consultancy services to companies and organizations, helping them identify and address technical challenges and implement innovative solutions. Overall, Codsoft Services Pvt. Ltd provides a comprehensive range of services to help professionals stay up-to-date with the latest developments in their fields and advance their careers.

## CHAPTER -3

### ABOUT THE DEPARTMENT

#### 3.1 Introduction

Codsoft Services Pvt. Ltd is a training institution that offers courses and certifications in various technical fields, including Software Development, Web Development, and Python Development. Located in Bhubaneswar, Odisha, India, Codsoft is recognized for providing exceptional digital experiences that cater to diverse client needs. This internship offers a comprehensive introduction to Python development, equipping students with foundational skills to build modern software applications. Participants will learn core concepts of Python programming, including data structures, control flow, and object-oriented programming, while gaining hands-on experience through practical projects. By the end of the internship, students will be able to create functional and efficient software solutions and understand the fundamentals of software testing and deployment.

Some of the topics covered in the course include:

- Initialization of game logic
- Player move handling
- AI decision-making using the Minimax algorithm
- Win condition checks
- User interface development
- Game history tracking

## CHAPTER 4

### INTERNSHIP DOMAIN

#### 4.1 Introduction:

The domain of my internship at Codsoft was centered around artificial intelligence (AI) and algorithm design, with a particular focus on game theory and search algorithms. Artificial intelligence is a branch of computer science that aims to create systems capable of performing tasks that typically require human intelligence. This includes problem-solving, learning, and decision-making, all of which are fundamental to the field of AI.

One of the critical areas within AI is game theory, which involves the study of mathematical models of strategic interaction among rational decision-makers. Game theory is widely used in various fields, including economics, biology, and computer science, to model and analyze competitive situations where the outcome depends on the actions of multiple agents. In the context of AI, game theory helps in designing algorithms that can make optimal decisions in adversarial scenarios, such as games.

#### 4.2 Project Management:

##### Week 1: Planning and Initial Setup

The first week of the project focused on establishing the foundational elements necessary for development. Initial planning involved defining the core functionalities of the Tic-Tac-Toe AI agent, which included the game board setup, player moves, win condition checks, and AI decision-making. This phase also saw the setup of the development environment, including the installation of Python, Visual Studio Code, and libraries like NumPy and Pygame. During this time, version control systems were configured to manage code changes effectively. The initial design phase included creating the basic structure for the application, with a main script to handle backend logic and a simple graphical interface for user interactions. This provided a base for building the user interface and backend interactions.

##### Week 2: Core Functionality Development

In the second week, significant progress was made in developing the core functionalities of the Tic-Tac-Toe game. The backend logic was implemented to manage various operations such as initializing the game board, handling player moves, checking win conditions, and switching turns. Each function was designed to handle specific game mechanics and update the game state



accordingly. Concurrently, the front-end components were developed, where user interface elements such as the game board and buttons for player moves were created. Basic AI functionality was integrated to allow the AI to make random moves initially, laying the groundwork for more advanced algorithms.

### **Week 3: Advanced Features and Testing**

The third week was dedicated to integrating the Minimax algorithm and conducting thorough testing to ensure functionality and reliability. The Minimax algorithm was implemented to enhance the AI's decision-making process, allowing it to evaluate all possible moves and choose the optimal one to ensure it remains unbeatable. Optimizations such as alpha-beta pruning were applied to improve the algorithm's efficiency. Comprehensive testing was performed to validate the AI's performance, including edge cases like tie conditions and potential user errors.

### **Week 4: Finalization and Documentation**

In the final week, the focus was on finalizing the project and preparing it for presentation. Final adjustments were made to both the backend and frontend code to ensure that all features were fully functional and that the application was user-friendly. Any remaining issues from testing were addressed, and the code was optimized for performance and reliability. Detailed documentation was prepared, including explanations of the algorithm, code comments, and user guides. This phase involved thorough checks to confirm that the application met all intended objectives and was ready for demonstration.

### **Learning outcomes:**

- **Proficiency in Python Programming:** Developed a strong understanding of Python syntax and semantics, enabling the writing of clean and efficient code for AI applications.
- **Mastery of Core Concepts:** Gained in-depth knowledge of essential AI and algorithm concepts, including game theory, search algorithms, and optimization techniques.
- **Hands-On Project Experience:** Applied knowledge to a real-world problem, enhancing problem-solving skills and coding proficiency.
- **Software Development Skills:** Learned best practices in software development, including code modularity, reusability, and documentation, preparing for professional programming roles.
- **Testing and Debugging:** Acquired skills in testing and debugging, learning how to identify and fix errors in code to ensure reliable and maintainable software solution

## CHAPTER-5

# SYSTEM DESIGN

### 1. Overall Architecture

The architecture of the HTML and CSS calculator is based on the client-side model. The entire application runs within the user's web browser, with no need for server-side processing. This ensures fast response times and a seamless user experience.

### 2. Components

The key components of the calculator system are:

- **User Interface (UI):** The visual elements with which the user interacts.
- **HTML Structure:** The underlying HTML elements that define the layout and structure of the calculator.
- **CSS Styling:** The styles that dictate the appearance and layout of the calculator.
- **JavaScript Logic (Optional):** Enhances functionality, allowing the calculator to perform arithmetic operations.

### 3. User Interface (UI)

The user interface is composed of:

- **Display Screen:** Shows the input numbers and the result of the calculations.
- **Buttons:** Include numeric buttons (0-9), operator buttons (+, -, \*, /), functional buttons (AC, =, .), and optional additional function buttons (e.g., memory functions).

### 4. HTML Structure

The HTML structure provides the skeleton for the calculator. It includes a `<div>` element to encapsulate the entire calculator, an `<input>` element for the display screen, and multiple `<button>` elements for the calculator keys.

### 5.1.1 SOURCE CODE

Index.html

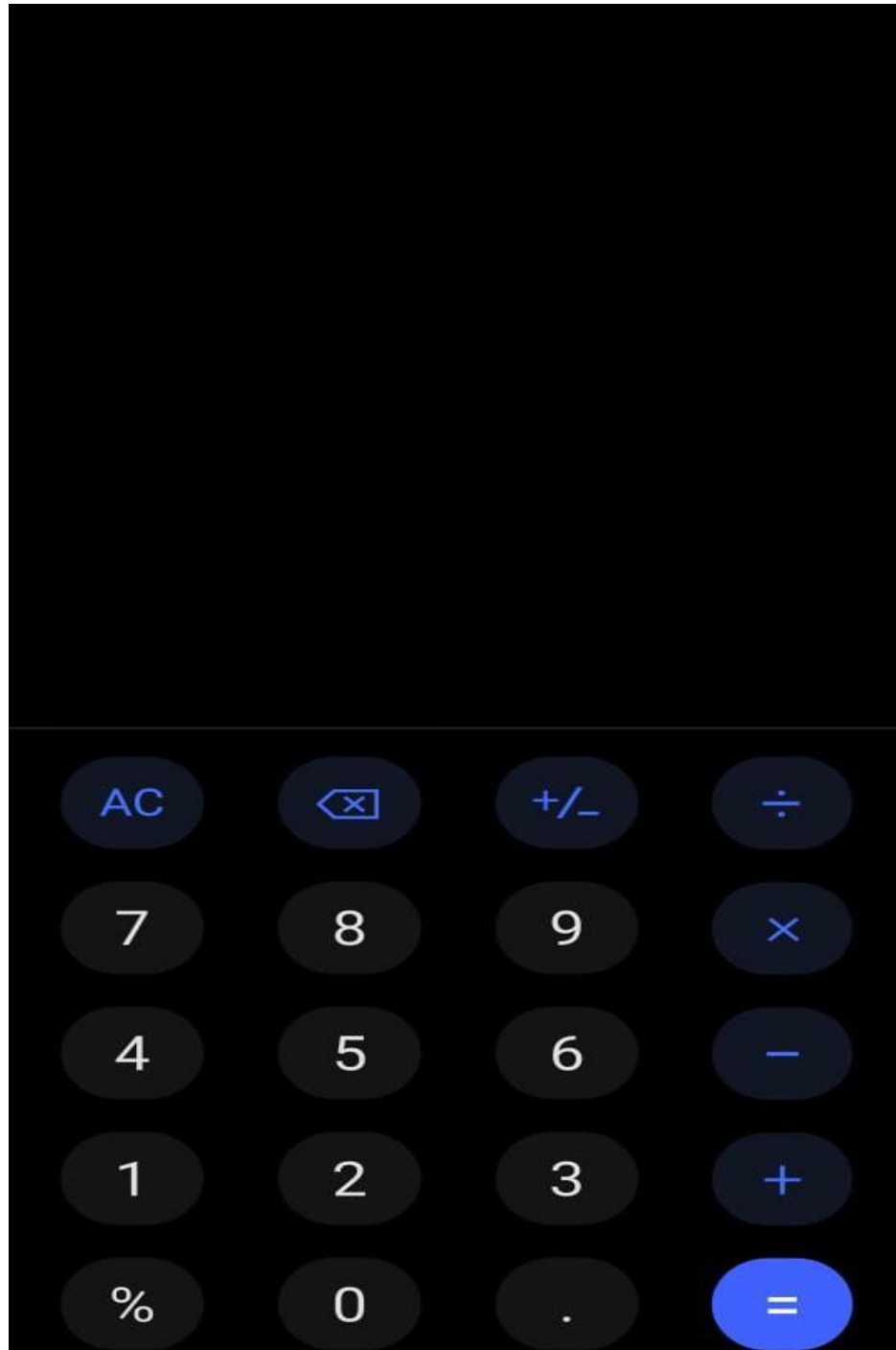
```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <meta http-equiv="X-UA-Compatible" content="ie=edge">
    <link rel="stylesheet" href="style.css">
    <title>Basic Calculator</title>
  </head>
  <body>
    <h1>Basic Calculator</h1>
    <br/>
    <form id="myform" Name="calc">
      <input name="display" style="width:675px;height:100px;text-align:center;background-
color:#1f80c9;"></br>
      <input type="button" value="0" onClick="calc.display.value+='0'">
      <input type="button" value="1" onClick="calc.display.value+='1'">
      <input type="button" value="2" onClick="calc.display.value+='2'">
      <input type="button" value="+" style="background-color:#cc5c11"
onClick="calc.display.value+='+'"></br>
      <input type="button" value="3" onClick="calc.display.value+='3'">
      <input type="button" value="4" onClick="calc.display.value+='4'">
      <input type="button" value="5" onClick="calc.display.value+='5'">
      <input type="button" value="-" style="background-color:#ba55d3"
onClick="calc.display.value+='-'"></br>
      <input type="button" value="6" onClick="calc.display.value+='6'">
      <input type="button" value="7" onClick="calc.display.value+='7'">
      <input type="button" value="8" onClick="calc.display.value+='8'">
      <input type="button" value="x" style="background-color:#7db1b2"
onClick="calc.display.value+='*'"></br>
      <input type="button" value="9" onClick="calc.display.value+='9'">
      <input type="button" value="C" onClick="calc.display.value+=''">
      <input type="button" value="=" style="background-color:#cc0000"
```

```
onClick="calc.display.value=eval(calc.display.value)">
<input type="button" value="&#247" style="background-color:green"
onClick="calc.display.value+= '/' "></br>
</form>
</body>
</html>
```

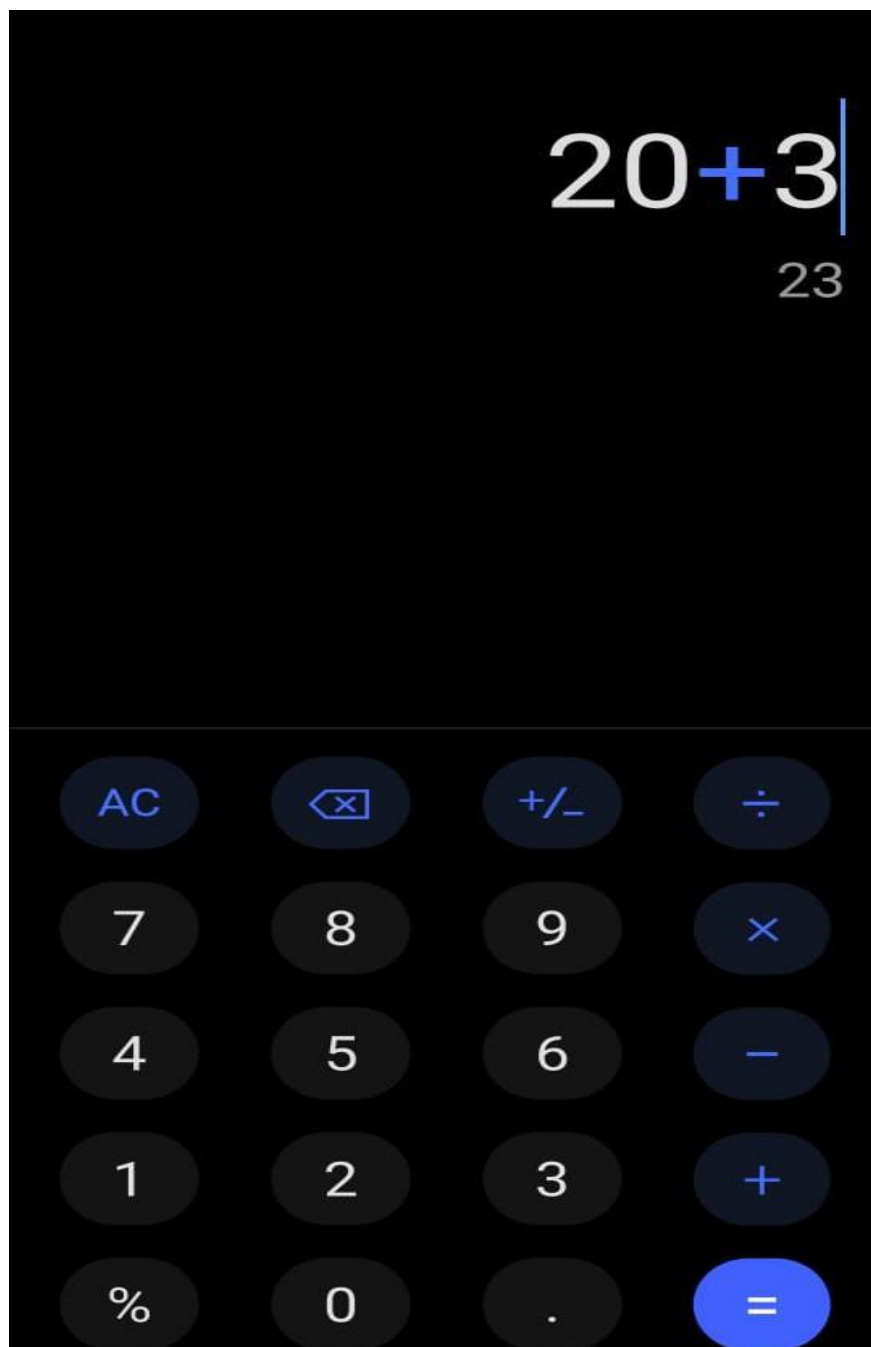
**Style.css**

```
input {
width: 150px;
height: 100px;
font-size: 75px;
border-radius: 10px;
margin: 10px;
background-color: #000;
color: #fff;
border-style: none;
}
#myform {
margin-left: 225px;
margin-top: 20px;
}
h1{
text-align: center;
font-size: 80px;
margin-right: 150px;
margin-top:20px;
}
```

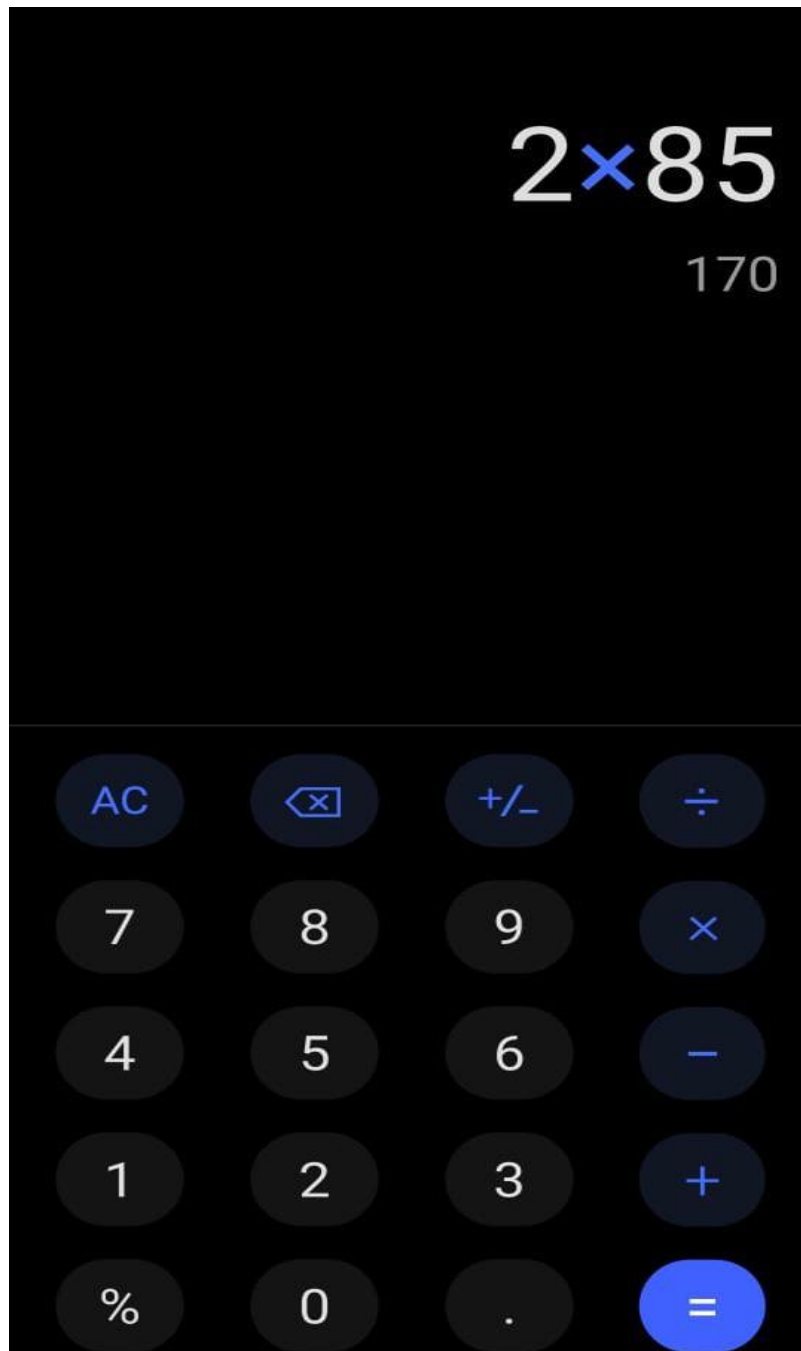
### 5.2.2 Output



**Fig 5.1 Initial setup**



**Fig 5.2 Addition**



**Fig 5.3 Multiplication**

## CHAPTER-6

# SYSTEM REQUIREMENTS

### 6.1 Hardware Requirements:

1. **Computer:** A desktop or laptop computer.
2. **Processor:** Any modern processor (Intel Core i3/i5/i7 or AMD equivalent).
3. **RAM:** At least 4GB of RAM, though 8GB or more is recommended for a smoother experience.
4. **Storage:** Minimum of 100MB of free disk space for development tools and project files.

### 6.2 Software Requirements

1. **Operating System:**
  - Windows 7 or later
  - macOS 10.10 or later
  - Linux (any modern distribution)
2. **Web Browser:** Any modern web browser for testing and running the calculator, such as:
  - Google Chrome (latest version)
  - Mozilla Firefox (latest version)
  - Microsoft Edge (latest version)
  - Safari (latest version on macOS)
3. **Code Editor:** A text editor or an integrated development environment (IDE) for writing HTML and CSS code. Some popular options include:
  - Visual Studio Code
  - Sublime Text
  - Atom
  - Notepad++
  - Brackets
4. **Web Server (Optional):** For advanced development and testing, you might want to set up a local web server. This is optional for a basic HTML/CSS calculator but useful for more complex projects.
  - XAMPP (cross-platform)
  - MAMP (macOS and Windows)
  - WAMP (Windows)



## CHAPTER -7

# FUTURE ASPECTS

Web development is a rapidly evolving field, constantly influenced by technological advancements, user expectations, and industry trends. As we look to the future, several key aspects are poised to shape the landscape of web development:

### 1. Progressive Web Apps (PWAs)

Progressive Web Apps combine the best of web and mobile applications, offering offline capabilities, fast loading times, and native app-like experiences directly from the browser. PWAs are expected to become more prevalent, providing enhanced user experiences without the need for app store distribution.

### 2. Artificial Intelligence and Machine Learning

The integration of AI and machine learning in web development will lead to smarter and more personalized user experiences. AI can be used for chatbots, content recommendations, predictive analysis, and automated customer service, enhancing the interactivity and efficiency of websites.

### 3. Voice Search Optimization

With the increasing use of voice assistants like Siri, Alexa, and Google Assistant, optimizing websites for voice search is becoming crucial. Future web development will focus on creating content and interfaces that cater to voice queries, ensuring accessibility and ease of use.

### 4. Augmented Reality (AR) and Virtual Reality (VR)

AR and VR technologies are expected to revolutionize web experiences, particularly in e-commerce, real estate, education, and entertainment. Web developers will need to integrate AR and VR capabilities to create immersive and interactive user experiences.

### 5. Enhanced Cybersecurity

As cyber threats continue to evolve, the importance of robust cybersecurity measures in web development cannot be overstated. Future web development will prioritize security protocols, encryption, and compliance with data protection regulations to safeguard user data and privacy.

### 6. Serverless Architecture

Serverless computing allows developers to build and run applications without managing server infrastructure. This approach can reduce costs, improve scalability, and simplify the deployment process. As cloud services continue to evolve, serverless architecture will become more mainstream.

## **7. Blockchain Technology**

Blockchain's decentralized and secure nature makes it suitable for applications requiring transparency and data integrity. Future web development may see increased use of blockchain for secure transactions, supply chain management, and decentralized applications (DApps).

## **8. Motion UI and Micro-Interactions**

Motion UI and micro-interactions will play a significant role in enhancing user engagement and experience. Subtle animations, transitions, and interactive elements will become standard practices in web design, providing feedback and improving usability.

## **9. Single Page Applications (SPAs)**

SPAs provide a seamless user experience by loading a single HTML page and dynamically updating content as the user interacts with the app. Technologies like React, Angular, and Vue.js will continue to drive the development of SPAs, making web applications faster and more efficient.

## **10. API-First Development**

API-first development focuses on designing and building APIs before developing the front-end. This approach ensures better integration, flexibility, and scalability. As APIs become more critical in connecting various services and platforms, this methodology will gain prominence.

## **11. Ethical and Inclusive Design**

Future web development will emphasize ethical considerations, including accessibility, inclusivity, and user well-being. Developers will prioritize creating web experiences that cater to diverse user needs, ensuring that websites are usable and beneficial for all.

## **12. Continuous Integration and Continuous Deployment (CI/CD)**

Automation in the development lifecycle through CI/CD pipelines will become more widespread. This approach enables faster and more reliable deployment of updates and features, ensuring that web applications remain current and functional.

The future of web development is filled with exciting possibilities driven by technological innovations and evolving user expectations. Staying abreast of these trends and continuously adapting to new tools and methodologies will be crucial for developers aiming to create cutting-edge web applications and experiences.

## CONCLUSION

In conclusion, the Calculator project developed during my internship at Codsoft demonstrates the capabilities and flexibility of HTML & CSS in designing a web page. The HTML and CSS calculator project serves as a practical exercise in web development, reinforcing essential skills and principles. It provides a strong foundation for further exploration into more advanced topics, such as JavaScript programming, web accessibility, and responsive design techniques. As the field of web development continues to evolve, the knowledge and skills gained from this project will be invaluable in creating more complex and innovative web applications.

## REFERENCES

### 1 MDN Web Docs:

- [HTML Basics](#)
- [CSS Basics](#)
- These pages provide comprehensive guides and tutorials on HTML and CSS fundamentals.

### 2 W3Schools:

- HTML Tutorial
- CSS Tutorial
- W3Schools offers interactive tutorials and examples that are great for beginners.

### 3 Codecademy:

- Learn HTML
- Learn CSS
- Codecademy provides hands-on learning through exercises and projects.

### 4 freeCodeCamp:

- Responsive Web Design Certification
- This course covers HTML and CSS thoroughly, with projects including a basic calculator.

### 5 YouTube Tutorials:

- [HTML CSS Calculator Tutorial](#)
- There are many video tutorials available that walk through the process of creating a calculator using HTML and CSS.

### 6 GitHub Repositories:

- [Simple Calculator Using HTML, CSS, and JavaScript](#)
- Exploring GitHub repositories can provide practical examples and code snippets.