

# **Internship at Code Cartel LLP**

## **Internship Report**

Submitted for the partial fulfillment of the degree of

## **Bachelor of Technology**

In

## **Computer Science & Engineering**

**Submitted By**

**Astitv Mishra**

**0901CD211015**

**UNDER THE SUPERVISION AND GUIDANCE OF**

**Dr. Smita Parte**

**Assistant Professor**

**Department of Computer Science & Engineering**



**MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR (M.P.), INDIA**

**माधव प्रौद्योगिकी एवं विज्ञान संस्थान, ग्वालियर (म.प्र.), भारत**

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**January-May 2025**

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I, hereby, declare that the work entitled "Web Development Projects at CodeCartel LLP" is my work, supervised by Dr. Smita Parte, in the session Jan-May 2025. The report submitted by me is record of bonafide work done by me.

I, further declare that the work which is reported in the report has not been submitted and will not be submitted for award of any degree or diploma in this institute or any other institute or university, either in part or in full.

  
Anshu Mishra

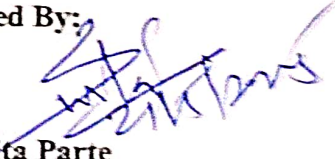
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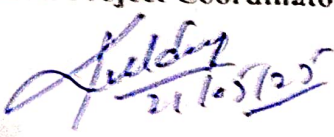
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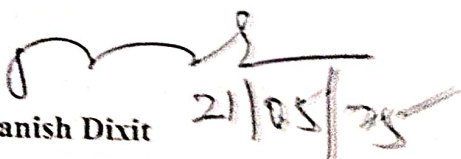
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Prof. Mahesh Parmar

Assistant Professor

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## Acknowledgement

I would like to express my sincere gratitude to CodeCartel LLP for providing me with the opportunity to intern as a Web Developer and gain valuable industry experience. I am especially thankful to **Dr. Smita Parte**, for her guidance, support, and mentorship throughout my internship period.

I extend my appreciation to the entire development team at CodeCartel who welcomed me and offered continuous support and knowledge sharing. Their willingness to answer my questions and provide constructive feedback significantly contributed to my learning experience.

I am also grateful to my college, MITS Gwalior, particularly the Department of Computer Science & Engineering, for facilitating this internship opportunity and supporting my professional development. Special thanks to my faculty advisor for their guidance in preparing this report.

Finally, I would like to thank my family and friends for their unwavering support and encouragement throughout my internship period.



Astitv Mishra

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## **Abstract**

This report presents an account of my four-month internship experience at CodeCartel LLP, Bhopal, from December 1, 2024, to March 31, 2025, as a Web Development Intern. During this period, I gained hands-on experience in various aspects of web development, including website and application development, styling and layout design, collaboration with cross-functional teams, testing and debugging, and research into innovative technologies.

The internship provided me with practical insights into professional web development processes and methodologies. I contributed to multiple projects where I applied my theoretical knowledge while learning industry-standard practices. This report details my contributions, the technical skills acquired, challenges faced, and solutions implemented during the internship period. The experience has significantly enhanced my understanding of web development and prepared me for professional challenges in the field.

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## **Acronyms**

- HTML: HyperText Markup Language
- CSS: Cascading Style Sheets
- JS: JavaScript
- UI: User Interface
- UX: User Experience
- API: Application Programming Interface
- CTO: Chief Technology Officer
- LLP: Limited Liability Partnership

## **Nomenclature**

- Front-end: The client-side part of a website or application that users interact with
- Back-end: The server-side of a website or application that handles data processing
- Responsive Design: Design approach that makes web pages render well on various devices and screen sizes
- Framework: Pre-built libraries and tools that provide standardized ways to build applications
- Debugging: Process of finding and resolving errors in code

# **Chapter 1: Introduction**

The rapid digitalization across all sectors has significantly increased the demand for web development professionals capable of creating efficient, responsive, and user-friendly websites and applications. To prepare for a career in this dynamic field, I undertook a four-month internship with CodeCartel LLP, a creative design and development studio based in Bhopal, Madhya Pradesh.

This internship, spanning from December 1, 2024, to March 31, 2025, was designed to bridge the gap between academic knowledge and industry application. As a Web Development Intern, I was integrated into the company's development team and exposed to various aspects of professional web development practices.

## **1.1 Purpose of the Internship**

The primary purpose of this internship was to gain practical experience in web development and understand the workflow, challenges, and solutions in a professional environment. The internship aimed to complement my theoretical knowledge with hands-on experience in developing real-world web applications.

## **1.2 Objectives**

The key objectives of my internship were:

1. To develop practical skills in website and application development
2. To understand and implement styling and layout design principles
3. To learn professional collaboration methods within development teams
4. To gain experience in testing and debugging web applications
5. To research and implement new technologies and best practices

## **1.3 Scope of Work**

During the internship, my scope of work encompassed:

- Contribution to the development of websites and web applications
- Implementation of styling solutions using HTML, CSS, and JavaScript frameworks
- Collaboration with multidisciplinary teams including developers, designers, and project managers
- Testing and debugging of code across different browsers and devices
- Research into new technologies and suggesting improvements for ongoing projects

## **1.4 Report Structure**

This report is structured to provide a comprehensive overview of my internship experience. Following this introduction, Chapter 2 presents a literature survey on relevant web development

technologies and methodologies. Chapter 3 provides an overview of CodeCartel LLP, while Chapter 4 details the specific projects I contributed to during my internship. Chapter 5 describes the technical skills I acquired, and Chapter 6 discusses the challenges I faced and the solutions I implemented. Finally, Chapter 7 concludes the report with a reflection on my learning experience and future implications.

## **Chapter 2: Literature Survey**

### **2.1 Overview of Modern Web Development**

Web development has evolved significantly over the past decade, transforming from simple static websites to complex, interactive web applications. The field now encompasses a wide range of technologies, frameworks, and methodologies designed to create user-friendly, responsive, and secure web experiences.

### **2.2 Front-End Development Technologies**

#### ***2.2.1 HTML5 and CSS3***

HTML5 and CSS3 form the foundation of modern web development. HTML5 introduced semantic elements, form improvements, and multimedia support, while CSS3 brought advanced styling capabilities including animations, transitions, and responsive design features.

#### ***2.2.2 JavaScript and Its Frameworks***

JavaScript has become a crucial language for web development, enabling interactive and dynamic web pages. Frameworks such as React, Angular, and Vue.js have streamlined the development process by providing reusable components and efficient state management.

#### ***2.2.3 Responsive Design***

With the proliferation of devices with varying screen sizes, responsive design has become essential. Techniques like fluid grids, flexible images, and media queries ensure optimal user experience across all devices.

### **2.3 Back-End Development**

Back-end development involves server-side programming that powers web applications. Technologies such as Node.js, PHP, Python, and Ruby on Rails are commonly used to build robust back-end systems.

### **2.4 Database Management**

Efficient data storage and retrieval are crucial for web applications. Both SQL databases (MySQL, PostgreSQL) and NoSQL databases (MongoDB, Firebase) play important roles in modern web development.

## **2.5 Development Methodologies**

Agile methodologies like Scrum and Kanban have become standard in web development projects, emphasizing iterative development, continuous feedback, and team collaboration.

## **2.6 Current Trends in Web Development**

Recent trends include Progressive Web Apps (PWAs), serverless architecture, headless CMS solutions, and increasing focus on web performance optimization and accessibility.

# **Chapter 3: Company Overview**

## **3.1 About CodeCartel LLP**

CodeCartel LLP is a creative design and development studio based in Bhopal, Madhya Pradesh. The company specializes in providing comprehensive web development services, including website design, application development, and digital marketing solutions. As a growing firm in the tech space, CodeCartel emphasizes innovation, quality, and client satisfaction in all its projects.

## **3.2 Organizational Structure**

CodeCartel follows a flat organizational structure that promotes collaboration and open communication. The company is led by its co-founders, with Mr. Naman Agrawal serving as the Chief Technology Officer (CTO). The development team consists of senior developers, junior developers, and interns, all working collaboratively on various projects.

## **3.3 Work Culture**

The work culture at CodeCartel is characterized by a balance of professionalism and creativity. The company encourages innovation, continuous learning, and knowledge sharing among team members. Regular brainstorming sessions, code reviews, and team meetings foster a collaborative environment where everyone's input is valued.

## **3.4 Development Methodology**

CodeCartel employs an Agile development methodology, specifically adapting Scrum for project management. Projects are broken down into sprints, with regular stand-up meetings to track progress and address challenges. This approach allows for flexibility, continuous feedback, and iterative improvement throughout the development process.

## **3.5 Client Base and Projects**

The company serves a diverse client base, including small businesses, educational institutions, and e-commerce ventures. Projects range from simple corporate websites to complex web applications with custom functionalities, showcasing the team's versatility and technical expertise.

## **Chapter 4: Projects Undertaken**

During my internship at CodeCartel LLP, I had the opportunity to work on various web development projects, each presenting unique challenges and learning opportunities. This chapter details the major projects I contributed to, my specific roles, and the outcomes achieved.

### **4.1 Project 1: Corporate Website Redesign**

#### ***4.1.1 Project Overview***

The first project involved redesigning a corporate website for a local business to improve its visual appeal, user experience, and mobile responsiveness.

#### ***4.1.2 My Contribution***

- Assisted in converting design mockups to responsive web pages using HTML, CSS, and JavaScript
- Implemented responsive navigation and layout components
- Optimized images and assets for improved loading times
- Collaborated with designers to ensure accurate implementation of visual elements

#### ***4.1.3 Technologies Used***

- HTML5, CSS3, JavaScript
- Bootstrap framework
- jQuery for interactive elements
- Git for version control

#### ***4.1.4 Outcomes***

The redesigned website significantly improved user engagement metrics and mobile usability, resulting in increased visitor time on site and reduced bounce rates.

### **4.2 Project 2: E-commerce Platform Enhancement**

#### ***4.2.1 Project Overview***

This project focused on enhancing an existing e-commerce platform with new features and improved performance.

#### ***4.2.2 My Contribution***

- Developed new product category pages and filtering system
- Assisted in implementing a wishlist feature
- Collaborated on cart functionality improvements
- Conducted cross-browser testing and bug fixing

#### ***4.2.3 Technologies Used***

- React.js for frontend components
- CSS preprocessors (SASS)
- RESTful API integration
- Chrome DevTools for debugging and performance analysis

#### ***4.2.3 Outcomes***

The enhanced platform provided a smoother shopping experience with additional features that increased customer engagement and sales conversion rates.

### **4.3 Project 3: Interactive Web Application**

#### ***4.3.1 Project Overview***

The third significant project was developing an interactive web application for an educational institution to facilitate student-teacher communication and resource sharing.

#### ***4.3.2 My Contribution***

- Assisted in building user interface components
- Implemented form validation and data submission logic
- Collaborated on user authentication features
- Participated in testing and debugging processes

#### ***4.3.3 Technologies Used***

- React.js for frontend development
- Node.js and Express for backend functionality
- MongoDB for database management
- JWT for authentication

#### ***4.3.4 Outcomes***

The application successfully streamlined communication processes and resource sharing within the institution, receiving positive feedback from both students and faculty.

## **Chapter 5: Technical Skills Acquired**

My internship at CodeCartel LLP provided an excellent opportunity to enhance existing skills and develop new ones. This chapter outlines the technical skills I acquired during the internship period.

### **5.1 Front-End Development Skills**

#### ***5.1.1 HTML, CSS, and JavaScript***

I strengthened my foundational knowledge of these core web technologies and learned advanced techniques for creating responsive and interactive web interfaces.

### ***5.1.2 Framework Proficiency***

I gained practical experience with popular frameworks such as React.js and Bootstrap, learning component-based architecture, state management, and responsive design implementation.

### ***5.1.3 UI/UX Implementation***

Working closely with designers, I developed skills in translating design mockups into functional web interfaces while maintaining visual fidelity and user experience principles.

## **5.2 Back-End Development Skills**

### ***5.2.1 Server-Side Programming***

I was introduced to Node.js and Express for backend development, learning about server setup, routing, and middleware implementation.

### ***5.2.2 API Integration***

I gained experience in consuming RESTful APIs, handling responses, and implementing error handling for third-party service integration.

## **5.3 Development Tools and Practices**

### ***5.3.1 Version Control***

I became proficient in using Git for version control, learning branching strategies, conflict resolution, and collaborative development workflows.

### ***5.3.2 Development Environments***

I learned to set up and configure development environments using tools like npm, webpack, and various code editors.

### ***5.3.3 Testing and Debugging***

I developed skills in testing web applications across different browsers and devices, using browser developer tools for debugging and performance analysis.

## **5.4 Soft Skills Development**

### ***5.4.1 Team Collaboration***

Working in a professional environment enhanced my collaboration skills, teaching me effective communication with team members having different expertise levels.

### ***5.4.2 Time Management***

I learned to manage multiple tasks and adhere to project timelines while maintaining code quality.

### ***5.4.3 Problem-Solving***

Regular exposure to coding challenges improved my analytical thinking and problem-solving abilities.

## **Chapter 6: Challenges and Solutions**

Throughout my internship at CodeCartel LLP, I encountered various challenges that tested my technical skills and problem-solving abilities. This chapter discusses the major challenges faced and the solutions implemented.

### **6.1 Technical Challenges**

#### ***6.1.1 Cross-Browser Compatibility***

**Challenge:** Ensuring consistent functionality and appearance across different browsers. **Solution:** I learned to implement feature detection rather than browser detection, use polyfills for unsupported features, and conduct thorough testing on multiple browsers. I also became familiar with tools like BrowserStack for comprehensive testing.

#### ***6.1.2 Responsive Design Implementation***

**Challenge:** Creating truly responsive layouts that work well on all device sizes without specific breakpoint issues. **Solution:** I adopted a mobile-first approach, used flexible grid systems, and implemented relative units (rem, em, %) instead of fixed pixel values. Additionally, I learned to use media queries effectively to address specific viewport ranges.

#### ***6.1.3 Performance Optimization***

**Challenge:** Optimizing web pages for faster loading and better performance. **Solution:** I implemented techniques such as code splitting, lazy loading of images, minification of CSS and JavaScript files, and proper caching strategies. I also learned to use Chrome's Lighthouse tool to identify and address performance bottlenecks.

### **6.2 Workflow Challenges**

#### ***6.2.1 Version Control Conflicts***

**Challenge:** Managing code changes in a team environment without causing merge conflicts. **Solution:** I adopted practices such as frequent commits with descriptive messages, regular pulling of updates from the main branch, and proper branching strategies. I also learned to effectively resolve conflicts when they occurred.

#### ***6.2.2 Time Management***

**Challenge:** Balancing multiple project deadlines and task priorities. **Solution:** I developed a system of task prioritization based on deadlines and dependencies. I also learned to use project management tools effectively to track progress and manage time efficiently.

### **6.3 Learning Curve Challenges**

#### ***6.3.1 Adapting to New Technologies***

**Challenge:** Quickly learning and applying new frameworks and libraries as required by projects. **Solution:** I created a structured learning approach, focusing on official documentation, hands-on

practice, and building small proof-of-concept applications. I also sought guidance from senior developers and utilized online learning resources.

### ***6.3.2 Understanding Existing Codebases***

**Challenge:** Understanding and working with pre-existing codebase written by other developers.

**Solution:** I developed a methodology for code exploration, starting with understanding the project structure, then examining key files and functions. I also practiced code reading and documentation review before making changes.

## **6.4 Communication Challenges**

### ***6.4.1 Technical Communication***

**Challenge:** Effectively communicating technical issues and solutions to team members with varying technical backgrounds. **Solution:** I learned to adjust my communication style based on the technical knowledge of the audience, using visual aids and examples when necessary. I also improved my ability to translate complex technical concepts into understandable explanations.

# **Chapter 7: Conclusion**

## **7.1 Summary of Experience**

My four-month internship at CodeCartel LLP has been an invaluable learning experience that has significantly enhanced my understanding of professional web development. Working on real-world projects under the guidance of experienced professionals has allowed me to bridge the gap between theoretical knowledge and practical application. Throughout the internship, I contributed to various aspects of web development, from frontend implementation to testing and debugging, while collaborating with cross-functional teams.

## **7.2 Key Learnings**

The internship has provided me with several important insights:

1. **Technical Proficiency:** I have gained practical experience with modern web technologies and frameworks, improving my coding skills and understanding of best practices.
2. **Professional Workflow:** I have learned how development teams operate in a professional environment, including project management methodologies, version control practices, and collaboration techniques.
3. **Problem-Solving Approach:** The challenges encountered during projects have honed my analytical thinking and ability to find effective solutions to technical problems.
4. **Importance of Continuous Learning:** The rapidly evolving nature of web development technologies has reinforced the need for continuous learning and staying updated with industry trends.

5. **Soft Skills Development:** Beyond technical skills, I have developed crucial soft skills such as communication, time management, and teamwork that are essential for professional success.

### **7.3 Professional Growth**

This internship has been instrumental in my professional development as a web developer. It has provided me with:

- A portfolio of real-world projects that demonstrate my capabilities
- Industry connections and mentorship from experienced professionals
- Increased confidence in my ability to contribute to development projects
- A clearer understanding of career paths within web development
- Awareness of my strengths and areas for further improvement

### **7.4 Future Directions**

Building on this internship experience, I plan to:

1. Further develop my skills in specific areas such as modern JavaScript frameworks and backend technologies
2. Explore specialized fields within web development that align with my interests and strengths
3. Continue building personal projects to reinforce learning and expand my portfolio
4. Pursue opportunities for continuous professional development through courses and certifications

### **7.5 Closing Thoughts**

The internship at CodeCartel LLP has been a formative experience in my journey to become a professional web developer. The knowledge, skills, and confidence gained during these four months have provided a strong foundation for my future career in the field. I am grateful for the opportunity to learn from industry professionals and contribute to meaningful projects that have real-world impact.

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# Appendix: Internship Certificate

Internship Certificate from CodeCartel LLP dated April 2, 2025

## CODECARTEL LLP

Creative Design + Development Studio

BHOPAL 2 Apr 2025

Mr. Astitv Mishra  
02 April 2025

CodeCartel LLP  
6, New Market T.T. Nagar,  
Bhopal, Madhya Pradesh, 462003

Subject: "Certificate of Internship Completion"

This letter is to formally acknowledge the successful completion of an internship by Astitv Mishra, who served as a Web Development Intern at CodeCartel from 1st Dec 2024 to 31st March 2025.

During the internship, Astitv worked diligently under our development team and gained hands-on experience in various aspects of web development.

### Key Responsibilities:

- **Website and Application Development:** He contributed to the development of websites and web applications by assisting in writing clean and efficient code, creating new web pages, and integrating various functionalities.
- **Styling and Layout Design:** He took part in designing and implementing styling solutions using HTML, CSS, and JavaScript frameworks. His designs were both responsive and aligned with modern UI/UX standards.
- **Cross-team Collaboration:** Worked closely with senior developers, designers, and project managers to ensure the successful delivery of projects. He consistently demonstrated the ability to work as part of a team and actively participated in brainstorming sessions and code reviews.
- **Testing and Debugging:** Assisted in troubleshooting bugs, conducting tests to ensure compatibility across different browsers and devices, and refining code to optimize performance.
- **Research and Innovation:** Showed initiative by researching new technologies and best practices, suggesting improvements that enhanced the overall quality of our projects.

Throughout the internship, Astitv exhibited a strong work ethic, a keen desire to learn, and a genuine passion for web development. We have no doubt that he will bring great value to any future endeavors in this field.

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## CODECARTEL LLP

Creative Design + Development Studio

BHOPAL 2 Apr 2025

We wish Astitv the very best for future career opportunities and would be happy to recommend him for any position related to web development.

Sincerely,



**Naman Agrawal**  
[Co-Founder & CTO, CodeCartel LLP]

