



TRIBHUVAN UNIVERSITY

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

AN INTERNSHIP REPORT

ON

“E-COMMERCE”

AT

E-PRABIDHI PVT. LTD

SUBMITTED TO:

Department Of Computer Application

Birat Kshitiz College

Biratnagar, Nepal

In partial fulfillment of the requirement for the Bachelors of Computer Application

SUBMITTED BY:

Raksha Dhakal

TU Registration No.: 6-2-1074-0012-2019

Report of Internship for the period January 08 – March 10, 2024

JULY, 2024

INTERNSHIP CERTIFICATE



Date: 03/27/2024

TO WHOM IT MAY CONCERN

This is to certify that **Ms. Raksha Dhakal** has worked as **Java Spring Boot Intern** at **E-Prabidhi Pvt. Ltd.** from 8th Jan. 2024 to 10th March 2024.

During her tenure with us, she has displayed a strong commitment to learning and contributing to our developer team. She has actively worked in various projects and demonstrated a high level of enthusiasm and dedication.

She has consistently exhibited strong communication skills, attention to detail, and a proactive approach to problem-solving. She was a valuable asset to our organization, and her contributions significantly contributed to the success of our initiatives. We believe that she has gained valuable insights and hands-on experience during her internship, and we have no doubt that she will have a promising future.

We wish her a very best in all her future endeavors and are confident that she will continue to excel in her career.

Sincerely,

Shakti Thakur
Head of Human Resource
E-Prabidhi Pvt.Ltd





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MENTOR'S RECOMMENDATION

I hereby recommend that this internship report prepared under my supervision by **Ms. Raksha Dhakal** as in partial fulfillment of the requirements for degree of Bachelor of Computer Application (BCA) be processed for the evaluation.

Mr. Siris Timsina

MENTOR

E-PRABIDHI PVT. LTD



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SUPERVISOR'S RECOMMENDATION

I hereby recommend that this internship report prepared under my supervision by **Ms. Raksha Dhakal** as in partial fulfillment of the requirements for degree of Bachelor of Computer Application (BCA) be processed for the evaluation.

ER. KRISHNA KUSHWAHA

SUPERVISOR

BIRAT KSHITIZ COLLEGE, BIRATNAGAR





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FACULTY OF HUMANITIES AND SOCIAL SCIENCE

LETTER OF APPROVAL

This is to certify that this internship report prepared by **Miss Raksha Dhakal** entitled “**E-Commerce**” of the requirements for the degree of Bachelor of Computer Application has been evaluated. In our opinion, it is excellent, and is satisfactory in the scope and quality as an internship report for the required degree.

 <hr/> <p>Mr. Siris Timsina Mentor E-Prabidhi Pvt.Ltd</p>	<hr/> <p>Er. Krishna Kushwaha Supervisor Birat Kshitiz College</p>
<hr/> <p>Internal Examiner Birat Kshitiz College</p>	 <hr/> <p>External Examiner Tribhuvan University</p>

ACKNOWLEDGEMENT

The successful completion of this internship report would not have been possible without the support and assistance of many individuals and organizations. I feel immensely blessed to have gotten this during the course of my internship program. I would like to take this opportunity to offer my earnest admiration to each and every one of them.

All thanks to my adorable parents for their profound help and support during the cause of this project work.

A special gratitude and sincere thanks to **Mr. Siris Timsina**, who has been a continuous source of inspiration as my intern mentor. Without his constant guidance and suggestions, this report would have been nowhere near completion. My gratitude for his trust and generosity goes beyond words. I am thankful to my learned and revered supervisor for his upbeat personality, kindness; encouraging support and willingness to help have tangibly and greatly improve the quality of my Internship Report and brought up to its present status. I am grateful towards the officials, employees and the co-interns that I got to work with for being co-operative and friendly. The journey as an intern was possible because of the friendly yet professional environment managed by all the professionals in E-Prabidhi.

I convey my sincere gratitude to my internship supervisor **Er. Krishna Kushwaha**, Faculty member of Birat Kshitiz College. Without his kind direction and proper guidance this study would have been a little success. In every phase of the project his supervision and guidance shaped this report to complete perfection.

Finally, I would like to thank each and every one of my colleagues and the E-Prabidhi family, who always encouraged and support me throughout the project.

ABSTRACT

The internship report highlights the major works carried out in terms of academic and non-academic perspectives. The scope of this document is to identify and describe the analysis carried out, projects completed, experience gained and focuses on the achievements as an intern.

The quest to make life easier and processing faster has led to computerization of various processes. Computer technology has transformed so many sectors especially the educational sector in no small measure.

In an effort to foster technology-driven education, E-Prabidhi Pvt. Ltd. has developed an E-commerce web-application to create a common platform for instructors and students to utilize their leisure time for sharing knowledge and increasing their understanding. The fortunate to secure an internship opportunity with E-Prabidhi Pvt. Ltd., where they were introduced to various new terms, technologies, and languages. This experience provided valuable exposure to the dynamic environment that E-Prabidhi Developers offer, allowing expanding their skill set and knowledge base.

The projects worked in certainly helped by increasing practical knowledge depth. The research and development projects were particularly helpful in widening views regarding different web application development frameworks.

Keywords: *Internship, analysis, E-Prabidhi Pvt. Ltd., E-commerce, web-application, frameworks etc.*

TABLE OF CONTENTS

INTERNSHIP CERTIFICATE.....	ii
ACKNOWLEDGEMENT	vi
ABSTRACT.....	vii
LIST OF FIGURES	ix
LIST OF TABLES	x
LIST OF ABBREVIATIONS	xi
CHAPTER 1: INTRODUCTION	1
1.1 Introduction.....	1
1.2 Problem Statement	1
1.3 Objective	2
1.4 Scope and Limitation	2
1.4.1 Scope.....	2
1.4.2 Limitation.....	2
1.5 Report Organization.....	3
CHAPTER 2: INTRODUCTION TO ORGANIZATION	4
2.1 Organization Details	4
2.2 Organizational Hierarchy.....	4
2.3 Working Domains of Organization.....	5
2.4 Description of Intern Department/Unit.....	6
CHAPTER 3: BACKGROUND STUDY AND LITERATURE REVIEW	8
3.1 Background Study.....	8
3.2 Literature Review.....	8
CHAPTER 4: INTERNSHIP ACTIVITIES	10
4.1 Roles and Responsibilities	10
4.2 Mentor weekly log	10
4.3 Description of the Project	19

4.4 Task / Activities Performed	21
CHAPTER 5: CONCLUSION AND LEARNING OUTCOMES	24
5.1 Conclusion	24
5.2 Learning Outcome	24
REFERENCES	25
APPENDICES	26

Rakshya

LIST OF FIGURES

Figure 1: Organizational Hierarchy	5
Figure 2: Flowchart of E-Commerce	19
Figure 3: Use Case Diagram of E-Commerce	20
Figure 4: Picture taken during internship.....	26
Figure 5: Snapshot of Shown Product on User Homepage.....	26
Figure 6: Snapshot of Payment Method Page.....	27
Figure 7: Snapshot of E-Sewa Payment Page.....	27

LIST OF TABLES

Table 1: Unit Testing	22
Table 2: Integration Testing.....	23
Table 3: System Testing.....	23

Rakshya

LIST OF ABBREVIATIONS

CSS	Cascading Style Sheet
ER	Entity Relationship
HTML	Hypertext Markup Language
MySQL	My Structured Query Language
CRUD	Create, Read, Update, Delete
MVC	Model View Controller

Rakshya

CHAPTER 1: INTRODUCTION

1.1 Introduction

Internship Program is an opportunity provided by an employer to potential employees to work for an organization for a fixed, limited period of time. The experience and knowledge that was achieved during the internship period as an intern at E-Prabidhi for 8 Weeks as a java developer and involved in developing web applications under the mentorship of Mr. Siris Timsina, java developer at E-Prabidhi.

During the internship period, one of the projects on Spring Boot was an E-Commerce. An E-Commerce web application streamlines online buying and selling, with secure user registration, a managed product catalog, integrated shopping cart and checkout. Users enjoy responsive design for cross-device access. Security and performance optimization ensure smooth navigation, while analytics integration aids decision-making. In essence, e-commerce platforms enhance user convenience and drive sales for businesses.

1.2 Problem Statement

Developing a project with Spring Boot is motivating due to its extensive features and capabilities. As a newcomer, you may be excited about learning a powerful framework that simplifies the development process. The rich ecosystem of tools and libraries helps build robust and scalable applications. The challenging yet rewarding learning journey enhances your proficiency in using the framework and configuring its components, driving your enthusiasm for mastering the technology.

However, several problems can arise during development. Spring Boot's complexity can be overwhelming for beginners, making it difficult to understand how different components work together. Managing dependencies is challenging, requiring compatibility between various libraries and frameworks while handling version conflicts. Security is a major concern, especially when dealing with sensitive data or exposing APIs. Implementing effective authentication, authorization, and other security measures requires a thorough understanding of Spring Security and best practices to protect application.

1.3 Objective

The specific objectives related to the placement in the E-Prabidhi. Pvt. Ltd is as follows:

- **Learn Java Programming and Spring Boot Framework:** Gain knowledge about Java and the Spring Boot framework to develop full-stack applications that meet client requirements, utilizing multiple packages and libraries for reliable and scalable products.
- **Study MVC Pattern and Software Development Challenges:** Understand the MVC pattern in applications and explore various problems encountered in the software development life cycle.
- **Learn Testing Methodologies and eSewa Payment Integration:** Master the testing methodologies used in systems and learn to integrate the eSewa payment gateway into projects.

1.4 Scope and Limitation

1.4.1 Scope

As a Java Spring Boot Developer Intern, working with an experienced team of developers provides hands-on experience in software development using the Spring Boot framework. This internship offers the opportunity to learn about various aspects of software development, focusing specifically on the Spring Boot framework. Collaboration with the development team in the design, development, and deployment of applications using Java Spring Boot is a key part of the role. Responsibilities include developing and maintaining database structures and relationships with relational databases like MySQL. Writing clean, well-documented, and maintainable code that follows industry best practices and standards is expected.

1.4.2 Limitation

Some limitations of this internship are listed below:

- **Limited Access to Real Projects:** Depending on the size and nature of the company, interns may not have access to the same level of projects as full-time developers. They may be given smaller, more straightforward tasks that do not provide a comprehensive view of how the company operates.
- **Limited Exposure to Advanced Concepts:** Although interns will be given the opportunity to learn about Spring Boot framework, they may not have exposure to

more advanced concepts in application development due to time and resource constraints.

- **Limited Time for Independent Projects:** The internship period is usually limited, which may not provide enough time for interns to work on independent projects or undertake more complex tasks that require more time to complete.
- **Limited Opportunity for Team Collaboration:** Due to the fast-paced nature of the software development, interns may have limited opportunities to collaborate with other developers or work on team projects. This can limit their ability to learn from others and gain experience in a team environment.
- **Limited Exposure to Industry Trends:** Interns may not have access to the same level of industry events, conferences, or other learning opportunities as full-time developers, which can limit their exposure to industry trends and new technologies.

1.5 Report Organization

This report is written as a documentation of the internship done at E-Prabidhi Pvt. Ltd. This report deals with the experience and knowledge that was achieved during the internship period. The report is divided into different chapters they are given below:

- **Chapter 1:** In the first chapter we have discussed about the introduction of the project and in the introduction section we have described about the problem statement and as well as the objectives and scope and limitation of project.
- **Chapter 2:** In the second chapter we have discussed about the organization and the related study of the system. It is divided into sub chapter's introduction organization, organizational Hierarchy, Working Domains of Organization, Description of intern Department and Literature Review and Related Study.
- **Chapter 3:** In the third chapter we have discussed about the background study which includes background study and literature review.
- **Chapter 4:** In the fourth chapter we have discussed about the internship activities which include Roles and responsibilities, weekly log, and the description of the project, as well as the task performed during the internship.
- **Chapter 5:** The last chapter includes the conclusion and learning outcomes. It is about conclusion of the whole project. It also provides information about learning outcomes of the project.

CHAPTER 2: INTRODUCTION TO ORGANIZATION

2.1 Organization Details

Based in the vibrant city of Kathmandu, Nepal, this esteemed software development company has been serving a variety of clients since (month), 2010. Specializing in creating custom software solutions and mobile apps that prioritize simplicity, security, transparency, and delivering clear results, the company takes pride in building long-lasting relationships with valued clients, providing ongoing support and guidance throughout collaborations.

At the core of the company is a visionary approach focused on breaking down traditional business barriers through digital transformation. By seamlessly incorporating cutting-edge technology into everyday business operations, the aim is to help clients expand their global reach and stay competitive in the market. The company's unwavering dedication to leveraging the latest resources and technologies enables them to assemble a talented team of experts committed to delivering top-notch services.

Co-founded by a team of passionate entrepreneurs, the company exemplifies the power of collaboration and innovation. The diverse team includes skilled professionals in various fields, such as business analysis, programming, project management, quality assurance, UI design, digital marketing, and SEO content writing. Together, they work tirelessly to foster the growth of businesses and services, staying abreast of the latest advancements in technology.

The company strongly believes that investing in technology is essential for long-term success in today's fast-paced business world. By choosing this company as a trusted partner, clients adopt a forward-thinking approach that empowers their organization to thrive in an increasingly digital environment. Join them on this transformative journey and unlock the full potential of your enterprise.

2.2 Organizational Hierarchy

An organizational chart serves as a graphical representation that illustrates the internal framework of a company. It provides a comprehensive overview of the roles, duties, and connections among individuals within the organization. Below is the organizational chart for E-Prabidhi Pvt. Ltd:

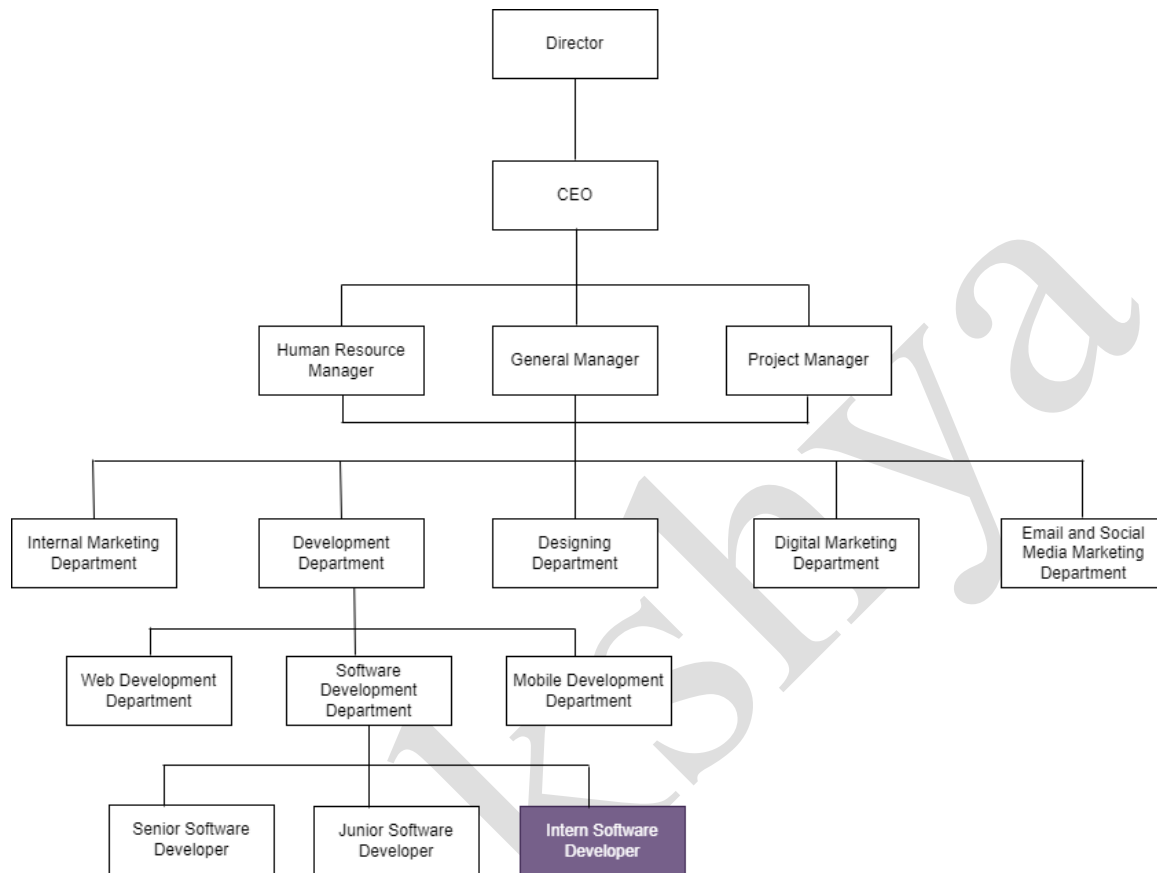


Figure 1: Organizational Hierarchy

2.3 Working Domains of Organization

In today's world, every organization depends heavily on technology to keep operations connected, drive revenue and support ever growing customer demands. Undoubtedly, Information Technology (IT) is the key to manage technology and it spans wide of areas that include but are not limited to things such as computer software, information systems, programming languages, database management systems, networking etc. keeping these in minds E-Prabidhi provides an impressive tally of services and solution. The work domain of E-Prabidhi Pvt. Ltd is shown below:

- **Web Designing:** Creating visually appealing and functional layouts for websites to enhance user experience.

- **Web Development:** Building and maintaining websites using programming languages like HTML, CSS, and JavaScript to ensure functionality and interactivity.
- **Software Development:** Designing and creating custom software solutions tailored to specific needs or industries, often involving programming and testing phases.
- **Web Hosting & Domain Registration:** Providing services to store website data on servers and registering domain names to make websites accessible on the internet.
- **E-Commerce Solution:** Developing platforms for online buying and selling, including features like shopping carts, payment gateways, and inventory management.
- **IT Consultancy:** Offering expert advice and guidance on information technology strategies, systems, and infrastructure to optimize business operations.
- **Hardware & Networking:** Providing solutions for setting up and maintaining computer hardware, networks, and infrastructure to ensure smooth IT operations.
- **Graphics Designing:** Creating visual content such as logos, banners, and illustrations to convey messages effectively and enhance brand identity.
- **Multimedia & Animation:** Producing engaging multimedia content and animations using various tools and techniques for marketing, education, or entertainment purposes.
- **Annual Maintenance Contract:** Offering ongoing support and maintenance services for IT systems, websites, and software to ensure they remain functional, secure, and up-to-date throughout the year.

2.4 Description of Intern Department/Unit

We have a mentor who is a seasoned professional Java developer with extensive experience in the field, spanning many years. Under the guidance of experienced mentors, interns participate in rigorous training sessions aimed at mastering Java Spring Boot concepts and techniques. These sessions cover essential topics such as dependency injection, MVC architecture, RESTful web services, data access with Spring Data, and security implementations with Spring Security.

During the training period, interns actively engage with mentors, asking questions and seeking clarification to deepen their understanding of Java Spring Boot principles and best practices. This interactive approach ensures that interns grasp the fundamental concepts and are prepared to apply them in real-world scenarios. Following the training phase, interns are assigned to collaborative projects that leverage their newly acquired Java Spring Boot skills. These projects

serve as practical demonstrations of their proficiency and provide hands-on experience in developing applications using the framework.

Throughout the project journey, interns receive ongoing support and guidance from mentors, enabling them to refine their skills, overcome challenges, and gain valuable insights into the software development process. By providing structured training, mentorship, and practical project opportunities, the Intern Department/Unit for Java Spring Boot equips interns with the knowledge and experience needed to succeed in software development roles.

Rakshya

CHAPTER 3: BACKGROUND STUDY AND LITERATURE REVIEW

3.1 Background Study

The Internet and computers have revolutionized electronic transactions like ownership transactions or the ability to purchase products or services online. In addition to buying and selling over the internet, e-commerce often includes connecting with business partners. This is not restricted by the time or physical location from any position that opened unrestricted new markets and can be done at any time. This is also known as the process of buying , selling, transmitting or exchanging goods , services and/or information via computer networks over internet .

Based on the type of participant of the transaction e-commerce can be categorized mainly in four type. If the users of the portal are governments' bodies, then the model is defined as the government to government (G2G). If the users are other businesses only, it is known as business to business (B2B). When participants are both businesses and consumers in the transactions, then it is referred to as the business to consumer model (B2C). If one consumer is selling goods or services to another consumer through online, it is known as Consumer to consumer (C2C) e-commerce. This process of buying and selling is generally handled by a third party platform that helps to take care of the transaction information, generally known as a marketplace (Timalsena, AUGUST, 2020).

3.2 Literature Review

The history of e-commerce in the world began with the foundation of CompuServe in 1969. In 1984, the same company, believed to be the first major e-commerce enterprise of the world, launched Electronic Mall that allowed its users to buy from more than 100 online retailers/merchants. It was the first instance of online retailing in the world. E-commerce worldwide is flourishing and has now seen a boom. E-commerce was introduced in Nepal with an aim of letting Nepali's residing abroad send gifts to their families, friends, and relatives living here.

Thamel.com the first-ever e-commerce company in Nepal. After us, munchahouse.com, now changed into muncha.com was launched by Muncha House, the first-ever online department store in Nepal, located in Balkumari, Ason. Established in 2000, it is considered the first online

department store in Nepal. Nepali's living in the USA, the UK, and Australia used this website to buy and send gifts to their near and dear ones in Nepal. Gradually, many e-commerce companies came into operation. Such major companies include NepBay.com, now changed into Thulo Market established in 2007 (as an online directory of products and shops in Kathmandu), Foodmandu (2010), Sastodeal (2011), Urban Girl, now changed into UG Bazaar (2012), Daraz (initially started as Kyamu in 2013 and acquired by Alibaba Group in 2018) and many more.

The shift from physical stores to virtual ones began in the late 1990s. With the launch of eSewa, the first payment gateway of Nepal, in 2009, and other payment services like Khalti, IME Pay, and many more, a fertile ground has been laid for the growth of e-commerce in Nepal. Today, there are about 40k+ registered commercial websites in Nepal. Sooner or later, every small or big business venture will launch their e-commerce sites. There are hundreds of e-commerce sites in Nepal already (waftcommerce, 2022).

CHAPTER 4: INTERNSHIP ACTIVITIES

4.1 Roles and Responsibilities

The Eight Weeks internship at E-Prabidhi Pvt. Ltd involved various activities and tasks as per the requirement of both the organization and the project, mostly worked as Java Backend developer.

- Major roles of mine were as a Backend Developer using Spring Boot Framework to develop the web application and websites.
- In my role as a Java Spring Boot developer tasked with designing the database, my main goal was to create a strong and effective structure that perfectly suited the needs of our ecommerce platform.
- I was tasked with creating the logical backbone of our application.
- I ensured our application's data security by encrypting passwords and implementing access controls with Spring Security to restrict user permissions effectively.

4.2 Mentor weekly log

Weekly Internship Log

Name of the Student: Raksha Dhakal

Date: 2024/01/15

Project/Job Title: E-Commerce

Week Number: 1

Responsibilities:

- Understand the company's environment.
- Read introductory material on Spring framework.
- Understand project requirements.

Activities:

- View Organizational hierarchy of E-Prabidhi pvt.com.
- Hands on project requirement analysis.

Observations:


- Researched about Maven fundamentals, project structure, and lifecycle.
- Studied about Hibernate ORM basics and object-relational mapping.

Plan for the next Week:

Next week, the plan is to build a basic Spring Boot and web application. The tasks include setting up the framework, creating essential components, and integrating a simple front-end to understand Spring Boot better.

Performance approval by mentor

Great plan for next week!

Mentor's Approval	Supervisor's Approval
Signature:  Name: Mr.Siris Timsina Date: 2024/01/15	Signature: Name: Er.Krishna Kushwaha Date:2024/04/10

Weekly Internship Log

Name of the Student: Raksha Dhakal

Date: 2024/01/23

Project/Job Title: E-Commerce

Week Number: 2

Responsibilities:

My second week of internship was to setup spring boot project using spring initializer.

Activities:

- Configured dependencies: MYSQL Driver, Spring Data JPA, Spring Boot Actuator, Spring Security, Spring Boot DevTools, Spring Web.
- Configured application properties for database connectivity.
- Integrated Bootstrap for styling and responsive design.

Observations:


Setting up a Spring Boot application can present several challenges i.e. Configuring dependencies like database drivers, ORM tools, and security frameworks requires understanding their interactions and configurations.

Plan for the next Week:

The plan is to develop a user management module for the application.

Performance approval by mentor

Your understanding of the material is impressive.

Mentor's Approval	Supervisor's Approval
Signature:  Name: Mr.Siris Timsina Date: 2024/01/23	Signature: Name: Er.Krishna Kushwaha Date:2024/04/10

Weekly Internship Log

Name of the Student: Raksha Dhakal

Date: 2024/01/31

Project/Job Title: E-Commerce

Week Number: 3

Responsibilities:

My responsibility for the third week was to develop a User Management module for the application.

Activities:

- Created **User** and **Role** entity classes.
- Defined relationships using annotations like **@OneToMany**, **@ManyToOne**, etc.
- Implemented service interfaces (**UserService**, **RoleService**) and their implementations (**UserServiceImpl**, **RoleServiceImpl**).
- Developed JSP pages (**user.jsp**, **role.jsp**) for CRUD operations.
- Created **UserController.java** and **RoleController.java** for handling HTTP requests.

Observations:


Successfully completed all the assigned responsibilities.

Plan for the next Week:

The plan is to develop a Category and Product Module for the application.

Performance approval by mentor

Your problem-solving skills have improved noticeably.

Mentor's Approval	Supervisor's Approval
Signature:  Name: Mr.Siris Timsina Date: 2024/01/31	Signature: Name: Er.Krishna Kushwaha Date:2024/04/10

Weekly Internship Log

Name of the Student: Raksha Dhakal

Date: 2024/02/08

Project/Job Title: E-Commerce

Week Number: 4

Responsibilities:

My responsibility for the fourth week was to develop a Category and product module for the application.

Activities:

- Created entity classes: **category.java** and **product.java**
- Defined relationships using annotations: **@OneToMany**, **@ManyToOne**
- Created service interfaces and implementations: **CategoryService.java**, **CategoryServiceImpl.java**, **ProductService.java**, **ProductServiceImpl.java**
- Developed JSP pages for CRUD operations: **category.jsp**, **product.jsp**
- Created controller: **CategoryController.java** **ProductController.java**

Observations:


Successfully completed all the assigned responsibilities.

Plan for the next Week:

The plan is to develop a Cart and Order Module for the application.

Performance approval by mentor

Excellent understanding of concepts.

Mentor's Approval	Supervisor's Approval
Signature:  Name: Mr.Siris Timsina Date: 2024/02/08	Signature: Name: Er.Krishna Kushwaha Date:2024/04/10

Weekly Internship Log

Name of the Student: Raksha Dhakal

Date: 2024/02/17

Project/Job Title: E-Commerce

Week Number: 5

Responsibilities:

My responsibility for the fourth week was to develop a Cart and Order module for the application.

Activities:

- Created entity classes: **cart.java** and **order.java**.
- Defined relationships using annotations like **@OneToMany** and **@ManyToOne**.
- Created service interface and implementation classes: **CartService.java**, **CartServiceImpl.java**, **OrderService.java**, and **OrderServiceImpl.java**.
- Created JSP pages: **cart.jsp** and **order.jsp** for CRUD operations.
- Created controllers: **CartController.java** and **OrderController.java**.

Observations:


Successfully completed all the assigned responsibilities.

Plan for the next Week:

The plan is to develop **payment system integration** for the application.

Performance approval by mentor

Excellent problem-solving skills.

Mentor's Approval	Supervisor's Approval
Signature:  Name: Mr.Siris Timsina Date: 2024/02/17	Signature: Name: Er.Krishna Kushwaha Date:2024/04/10

Weekly Internship Log

Name of the Student: Raksha Dhakal

Date: 2024/02/27

Project/Job Title: E-Commerce

Week Number: 6

Responsibilities:

My responsibility for the fourth week was to develop payment system integration for the application.

Activities:

- Studying eSewa integration, focusing on technical architecture, implementation methods, and user experience.
- Created PaymentController for managing payments.
- Developed PaymentService to handle eSewa business logic.

Observations:

Successfully completed all the assigned responsibilities.

Plan for the next Week:

The plan is to build REST API for the application.

Performance approval by mentor

Improved consistent.

Mentor's Approval

Signature: 

Name: Mr.Siris Timsina

Date: 2024/02/17

Supervisor's Approval

Signature:

Name: Er.Krishna Kushwaha

Date:2024/04/10

Weekly Internship Log

Name of the Student: Raksha Dhakal

Date: 2024/03/07

Project/Job Title: E-Commerce

Week Number: 7

Responsibilities:

My responsibility for the Seventh week was building REST API for the application.

Activities:

- Created entity class for data modeling.
- Developed repository interface for database operations.
- Implemented service class for business logic.
- Established controller class for handling HTTP requests.

Observations:

Successfully completed all the assigned responsibilities.

Plan for the next Week:

The plan is to study and understand how can we send email via SMTP for the application.

Performance approval by mentor

Consistent effort and dedication.

Mentor's Approval

Signature: 

Name: Mr.Siris Timsina

Date: 2024/03/07

Supervisor's Approval

Signature:

Name: Er.Krishna Kushwaha

Date:2024/04/10

Weekly Internship Log

Name of the Student: Raksha Dhakal

Date: 2024/03/10

Project/Job Title: E-Commerce

Week Number: 8

Responsibilities:

My responsibility for the eighth week was studying and understands how we can send email via SMTP.

Activities:

- Add spring-boot-starter-mail dependency.
- Configure Gmail SMTP server settings.
- Defines methods for email operations.
- Implements EmailService with email sending logic.

Observations:


Successfully completed all the assigned responsibilities.

Plan for the next Week:

The plan is to study and understand how can we send email via SMTP for the application.

Performance approval by mentor

Consistent effort and dedication.

Mentor's Approval	Supervisor's Approval
Signature:  Name: Mr.Siris Timsina Date: 2024/03/10	Signature: Name: Er.Krishna Kushwaha Date:2024/04/10

4.3 Description of the Project

There were various tasks that we have done in the project. After I started internship, I was trained with different tools and languages needed and was explained about the basic working flow of the project.

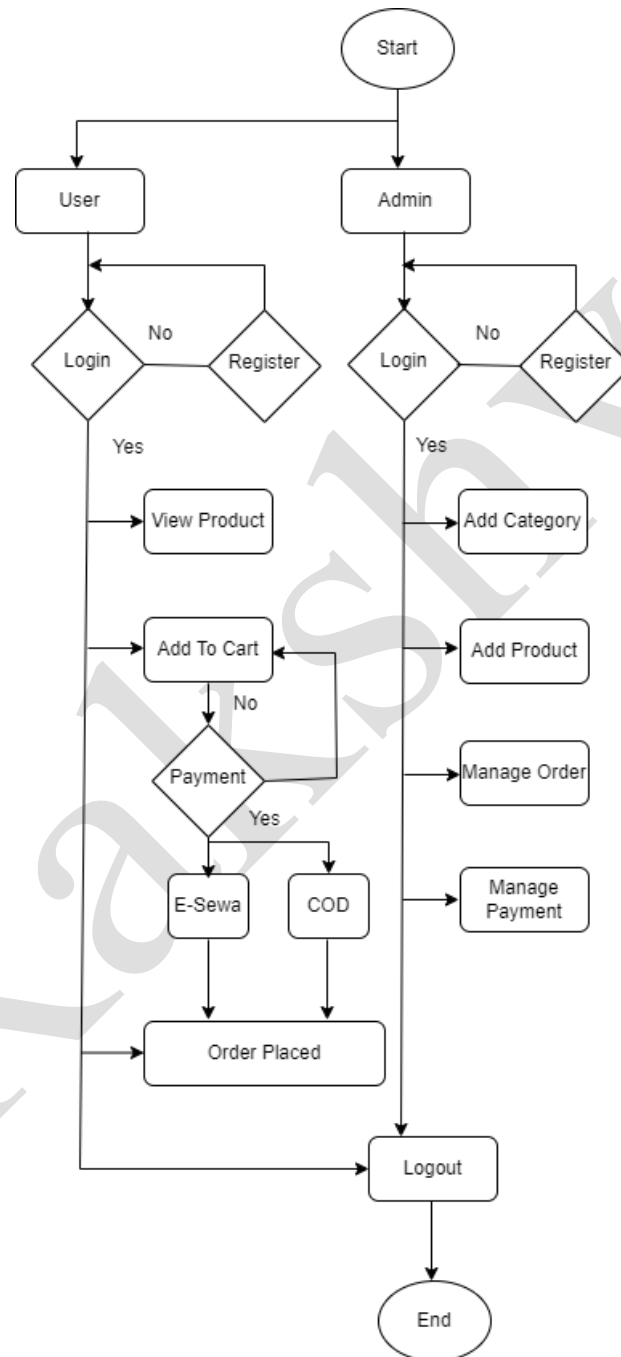


Figure 2: Flowchart of E-Commerce

The above flowchart illustrates the process flow of an e-commerce platform. It begins with a "Start" node indicating the initiation of the process. Users have two options: "Login" or "Register," represented by rhombus shapes. If the user chooses to register ("Yes" path), they are directed to the registration process, while opting for login ("No" path) leads them to the login process. After successful authentication, users can either view products or log out. Viewing products leads to the option of adding them to the cart. From there, users proceed to the payment stage, where they can select between two payment methods: "E-Sewa" or "COD" (Cash on Delivery). Depending on the choice, the order is either placed or canceled. After the payment process, the order is placed, and users have the option to log out, ending the process, or continue to browse, restarting the product viewing cycle. Additionally, there are administrative functionalities represented in the flowchart, such as adding categories, adding products, and managing orders and payments. The process concludes with an "End" node, marking the end of the flowchart. Overall, the flowchart provides a clear visualization of the various paths users can take within the e-commerce platform, along with administrative tasks involved in managing the platform.

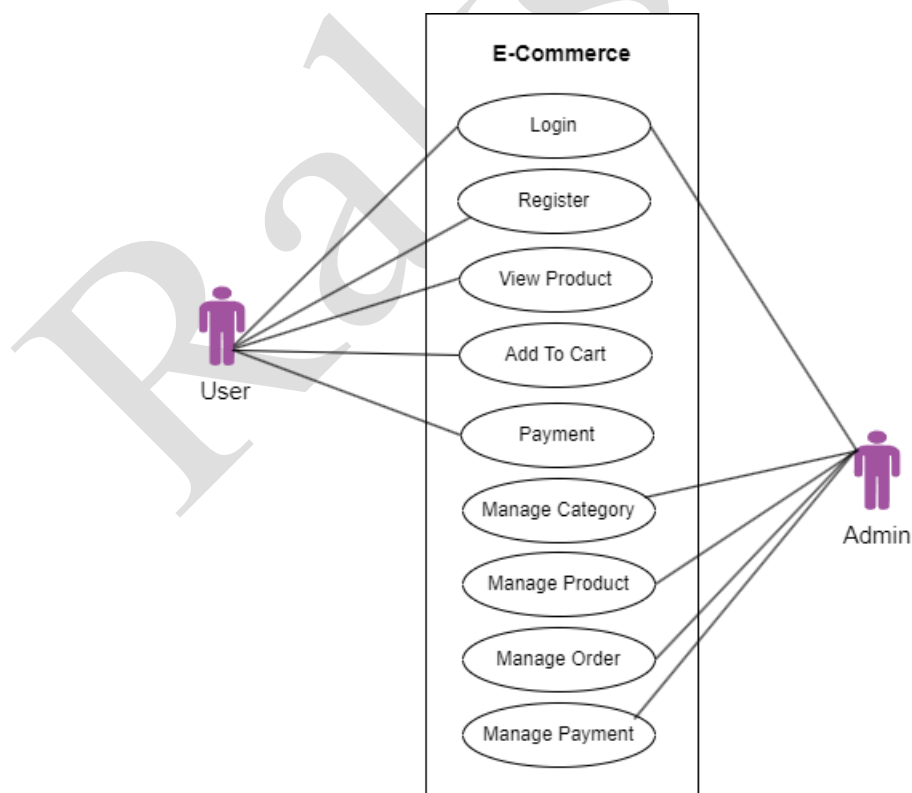


Figure 3: Use Case Diagram of E-Commerce

The above use case diagram shows the core functionalities of an e-commerce platform, with "E-Commerce" at its center. Surrounding it are nodes representing essential actions like "Login," "Register," "View Product," and more. Two distinct actors, "User" and "Admin," signify user roles, with users engaging in activities such as browsing products and managing carts, while admins oversee tasks like category and product management. Additionally, the diagram illustrates relationships between functionalities, like the connection between "Manage Product" and "View Product," suggesting that product administration is linked to product inspection. Overall, this concise depiction offers insight into user and admin roles and highlights the interplay between various system features, aiding in understanding the e-commerce platform's operational dynamics.

4.4 Task / Activities Performed

There are several tasks which I perform as a Java Spring Boot backend developer. These include ensuring user authentication and authorization, formatting data for user presentation, validating user input, implementing CRUD operations. My role is pivotal in creating a robust backend architecture that enables seamless interaction between users and the application. Some of the tasks were:

- **User Authentication and Authorization:** Implementing user registration, login, and logout functionalities, while managing user roles and permissions.
- **Product Management:** Adding, updating, and deleting products, managing product categories and attributes.
- **Shopping Cart:** Enabling functionalities for adding/removing items, calculating total prices, and managing quantities and variations of products within the cart.
- **Checkout Process:** Designing and implementing a smooth checkout flow, capturing shipping and billing information, and integrating secure payment gateways for transaction processing.
- **Security and Privacy:** Implementing measures for securing user data and transactions, ensuring compliance with data protection regulations.

To work with the system we used Spring Boot,

- **Spring Boot:** Spring Boot, developed by Pivotal Software, is a Java framework that makes building web applications easier. It handles tasks like managing dependencies and deploying apps, so developers can create strong backend systems quickly. Spring Boot works well with databases, messaging systems, and cloud services, thanks to features like dependency injection and built-in security. It's easy to use because it

reduces repetitive code, letting developers focus on what matters most: the business logic. Plus, there's lots of help available in the documentation and from the community, making it popular for all kinds of projects.

The test cases for the projects are done in three ways Unit Testing, Integration Testing and System Testing which is shown in the table below:

Table 1: Unit Testing

Test no.	Test cases	Test data	Expected Outcomes	Actual result	Status
1	Admin Login	Enter admin username and password	Admin dashboard is opened	Admin dashboard is opened	Pass
2	User Registration	Enter required fields for registration	User is successfully registered	Connection problem	Fail
3	User Registration	Enter required fields for registration	User is successfully registered	Connection successful and user registered successfully	Pass
4	User Login	Enter valid username and password	User dashboard is opened	opens the register page	Fail
5	User Logout	Press Logout button	Normal home page is opened	Session off is not executed, so the previous user is logged in	Fail

Table 2: Integration Testing

Test no.	Test cases	Test data	Expected outcomes	Actual outcome	status
1	Registration	Entry the required field	Successfully registered	Failed to register	Fail
2	Registration	Entry the required field	Successfully registered	Success fully registered	Pass
3	Update item	Update item by admin and shown in user interface	Successfully update but not shown in user interface	Shown in user interface	Fail
4	Update items	Update item by admin	Successfully update and shown	Shown in user	Pass

Table 3: System Testing

Test no.	Test case	Expected result	Actual result
1	Entry the valid data in user Id and user password and click on login button on login page.	Login page should be display.	Login page opened.
2	Entry the invalid data in user Id and user password and click on login button on login page.	Registration Page will be displayed.	Login the user.

CHAPTER 5: CONCLUSION AND LEARNING OUTCOMES

5.1 Conclusion

The internship has proven to be a highly beneficial and fulfilling journey for me. It afforded me the chance to gain invaluable insights into the dynamics of a real-world work environment, while also enabling me to forge connections with various professionals across the IT sector. Throughout the internship, I immersed myself in the intricacies of Java Spring Boot development, acquiring a comprehensive understanding of its processes and workflows.

5.2 Learning Outcome

- Gain proficiency in Spring Boot framework for rapid backend development.
- Acquire backend development skills for designing, developing, and deploying robust backend services.
- Handle functionalities such as user authentication, product management, order processing, and payment integration.
- Learn effective database management techniques using MySQL.
- Implement CRUD operations and model schemas to manage data effectively.
- Ensure data confidentiality, integrity, and availability through security measures like authentication, authorization, and encryption.

REFERENCES

(2022)Retrieved from waftcommerce: <https://www.waftcommerce.com/blog/ecommerce-concept-in-nepal>

Timalsena, L. (AUGUST, 2020). *E-commerce Adoption by Micro and Small Enterprises in Smal.*

Rakshya

APPENDICES



Figure 4: Picture taken during internship

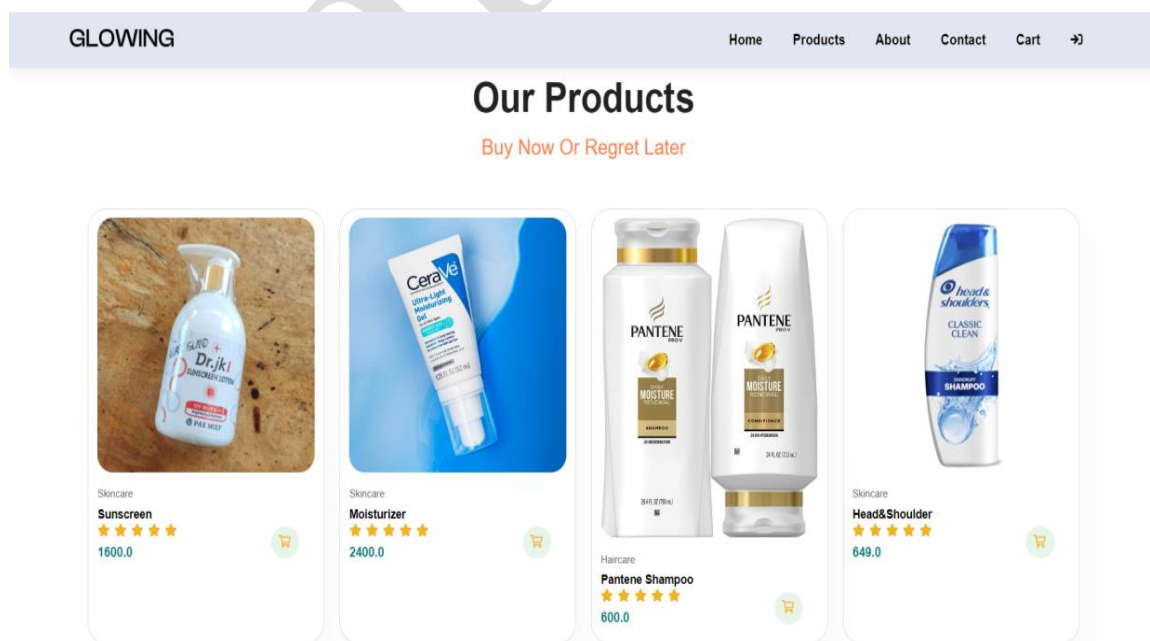


Figure 5: Snapshot of Shown Product on User Homepage

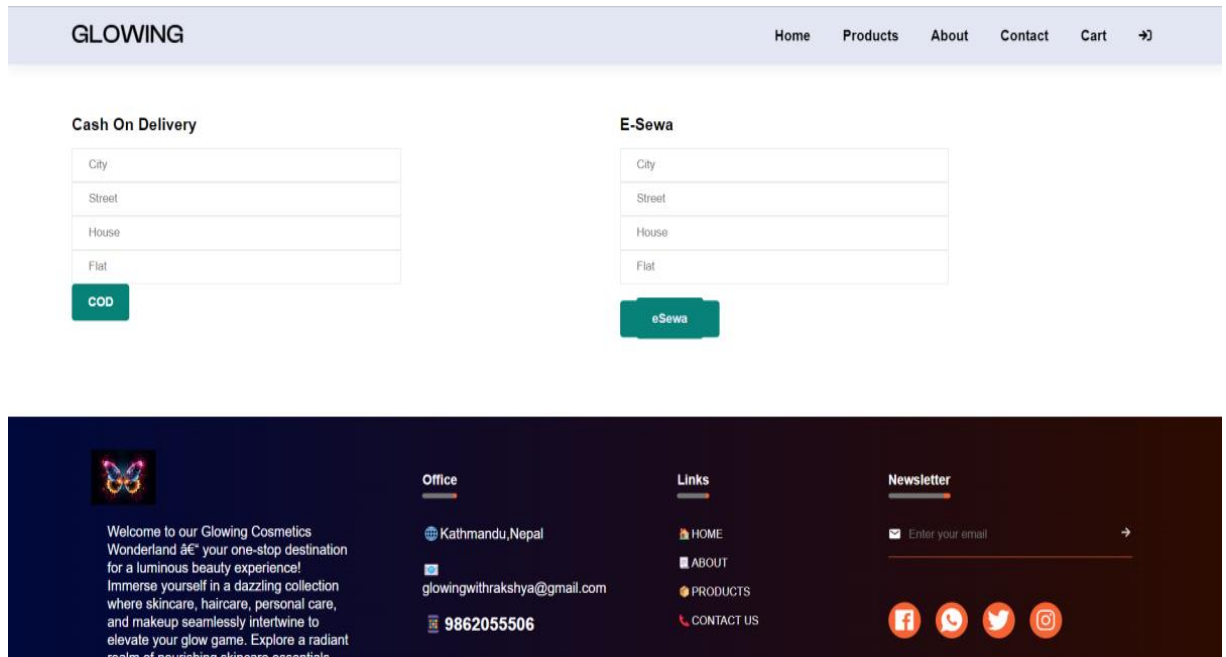


Figure 6: Snapshot of Payment Method Page

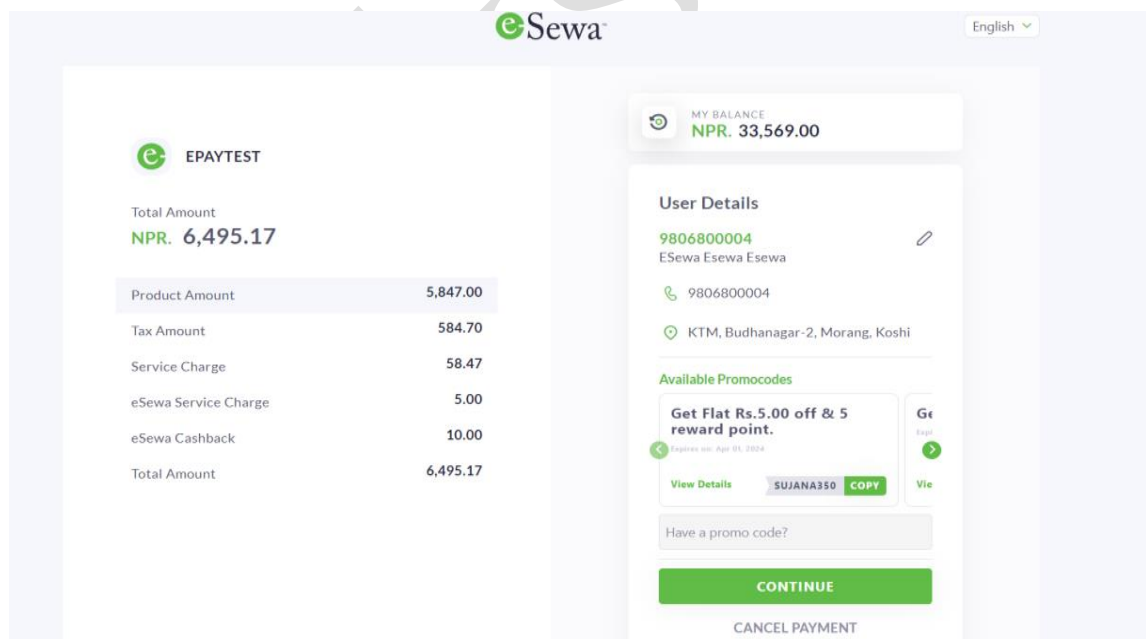


Figure 7: Snapshot of E-Sewa Payment Page