

## **Tribhuvan University**

## **Faculty of Humanities and Social Sciences**

#### A PROJECT REPORT ON

#### **CRYPMART**

#### A DIGITAL MARKETPLACE

#### **Submitted to**

## **Department of Computer Application**

**Prithvi Narayan Campus** 

In partial fulfillment of the requirements for the Bachelor's in Computer Application

Submitted by

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11/2081

Under the supervision of

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## **Faculty of Humanities and Social Sciences**

## **Prithvi Narayan Campus**



## SUPERVISOR'S RECOMMENDATION

I hereby recommend that this project prepared under my supervision by SUDIP PAUDEL entitled "**DIGITAL MARKETPLACE**" in partial fulfillment of the requirements for the degree of Bachelor of Computer Application is recommended for the final evaluation.

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## LETTER OF APPROVAL

This is to certify that this project prepared by SUDIP PAUDEL entitled "**DIGITAL MARKETPLACE**" in partial fulfillment of the requirements for the degree of Bachelor of Computer Application has been well studied. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

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## **ACKNOWLEDGEMENT**

I would like to express my sincere gratitude to my teacher and supervisor Gyaneshwor Dhungana for their invaluable guidance throughout the development of this Digital Marketplace Website. Their constructive feedback and expertise played a crucial role in shaping the application's architecture and features.

I am also thankful for the support and discussions with my friends, which added depth and creativity to the project. Additionally, I acknowledge the various online and offline educational resources that contributed to me creating this project.

#### **SUDIP PAUDEL**

**ABSTRACT** 

The "Digital Product Marketplace" project aims to create a streamlined online platform for

purchasing and selling digital products. This project focuses on enhancing user experience

through carefully structured backend, ensuring smooth transaction processing and data

management. MYSQL provides a flexible and scalable database solution, while PHP power

the server-side logic. HTML & JS provides a dynamic, user-friendly interface that allows

seamless interaction between buyers and vendors. The use of AJAX not only speeds up the

development process but also enables efficient data handling and real-time updates, making

this platform highly functional and reliable. This project outlines the importance of a strong

backend and seamless frontend in the creation of a marketplace that is both efficient and user-

friendly.

Keywords: flexibility, scalability, functionality, efficiency and user-friendliness

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## LIST OF ABBREVIATIONS

**Short Full Form** 

HTML Hyper Text Markup Language

PHP Hypertext Preprocessor

SQL Structured Query Language

CSS Cascading Style Sheet

AJAX Asynchronous JavaScript and XML

JSON JavaScript Object Notation

UI User Interface

API Application Program Interface

#### **CHAPTER 1: INTRODUCTION**

#### 1.1 Overview

The Digital Product Marketplace "Crypmart" project aims to create a specialized online platform for buying, selling, and managing digital products such as software, e-books, and design assets. Unlike traditional e-commerce sites, which often overlook the unique needs of digital goods, this marketplace is designed exclusively for digital content, making it easier to navigate, secure transactions, and manage inventory. The platform ensures scalability, responsiveness, and a user-friendly experience for both buyers and sellers. With an efficient backend to support smooth transactions and dynamic interactions, this project provides a cohesive and efficient solution that meets the growing demand for digital products in today's digital economy.

#### 1.2 Problem Statement

Lack of specialized platforms tailored to the unique needs of digital products is a significant public issue in digital commerce. Existing e-commerce sites are primarily designed for physical goods and, as a result, struggle to manage the delivery, security, and user experience requirements of digital items. [1] This leads to frequent delivery issues, confusing user interfaces, high platform fees, and inadequate protection for digital goods, which ultimately impacts both buyers and sellers. Crypmart aims to address these gaps by focusing exclusively on digital products, offering a streamlined delivery system, a simplified user interface, and strengthened security features to ensure a smooth and secure experience for all users involved in digital transactions.

## 1.3 Objectives

- To create a user-friendly marketplace specifically designed for selling digital products.
- To implement an automated system for instant digital product delivery upon purchase.
- To minimize platform fees to provide cost-effective solutions for sellers.

## 1.4 Scope & Limitations

#### Scope

- User-friendly marketplace specifically designed for selling digital products
- Instant product delivery is provided upon purchase, ensuring a seamless and efficient experience for customers.
- It offers low transaction fees, making it cost-effective for sellers.

#### Limitations

- Limited payment methods.
- Bulk uploading at a time isn't supported.
- Lack of buyer seller communication system

## 1.5 Development Methodology

The "Digital Marketplace" system was developed using the waterfall methodology. This methodology divides the software development process into sequential phases, with each phase serving as a foundation for the next. The waterfall methodology follows a linear and structured approach, where progress flows steadily through these distinct phases:

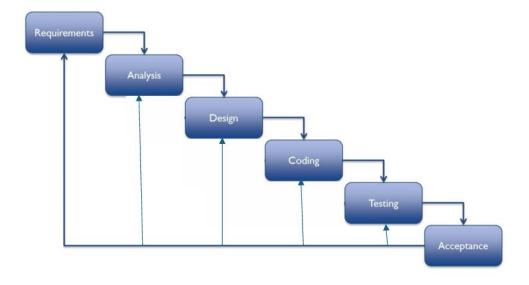


Figure 1.1 Waterfall methodology

**Planning**: In the planning phase, the project's objectives, scope, and feasibility were defined.

Detailed project schedules and resource allocations were established to ensure a clear roadmap

for development.

**Analysis:** During the analysis phase, the requirements for the system were gathered and

thoroughly analyzed. This involved understanding the needs of both sellers and buyers, and

documenting functional and non-functional requirements.

System Design: The system design phase was divided into two parts—logical and physical

design. The logical design focused on the conceptual framework of the system, including data

models and process flows.

**Implementation:** In the implementation phase, the system was built according to the design

specifications. This involved coding the application, integrating various components, and

setting up the necessary infrastructure to support the platform.

**Testing:** Testing is conducted to identify and resolve any issues or bugs. This phase ensured

that the system met all the specified requirements and functioned correctly under different

conditions.

**Deployment:** In the deployment phase, the Digital Marketplace system was released for use.

This phase included the installation of the system in the production environment, user training,

and initial support to address any post-release issues.

1.6 Report Organization

**Chapter 1: Introduction** 

Here, we briefly introduce our project, its existing problems, our solution to that problem, and

its scope and limitations.

Chapter 2: Background Study and Literature Review

This chapter includes project-related theories, general concepts, and a study of preexisting

similar projects.

**Chapter 3: System Analysis and Design** 

3

All the documentation of actual project development activities like requirement gathering, feasibility study modeling, and designing are included in this chapter.

## **Chapter 4: Implementation and Testing**

In the implementation part, we define the tools used to implement our project like CASE tools, and testing is performed for each function of the product.

## **Chapter 5: Conclusion and Future Recommendations**

This chapter includes the conclusion and recommendations of the project.

# CHATPER 2: BACKGROUND STUDY AND LITERATURE REVIEW

#### 2.1. Background Study

In today's digital age, the market for digital products is expanding rapidly. The increasing reliance on digital content and tools underscores the need for a dedicated online marketplace tailored specifically to these products. Existing e-commerce platforms often fall short in addressing the unique requirements of digital goods, creating a gap that is not fully met by current solutions.

This project aims to bridge that gap by developing an online platform exclusively for digital products. By concentrating on this niche, the platform will streamline the buying and selling processes, offering a more efficient and user-friendly experience than traditional e-commerce sites. The goal is to create a specialized environment where digital products can be easily discovered, purchased, and managed.

A dedicated marketplace for digital products is increasingly important as these products continue to dominate the market. This platform will facilitate smoother transactions and provide enhanced security and ease of use. By addressing the limitations of existing systems, it will offer a more cohesive and tailored experience for users.

Overall, the project seeks to improve the marketplace for digital goods by providing a platform designed specifically for their unique needs. This specialized approach will help to overcome the challenges faced by current e-commerce solutions and support the growing demand for digital products.

#### 2.2 Literature Review

The development and management of digital marketplaces have become increasingly relevant as the digital economy expands. Various studies have explored the challenges and dynamics of such platforms, particularly focusing on transaction management, user experience, and security concerns.

Fradkin's report provides a thorough analysis of the economic principles that govern digital marketplaces. The study highlights significant challenges, such as high platform fees that reduce sellers profitability. This issue is directly addressed in our project, which eliminates transaction fees, thereby creating a more attractive platform for digital creators. Furthermore, Fradkin emphasizes the necessity of trust, transparency, and robust security measures in digital transactions. Our project reflects these principles by integrating strong security protocols, ensuring a trustworthy environment for both buyers and sellers. [2]

Mavenir's whitepaper discusses the future of digital commerce, particularly within the telecommunications industry, and emphasizes the need for agility and flexibility in digital platforms. The study suggests that platforms must quickly adapt to changing market conditions and user demands. Our project embraces this concept through the adoption of an agile model, allowing for continuous improvement and the incorporation of user feedback. Additionally, the whitepaper underscores the importance of supporting a diverse range of digital products, which is a key objective of our platform as it caters to various digital assets, including eBooks, software, and design templates. [3]

## **CHATPER 3: SYSTEM ANALYSIS & DESIGN**

## 3.1 System Analysis

#### 3.1.1 Requirement Analysis

System analysis and design is a process that many companies use to evaluate particular business situations and develop ways to improve them through more optimal methods. Companies may use this process to reshape their organization or meet business objectives related to growth and profitability. System analysis and design also typically emphasize how systems act, their relationships to other subsystems and the ability of both to meet a specific goal. This often involves analyzing a system's performance and the quality of its output.

#### 3.1.1.1. Functional Requirement

A Functional Requirement is a description of the service that the software must offer. It describes a software system or its component. A function is nothing but inputs to the software system, its behavior, and outputs. It can be a calculation, data manipulation, business process, user interaction, or any other specific functionality which defines what function a system is likely to perform. Functional Requirements in Software Engineering are also called Functional Specification.

**Table 3.1 Functional Requirements of Registration Module** 

Title	Registration
Description	Users should be able to register with their unique valid email, name
	password and other data
Input	Email, Password, Name, Role etc.
Source of Input	Registration Screen
Result	A user will be registered.
<b>Pre-Condition</b>	Email must be unique and valid, the name must be valid, and the
	password must be at least 8 characters long, containing at least one
	lowercase letter, one uppercase letter, one number, and one special
	character.

**Table 3.2 Functional Requirement of User Login Module** 

Title	Login
Description	Users should be able to login with their email and password
	registered by them.
Input Data	Email and password
Source of Input	Login Screen
Result	In case of valid credentials, it should be redirected to the
	respective dashboard as per role. If credentials are not valid,
	display a proper error message.
<b>Pre-Condition</b>	Email and password must be already registered.

**Table 3.3 Functional Requirement of Add products Module** 

Title	Add Product
Description	Seller can add product within the expected categories.
Input Data	Title, Description, Category, Price, Product File & Banner etc
Source of Input	Add Product Screen
Result	After filling all the input fields the seller product will be saved to
	the database
<b>Pre-Condition</b>	Must fill all required fields

**Table 3.4 Functional Requirement of View products Module** 

Title	View Products
Description	User can add view product in single page by navigating to the
	product page and also view by category.
Source of Input	Product page in navbar, categories link
Result	The user will get the products on the basis of their selected
	category.

**Table 3.5 Functional Requirement of Search products Module** 

Title	Search Product
Description	User can search product based on product title or description.
Input Data	Search keyword
Source of Input	Search Page Screen
Result	After pressing enter, the related products will be displayed and user can view by sorting (by price/ by date )
<b>Pre-Condition</b>	Must enter search payload

**Table 3.6 Functional Requirement of checkout products Module** 

Title	Checkout
Description	User can purchase their cart product.
Input Data	Buyer name, Card Details etc
Source of Input	Payment Page Screen
Result	After Checkout/payment the success screen is showed to user
<b>Pre-Condition</b>	Card data must be valid

## **Other Functional Requirements**

- **Authentication**: Customers and sellers must be able to create and manage accounts securely.
- **Product Management**: Sellers should be able to list digital products, while customers can search and purchase them.
- Payment Gateway Integration: The platform must support secure payment transactions.
- **Digital Product Delivery**: Customer should get digital product immediately after purchase.

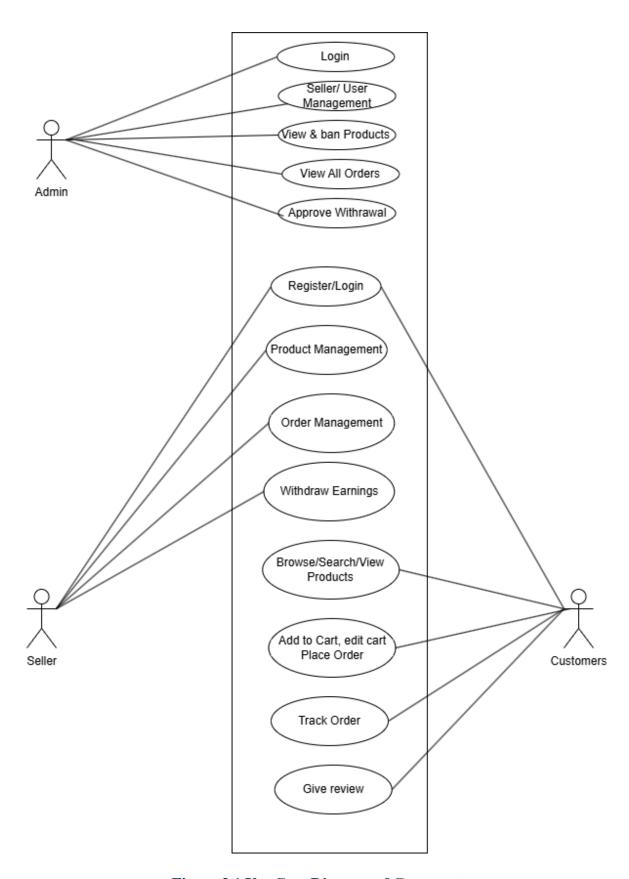


Figure 3.1 Use Case Diagram of Crypmart

#### 3.1.1.2. Non-Functional Requirement

Non-Functional Requirement specifies the quality attribute of the crypmart. They judge the system based on responsiveness, usability, security, sortability and other non-functional standards that are critical to the success of the software system.

- System should handle 500 concurrent users.
- Page load time should not exceed 2 seconds under standard traffic.
- The platform should handle increased user traffic and product listings as it grows.
- The platform should load quickly and perform well under various conditions.
- Data and payment information must be encrypted to prevent unauthorized access.

#### 3.1.2. Feasibility Analysis

As part of a feasibility study, the objective and rational analysis of a potential business or venture is conducted to determine its strengths and weaknesses, potential opportunities and threats, resources required to carry out, and ultimate success prospects. Two criteria should be considered when judging feasibility: the required cost and expected value.

#### 3.1.2.1. Technical Feasibility

The platform is developed using the PHP, which is highly suitable for building scalable and efficient web applications. The use of SQL ensures flexibility in data management.

#### 3.1.2.2. Operational Feasibility

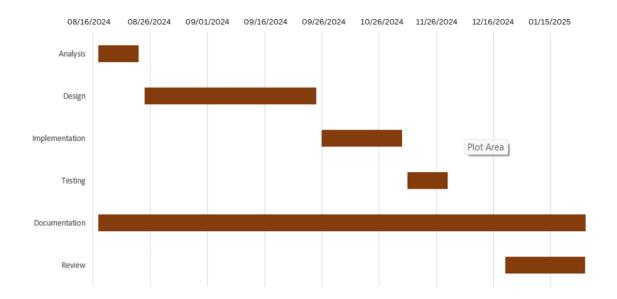
Now every individual has a smartphone or laptop and are very familiar with online platforms hence they can easily access our platform. The interface of this platform is very understandable and easy to use.

#### 3.1.2.3. Economic Feasibility

The project is economically feasible due to the use of open-source technologies, which reduces costs.

#### 3.1.2.4. Schedule Feasibility

The Gantt chart will make it easier to manage time when creating the system, with milestones including design, implementation, and testing phases.



**Figure 3.2 Gantt Chart of Crypmart** 

## 3.1.3. Data Modeling (E-R Diagram)

Crypmart follows structured approach to define and manage the relationships between various entities.

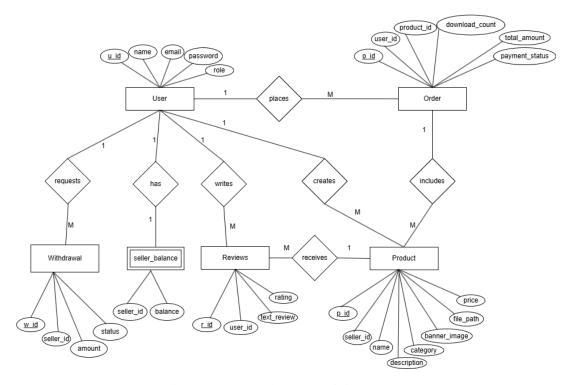


Figure 3.3 ER diagram of Crypmart

#### 3.1.4. Process Modeling (DFD)

The DFD of Crypmart clearly outlines how data flows through the system, from external interactions with customers, sellers, and admins to internal processes such as user, product, and order management. It also details how financial transactions are handled, including the integration with a payment gateway and updates to seller balances.

#### **Level 0 (Context Diagram)**

The Level 0 DFD provides a high-level "black box" view of the Crypmart system. It shows the system's boundary and its interaction with external entities without delving into internal processing details.

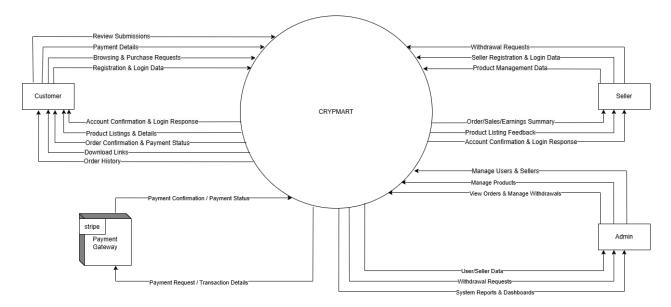


Figure 3.4 Context Diagram of Crypmart

#### Level 1 DFD

The Level 1 DFD breaks down the Crypmart system into its core functional modules. This level provides more detail about internal processes while still maintaining a high-level perspective.

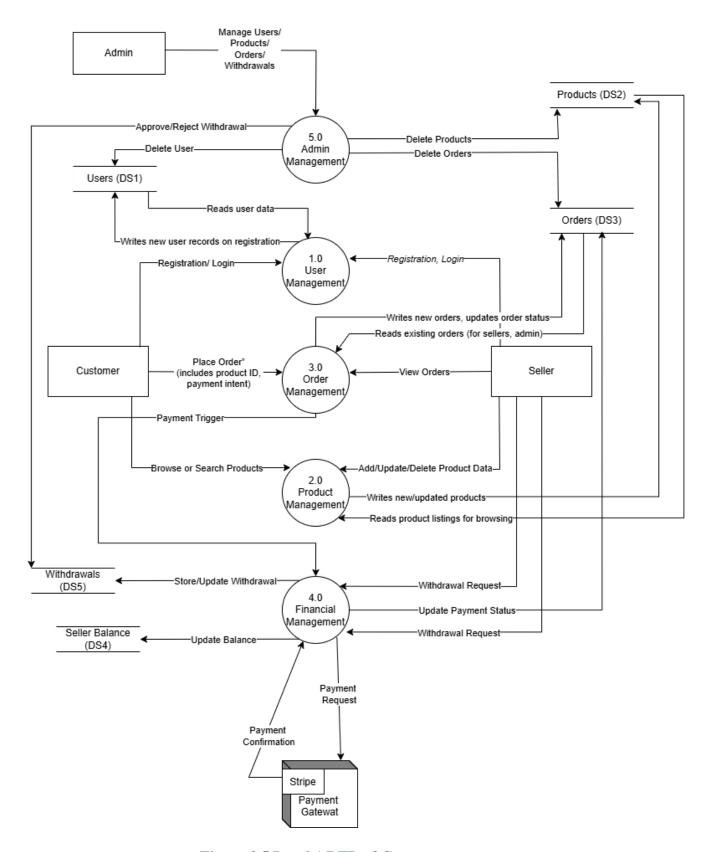


Figure 3.5 Level 1 DFD of Crypmart

## 3.2 System Design

The system design for Crypmart outlines the structural and functional components required for the development of the platform.

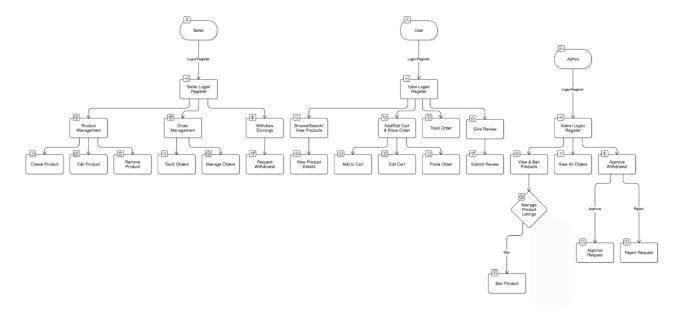


Figure 3.6 High Level Design of Crypmart

#### 3.2.1 Architectural Design

The architectural design of the Crypmart follows a three-tier architecture comprising the Presentation Tier, Logic Tier, and Data Tier.

**Presentation Tier**: This tier is responsible for interacting with the user through the web interface. It is developed using HTML5, CSS, JavaScript, Hero icons etc.

**Logic Tier:** This tier contains the core application logic and processes requests from the Presentation Tier. It is implemented using PHP.

**Data Tier:** This tier manages the database and handles data storage and retrieval. It uses MySQL as the database management system.

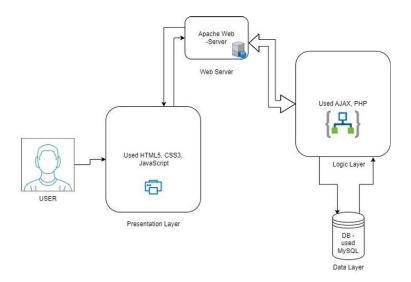


Figure 3.7 Architectural Design of Crypmart

#### 3.2.2 Database Schema Design

The schema represents the structure of the collections and their relationships in Crypmart's SQL database:

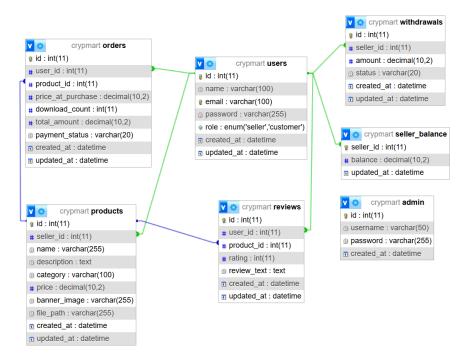


Figure 3.8 Database schema of crypmart

#### 3.2.3. Interface Design

The platform ensures a clean and well-structured layout that enhances navigation, making it easy for users to access the features they need. For Admins, the interface is designed to provide comprehensive control over the platform. The admin dashboard includes analytics, product and user management tools, order tracking, and withdrawal management.

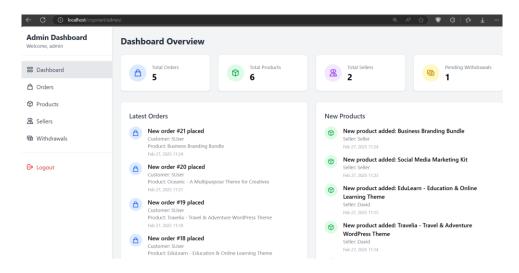


Figure 3.9 Admin Interface

For Sellers, Crypmart offers a dedicated interface that allows them to list and manage their digital products effortlessly. The seller dashboard provides insights into sales performance, order history, and earnings. Key features include product upload forms with integrated media handling, pricing options, and category selection, ensuring a streamlined listing process.

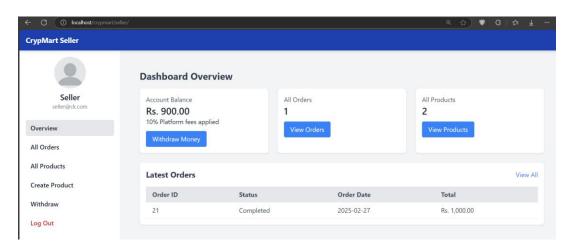
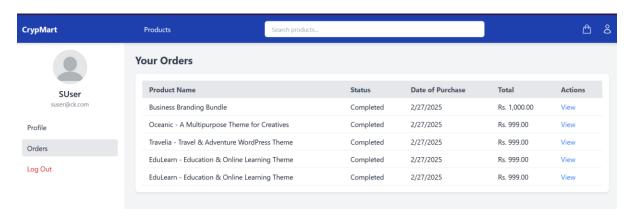


Figure 3.10 Seller Interface

For Customers, the interface prioritizes simplicity and accessibility. The storefront is designed with clear product categorization, search functionality, and a responsive layout that adapts across devices. Users can explore product listings, view detailed descriptions, and complete purchases with a smooth checkout process. The order history section allows users to track their purchases and download digital products.



**Figure 3.11 Customer Interface** 

## **CHATPER 4: IMPLEMENTATION AND TESTING**

## 4.1. Implementation

#### 4.1.1. Tools Used

The technologies used in this project are discussed briefly in the following sections.

**Table 4.1 Tools used in Crypmart** 

Tools	Purpose
VS Code	To write code
XAMPP	To create localhost server
MySQL	For Database
Draw.io, Visual Paradigm	For making Diagrams

**Table 4.2 Langauges used in Crypmart** 

Langauge	Purpose
HTML	To structure web pages
CSS	To style and design
PHP	To handle server-side logic
JS	To add interactivity

#### 4.1.2. Implementation Details

#### **User Authentication Module**

Crypmart's User Authentication Module manages all aspects of user access. During registration, the system securely captures essential details including name, email, and password to create a new account. This module then handles login, session management, and access control, ensuring that both buyers and sellers can safely interact with the platform.

#### **Product Management Module**

The Product Management Module empowers sellers to efficiently manage their digital products. Sellers can add new listings by entering key details such as title, description, price, and category. Digital assets are uploaded to and saved in the product database, making them available for browsing. Additionally, sellers can update or delete their products, with all changes immediately reflected on the platform.

#### **Order Management Module**

This module oversees the entire order lifecycle. When a buyer places an order, the system first validates product availability before creating a corresponding order record in the database. The Order Management Module also provides functionality for buyers to review their purchase history and for sellers to manage incoming orders, ensuring a smooth and transparent transactional process.

#### **Payment Processing Module**

Crypmart integrates a robust Payment Processing Module that works with Stripe [4] to secure financial transactions. When a buyer initiates payment, the processPayment function securely transmits payment data to the external gateway. Upon successful processing, the verifyPayment function confirms the transaction and updates the order status in the database.

#### **Review Module**

To build community trust, Crypmart includes a Review & Rating Module that enables buyers to provide feedback on digital products they have purchased. Users can submit star-based ratings (from 1 to 5 stars) along with detailed comments. The system aggregates these reviews to calculate an average rating for each product, giving prospective buyers quick insights into product quality and overall customer satisfaction.

#### **Search & Sort Module**

The Search & Sort Module is designed for efficiency, enabling users to quickly locate digital products. Through the searchProducts function, users can input keywords to retrieve matching products. The module also supports filtering by category, price range, or rating and provides sorting options ensuring that users have a seamless and intuitive browsing experience on Crypmart.

# 4.2. Testing

## **4.2.1.** Test Cases for Unit Testing

Test cases will ensure individual components such as the payment gateway and product listing module function as expected.

**Table 4.3 Test Cases for Unit Testing** 

Test	Test	Test case	Test Data	Expected	Actual	Pass/fail
case	scenario			Result	Result	
Id						
T1	Register	Provide valid	Name [Shulin Pdl]	Account	As	
	User	data	Email [shulin@xmail.com]	created	Expected	Pass
			Password [Shulin@123]			
			Role [Seller]			
T2	Register User	Register with existing	Email [shulin@xmail.com], Password[Test@123],	Error message	Error	Pass
	USEI	email		message		
		eman	Name [Shu lin],			
			Role[Seller]	D: 1		
Т3				Display		_
	Register	Register with	Email [232@0.0]	Error	As	Pass
	User	Invalid	Password [434]	Message	Expected	
		Credentials	Name [4321]	according to		
			Role [Customer]	validation		
				conditions		
T4	Login	Provide valid	Email [shulin@xmail.com]	Seller logged	As	Pass
		data	& password [Shulin@123]	in	Expected	
T5		Provide	Email [xx@xmail.com]	Display	As	Pass
	Login	incorrect	& password [Shulin@123]	message	Expected	
		data		'Email not		
				found.'		

T6		Provide	Email [shulin@xmail.com]	Incorrect	As	Pass
	Login	incorrect	& password [00As@123]	password	Expected	
		data				
T7		SQL	Email [shulin@xmail.com'	Validation	As	
	Login	injection	OR '1'='1' ]	message	Expected	Pass
		payload	& Password [Test@123]	[Use valid		
				email]		
Т8	Add	Provide all	Title, Description,	Product	As	
	Product	required	Price, Product etc	Create	Expected	Pass
		valid data				
Т9	Delete	Delete	Click the Delete icon	Deletes the	As	
	Products by	Product		Product	Expected	Pass
	Seller					
T10	Edit Product	Provide new	Title, Description,	Product	As	
		valid data	Price, Product etc	Updated	Expected	Pass
T11		Search		Display		
	Search	product by	Payload: Canva	available	As	Pass
		keywords		Products	Expected	
				containing		
				"Canva"		
T12	query	XSS payload	<script>alert(document.</td><td>Sanitizes the</td><td>As</td><td>Pass</td></tr><tr><td></td><td>parameter</td><td></td><td>cookie)</script>	payload to	Expected	
				block xss		
				attack		
T13	Access	Click the	Product Category	Display all	As	
	Products by	specific		the Products	Expected	Pass
	category	category		within		
				category		
T14	Download	Downloading	Click the download button in	Product	As	Pass
	Purchased	Product for	order details page	downloaded	Expected	
	Products	the 1st time				
		after				
		purchase				

				Displayed		
T15	Download	Downloading	Click on Download button	"maximum	As	Pass
	Purchased	same Product		download	Expected	
	Products	for the 6 <sup>th</sup>		limit (5)		
		time		reached.		
				Purchase		
				again to		
				download."		

#### 4.2.2. Test Cases for System Testing

System testing will involve simulating real user behavior to test the entire system's workflow, from registration to product delivery.

#### i. Functional Testing:

Functional testing involves verifying each function of the software application by providing appropriate input and examining the output. It ensures that the software behaves as expected. For the crypmart, this includes testing user registration and login, product creation and editing, categorization, image association, search functionality, viewing products by category, order creation, order fulfill etc.

#### ii. Performance Testing:

Performance testing evaluates how the system performs in terms of speed, responsiveness, and stability under various conditions. This includes load testing to simulate multiple users accessing the system simultaneously and stress testing to determine the system's behavior under extreme conditions.

#### iii. Security Testing:

Security testing involves evaluating the system's security measures to protect against unauthorized access and data breaches. It ensures that sensitive information, such as user credentials are secure and that the system complies with security standards and regulations.

#### iv. Usability Testing:

Usability testing focuses on the user interface and user experience aspects of the system. It involves testing the ease with which users can learn and use the system, including navigation, design, and overall usability.

**Table 4.4 Test Cases for System testing** 

ID	Test Case	<b>Test Data</b>	Expected	Actual	Test Result
	Description		Result	Result	
TS1	Set Session	Valid	Session is	As Expected	Pass
		Credential	set and		
			redirected to		
			respective		
			dashboard		
TS2	User access to admin's	Admin	Cannot	As Expected	Pass
	dashboard	Dashboard	access and		
		URL	redirect to		
			login page		
TS3	Admin/user access to	Seller	Cannot	As Expected	Pass
	seller's dashboard	Dashboard	access and		
		URL	redirect to		
			login page		
TS4	Seller/user access to	User	Cannot	As Expected	Pass
	User's dashboard	Dashboard	access and		
		URL	redirect to		
			login page		

# CHATPER 5: CONCLUSION & FUTURE RECOMMENDATION

#### 5.1 Lessons Learned / Outcome

Working on the Crypmart project significantly deepened our technical expertise in web development using the HTML, JS, CSS, PHP and SQL. I learned how to effectively integrate PHP, JS, SQL to create a cohesive digital marketplace. The challenges encountered ranging from secure user authentication and data management to payment integration pushed me to explore robust coding practices and improve my debugging skills. This project not only strengthened my ability to design and implement complex systems but also highlighted the importance of scalable architecture and modular coding in real-world applications.

Crypmart reinforced the importance of a user-centric design and thorough testing in software development. I learned that comprehensive testing both automated and manual is crucial to ensuring the reliability and security of the system. The process of refining the UI with tools like Tailwind CSS, coupled with detailed quality assurance, highlighted that delivering a polished product requires not just technical acumen but also a deep understanding of user needs and behavior.

#### **5.2 Conclusion**

Crypmart successfully addresses the growing demand for a specialized platform to buy and sell digital products. The project delivers a scalable and user-friendly solution. Key achievements include:

- A robust backend ensuring smooth transaction processing.
- Secure and efficient payment integrations with Stripe
- A dynamic frontend providing seamless interaction for all user roles.

The platform's low transaction fees, instant digital delivery system, and tailored user interfaces position Crypmart as a competitive solution in the digital commerce domain.

#### **5.3 Future Recommendations**

#### **Advanced AI Feature**

Integrate machine learning algorithms to provide personalized product recommendations based on user behavior. By analyzing past interactions and purchase history, the system can suggest products tailored to each user's preferences.

#### **Enhanced Payment Options and Bulk Product Uploads**

The platform can be further improved by introducing location-based currency support and additional payment gateway options, including methods like esewa, PayPal, Google Pay, and various local alternatives to ensure better accessibility for a diverse user base. In parallel, developing features that allow sellers to upload multiple products simultaneously will reduce manual effort, streamline the listing process, and help manage large inventories more efficiently.

#### **Subscription and Licensing Models**

To diversify revenue streams and offer more flexibility, customizable licensing options can be implemented for sellers. This will allow them to offer their digital products on a subscription basis or with varied usage terms, catering to different customer needs and usage scenarios.

## **APPENDICES**

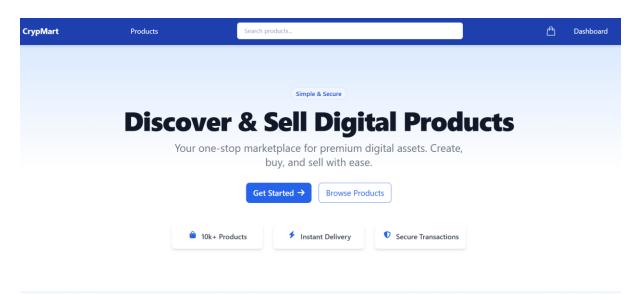


Figure 5.1 Landing Page of Crypmart

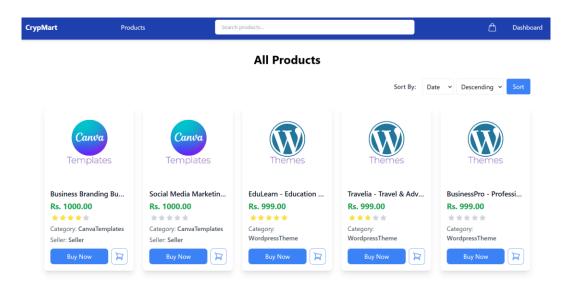
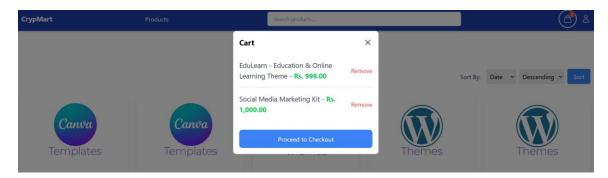


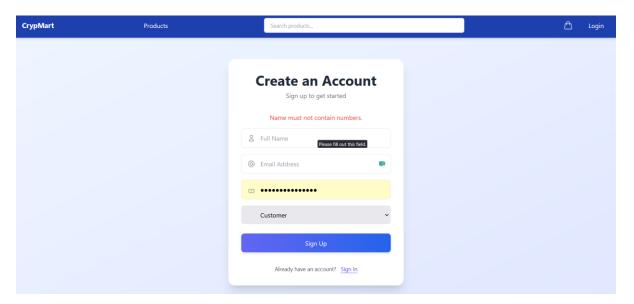
Figure 5.2 Products Page of Crypmart



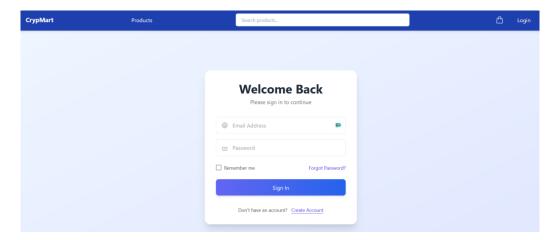
Figure 5.3 Search Box of Crypmart



**Figure 5.4 Cart Page of Crypmart** 



**Figure 5.5 User Registration Form of Crypmart** 



**Figure 5.6 Login Form of Crypmart** 

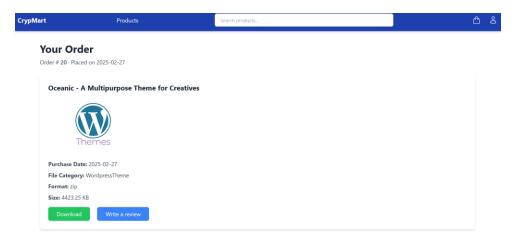


Figure 5.7 Order Details Page of Crypmart

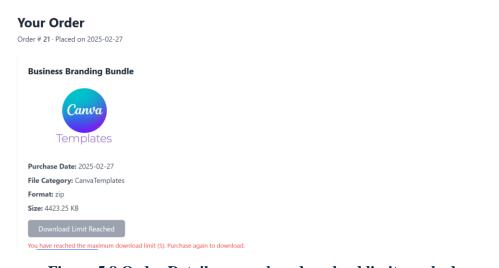
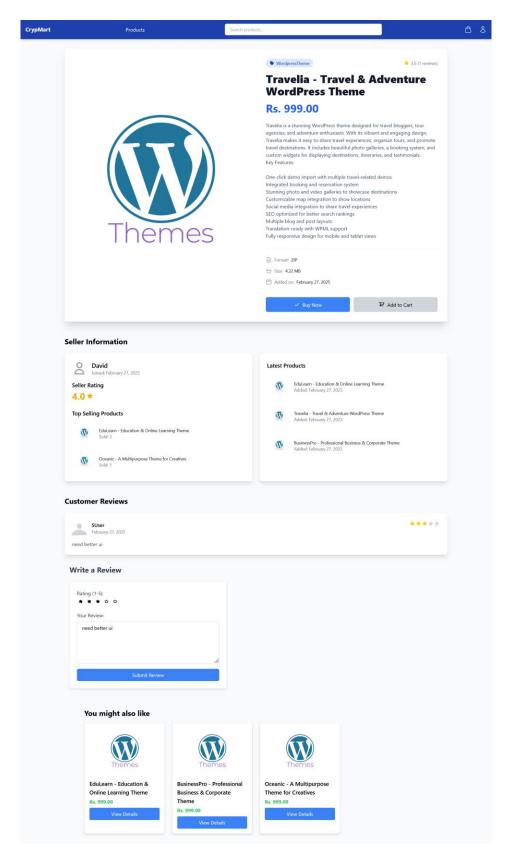


Figure 5.8 Order Details page when download limit reached



**Figure 5.9 Product Details Page of Crypmart** 

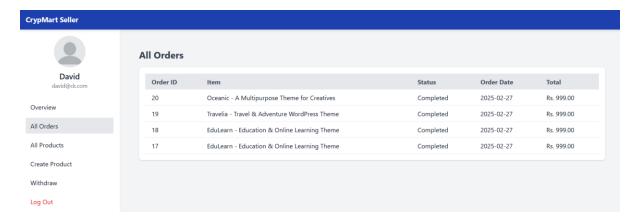


Figure 5.10 Seller's All Orders Page

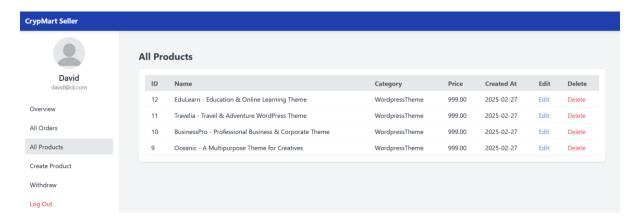


Figure 5.11 Seller's All Product Page

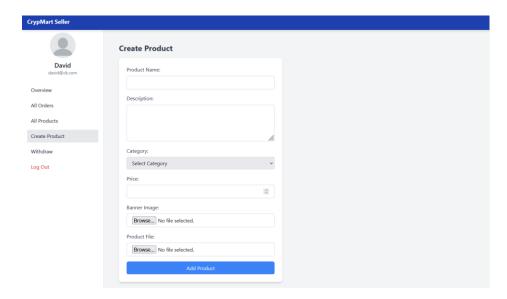


Figure 5.12 Seller's Create Product Page

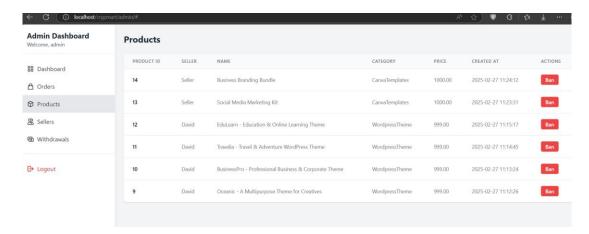


Figure 5.13 Admin's Product Management Page

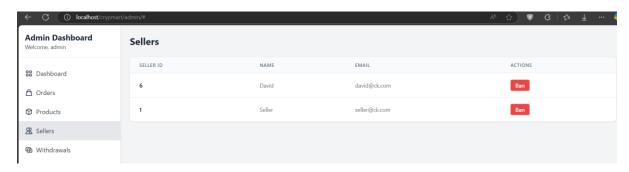


Figure 5.14 Admin's All Seller Management Page

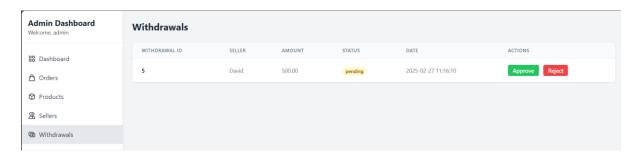


Figure 5.15 Admin's Withdraw Management Page

## T.U. Prithivi Narayan Campus, Pokhara BCA Program

S.N	: Project Work Nan Title Discussion	ne of Supervisor: ( Project Member Present	Date	Supervisor Signature
1	us Optimization, menu design Hero section creation	Sudip	2081/05/	A STATE OF THE PARTY OF THE PAR
2	Recommendation System, Seller dashboard design, Product	SudiP.	2081 1061	SST.
3	Payment gateway integration, User order history Page	SUDIP	2081/66	403
4	Admin dashibaxid design, Payout system	SudiP	2081 (081	ESS TO
5	Product review 8 rating system Searching & Souting (products)	SudiP	2081/08	agg.
6				
7				
8				
9				
10				

Figure 5.16 Project log

## References

- [1] "A Comprehensive Review of E-Commerce Trends, Challenges, and Innovations," ResearchGate, 2023. [Online]. Available: https://www.researchgate.net/publication/379272846\_Navigating\_The\_Digital\_Marketpla ce\_A\_Comprehensive\_Review\_of\_E-Commerce\_Trends\_Challenges\_and\_Innovations. [Accessed 22 September 2024].
- [2] Fradkin, "The Economics of Digital Goods," 2021.
- [3] Mavenir, "Digital Marketplace The New Telecom Frontier," 2022.
- [4] "Stripe API Reference," Stripe, [Online]. Available: https://stripe.com/docs/api. [Accessed 11 January 2025].