COMPUTER CLINIC

A PROJECT REPORT

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In fulfillment for the award of the degree Of

BACHELOR OF ENGINEERING
In
INFORMATION TECHNOLOGY

LDRP INSTITUTE OF TECHNOLOGY AND RESEARCH, GANDHINAGAR

Kadi Sarva VishwaVidyalaya, Gandhinagar

JANUARY-2024

LDRP Institute of Technology and Research

Information Technology Department

CERTIFICATE

This is to certify that the Project Work entitled **"COMPUTER CLINIC"** has been carried out by **VRAJESH Patel [222BEIT30011] VRAJ Patel [222BEIT30010] HASIT Patel [222SBEIT30009] CHAITYA NAYAK [222SBEIT30008]** under my guidance in fulfilment of the degree of Bachelor of Engineering in Information Technology (6th Semester) of Kadi SarvaVishwavidyalaya University, Gandhinagar during the academic year 2023-24.

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Presentation-I for Project-I

1. Name & Signature of Internal Guide	
2. Comments from Panel Members	
3. Name & Signature of Panel Members	

ACKNOWLEDGEMENT

Competition among different sectors is growing more around the global. Every field needs some practical knowledge and work experience.

We are thankful to college "LDRP-ITR" for granting permission to make Project on "**COMPUTER CLINIC**".

I am thankful to my head of department Dr. Mehul Barot and our Internal Guide prof. Yogesh vaghela for being instructor in our entire journey right from the start till the completion of this project by sharing their valuable time with us.

We hope you will satisfy with our project.

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ABSTRACT

Computer clinic is a dynamic e-commerce platform dedicated to revolutionizing the way enthusiasts and professionals build their dream computers. Our website offers a comprehensive selection of high-quality custom PC configurations and individual components, providing a one-stop solution for users seeking optimal personalization.

Computer clinic aims to be the go-to destination for individuals seeking a tailored and reliable solution for their computing needs. By combining customization options, a diverse component marketplace, and a user-friendly interface, we are committed to empowering our customers to unleash the full potential of their digital experience solutions.

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1. INTRODUCTION

- **INTRODUCTION**
- **SCOPE**
- **PROJECT SUMMARY AND PURPOSE**
- **OBJECTIVES**

1.1 Introduction

Welcome to Computer clinic, your gateway to a personalized computing experience. In a digital era where individuality and performance are paramount, we present a revolutionary e-commerce platform dedicated to enthusiasts and professionals alike— Computer clinic. Our platform is designed to redefine the way users interact with and acquire custom-built PCs and components.

At Computer clinic, we understand that every user has unique preferences, requirements, and aspirations for their computing devices. In response to this, we have created an immersive and user-centric space that empowers individuals to craft their dream computers with ease. From high-performance gaming rigs to specialized workstations, Computer clinic is your destination for tailored hardware solutions.

Our platform not only offers a curated selection of pre-configured systems but also provides an extensive marketplace for individual components. This allows users to explore and choose from the latest processors, graphics cards, memory modules, storage options, and peripherals, ensuring they have access to the cutting-edge technology.

1.2 Scope

1.2.1 Current Scope

The current scope of Computer clinic revolves around delivering a personalized computing experience through customizable pre-configured systems and an extensive marketplace for individual hardware components. Our platform emphasizes a user-friendly interface, enabling customers to effortlessly configure and visualize their ideal PC setups. Expert advice, detailed product descriptions, and user reviews facilitate informed decision-making. Security is paramount, with a focus on secure transactions and efficient logistics ensuring timely delivery. As we cater to enthusiasts and professionals alike, Computer clinic aims to be the go-to destination for those seeking tailor-made, high-performance computing solutions.

1.2.2 Future Scope

Looking ahead, Computer clinic envisions an expansive future scope aimed at further enhancing the user experience and staying at the forefront of technological innovation. Future plans include integrating cutting-edge technologies such as artificial intelligence and machine learning to offer more intelligent and personalized recommendations for component selection. We aim to expand our product catalog to include emerging technologies and ensure compatibility with the latest advancements in hardware. Additionally, Computer clinic plans to foster a stronger community by incorporating user forums, live support features, and collaborative spaces where enthusiasts can share insights and experiences. The platform also aspires to establish partnerships with emerging hardware manufacturers and explore eco-friendly options in response to growing environmental consciousness. Continuous improvement in the user interface and a commitment to staying abreast of industry trends define Computer clinic future scope, as we strive to remain a pioneering force in the solutions.

1.3 Project summary and Purpose

1.3.1 Project Summary

Computer clinic is a pioneering e-commerce platform dedicated to transforming the way individuals and professionals engage with custom-built PCs and components. Our platform offers a comprehensive range of customizable pre-configured systems, empowering users to tailor their computing experience to unique preferences and requirements. The Component Marketplace provides a vast selection of individual hardware components, ensuring access to the latest CPUs, GPUs, motherboards, and peripherals. With a user-friendly interface, expert advice, and secure transactions, Computer clinic simplifies the customization process and guides users in making informed decisions. Looking to the future, the project envisions integrating advanced technologies like AI, expanding the product catalog, fostering a vibrant user community, and embracing eco-friendly practices. As we continuously enhance the user interface and stay at the forefront of industry trends, Computer clinic is poised to be the go-to destination for personalized, high-performance computing solutions.

1.3.2 Purpose

The purpose of the Computer clinic project is to revolutionize the way users engage with custom-built PCs and components, offering a comprehensive and user-friendly e-commerce platform. By providing a diverse range of customizable pre-configured systems and a Component Marketplace stocked with the latest hardware components, the project aims to empower individuals and professionals to create tailored computing solutions that align with their specific needs and preferences. With a commitment to user guidance through expert advice, a secure transaction environment, and a focus on future integration of advanced technologies, Computer clinic seeks to establish itself as the ultimate destination for those seeking a personalized and high-performance computing experience.

1.4 Objectives

1. Enable users to effortlessly customize and build high-performance PCs tailored to their unique needs through a user-friendly platform.

2. Establish Computer clinic as a comprehensive marketplace for the latest individual hardware components, ensuring access to cutting-edge technology.

3. Foster a vibrant community by providing expert advice, secure transactions, and a forward-looking approach that integrates emerging technologies, creating a pioneering space for custom computing solutions.

2 TECHNOLOGY AND LITERATURE REVIEW

- **TOOLS AND TECHNOLOGY**
- **PROJECT PLANNING**
- **PROJECT SCHEDULING**
- **COST ESTIMATION**

2.1 Tools and Technology

2.1.1 Php

PHP is a general-purpose scripting language geared towards web development. It was originally created by Danish-Canadian programmer Rasmus Lerdorf in 1993 and released in 1995. The PHP reference implementation is now produced by the PHP Group.

Front-End Technologies :

1. HTML/CSS: The foundation of web development, used for structuringand styling the user interface.
2. **JavaScript:** Enables interactive and dynamic elements in the user interface. Popular JavaScript libraries and frameworks include React.js.
3. **Responsive Design:** CSS frameworks like Bootstrap or Materialize ensure that the platform is responsive and mobile-friendly.

Back-End Technologies :

1. **Server-Side Programming Languages:** Choose a server-side language like Php (Django or Flask) to handle server- side logic.
2. **Database Management System:** Use a relational database system like MySQL, or a NoSQL database to store user data.

2.2 Project Planning

2.2.1 Project Development Approach:

The model that is referred for the development of the project is incremental model. It combines elements of the waterfall model applied in an iterative fashion. In this process the phases are same as waterfall but the advantage is that when first phase is done it is incremented and then the other phases are carried with the same cycle. Here in this add ons on each phase can be added according to the need of the client and the project.

Phases are as follows:

1. Communication
2. Planning
3. Modeling : Includes Designing
4. Construction
5. Deployment: Feedback , Delivery

Each phases are iteratively carried out. Main reason for using this any other is waterfall has the drawback of iterations, if there is any other requirement added later on then this is not possible to add up in it, Spiral model has disadvantage that it need more manpower and even itis for multiple transactions or multiple tasks handling projects and so does the time consumption is more in it for those projects.

Planning is essential cause multiple software teams works in parallel on different system functions. Scalability should be obtained in any of the project selected but it is not available in waterfall cause of few drawbacks.

2.2.2 Milestones and Deliverables

Month1:- Milestones & Deliverables

Milestones	Deliverables
Study about our web application requirement, planning	Analysis Report
Understand a project definitions and basic terms and logic for Parameter Evaluation.	

Gathering the requirements of the project using different fact finding techniques.	Analysis Report
Still Continue with Requirement's study.	

Month 2-4: -Milestones & Deliverables

Milestones	**Deliverables**
System Analysis	Analysis Report
System Design including various diagrams	SRS

Month 5 to 7 : -Milestones & Deliverables

Milestones	**Deliverables**
Integrating techniques of asp.net and oracle	Designing/Coding
Database creation and Procedures	Designing/Coding
Admin Module of Client Support System	Designing/Coding
Consultant Module of Client Support System	Designing/Coding
Accountant Module of Client Support System	Designing/Coding

Month 8 : -Milestones & Deliverables

Milestones	**Deliverables**
Client Module of Client Support System	Designing/Coding
Website Testing	Testing
Required changes after testing	Designing/Coding

2.1.3 Group Dependencies

The team structure depends on the management style of the organization, number of people in the team, their skill levels and the problem difficulty. Our team organization is *democratic decentralized* which doesn't have a team leader. Decision is made by all of us and the problems were discussed and solved by all of us after consulting and discussing with our external guide and project guides.

2.3 Project Scheduling

Project scheduling involves separating the total work in a project into separate activities and judging the time required to complete these activities. Usually, some of these activities are carried out in parallel.

Work Breakdown Structure

Work Breakdown Structure is used to decompose a given task set recursively into small activity [Fig (2.1)].

Work Breakdown Structure

	Task Mode	Task Name	Duration	Start	Finish	Predecess
1		**0. Initiation**	**10 days**	**Sat 2/1/14**	**Thu 2/13/14**	
2		0.1 Feasibility Study	5 days	Sat 2/1/14	Thu 2/6/14	
3		0.2 Appoint the Project Team	5 days	Fri 2/7/14	Thu 2/13/14	
4		**1. Planning**	**10 days**	**Fri 2/14/14**	**Thu 2/27/14**	
5		1.1 Requirement	5 days	Fri 2/14/14	Thu 2/20/14	
6		1.2 Resource Plan	3 days	Fri 2/21/14	Tue 2/25/14	
7		1.3 Risk Plan	2 days	Wed 2/26/14	Thu 2/27/14	
8		**2. Designing**	**20 days**	**Fri 2/28/14**	**Thu 3/27/14**	
9		2.1 System Design	5 days	Fri 2/28/14	Thu 3/6/14	
10		2.2 Database Design	5 days	Fri 3/7/14	Thu 3/13/14	
11		2.3 Program Design	10 days	Fri 3/14/14	Thu 3/27/14	
12		**3. Implementing**	**30 days**	**Fri 3/28/14**	**Thu 5/8/14**	
13		3.1 Perform Codding	25 days	Fri 3/28/14	Thu 5/1/14	
14		3.2 Build Deliverable	3 days	Fri 5/2/14	Tue 5/6/14	
15		3.3 Time Management	2 days	Wed 5/7/14	Thu 5/8/14	
16		**4. Testing**	**15 days**	**Fri 5/9/14**	**Thu 5/29/14**	
17		4.1 Develop Test Cases	5 days	Fri 5/9/14	Thu 5/15/14	
18		4.2 Implement Test Cases	10 days	Fri 5/16/14	Thu 5/29/14	
19		**5. Maintainance**	**20 days**	**Fri 5/30/14**	**Thu 6/26/14**	
20		5.1 Project Closure	10 days	Fri 5/30/14	Thu 6/12/14	
21		5.2 Review	10 days	Fri 6/13/14	Thu 6/26/14	

Fig 2.1 Work Breakdown Structure

2.4 Estimation

2.4.1 Effort Estimation

Effort Estimation includes the time required i.e. the dedication for developing the project successfully. Gantt chart includes that each phases or each modules divided so that is according to the plan.

2.4.2 Cost Estimation

There are two types of models that have been used to estimate cost: *cost models* and *constraint models*. Cost models provide direct estimates of effort. These models typically have a primary cost factor such as size and the number of secondary adjustment factors or *cost drivers*. Cost drivers are characteristics of the project, process, products, or resources that influence effort. Cost drivers are used to adjust the preliminary estimate provided by the primary cost factor. **COCOMO (Constructive Cost estimation Model)** is a Heuristic Technique which can be used for our project.

Software project can be classified in one of the three categories based on the project complexity.

Software project ab bb cb db Select ORGANIC 2.4 1.05 2.5 0.38

SEMI DETACHED 3.0 1.12 2.5 0.35

EMBEDDED 3.6 1.20 2.5 0.32

Since we are unfamiliar with some aspects of the system like image processing etc. our project falls under the category of semidetached type.

Final step is to select complexity of software project.

Effort = a1*(KLOC) ^a2 PM

Tdev = b1*(Effort) ^b2 Months

Initial COCOMO estimate without cost drivers:

Effort = 3.0*(8.500) ^1.12

= 32.96 PM approx

Tdev = 2.5*(32.96) ^0.35

= 8.49 Months approx

This doesn't mean that in 8.49 Months 1 person completes the project nor does it indicate the reverse.

Cost drivers have not been taken into consideration.

If it take an estimate of cost incurred:

Consider, per month the developer gets 10,000 Rupees as a trainee. Then the total cost will be

8.49*10,000 = 84,900 Rupees for developing the software.

Transportation, hardware and other cost have not been included.

COCOMO model can be used to estimate the effort, development time and the cost for developing the software. Staffing is very important after these estimates. In this project, there are only four team members and the work is done by all equally in all the phases of development.

3 SYSTEM REQUIREMENTS STUDY

- **USER CHARACTERISTICS**
- **HARDWARE AND SOFTWARE REQUIREMENTS**

3.1 User Characteristics

Analyzing user characteristics is an important aspect of any project. It allows us to clearly define and focus on who the end users are for project. Also, it allows checking the progress of the project to ensure that we are still developing the system for the end users. The user must have following characteristics:

- Enthusiasts: Users with a passion for technology and computing who seek to build custom PCs to meet specific performance requirements for gaming, content creation, or other specialized tasks.

- Professionals: Individuals in various fields, such as graphic design, video editing, or software development, who require customized and powerful computing solutions tailored to their professional needs.

- Tech-Adaptive Users: Users who possess a good understanding of hardware components and desire the flexibility to choose and assemble their own PC configurations for a personalized computing experience.

- First time builders: Novice users who may be entering the world of custom PCs for the first time, seeking a platform that provides guidance, expert advice, and a user-friendly interface to help them navigate the customization process with confidence.

3.2 Software and Hardware Requirements

Software and Hardware Requirements are used to describe the minimum hardware and software requirements to run the Software. These requirements are described below.

3.2.1 Software Requirements

- Operating system: windows 7 or higher
- Visual studio code
- Web framework: MySQL
- Frontend work:
  Html, CSS, java script
- Backend work:
  Php, MySQL

3.2.2 Hardware Requirements

Client:

- 8GB of RAM
- Internet Connection
- Monitor
- Keyboard/Mouse

Server:

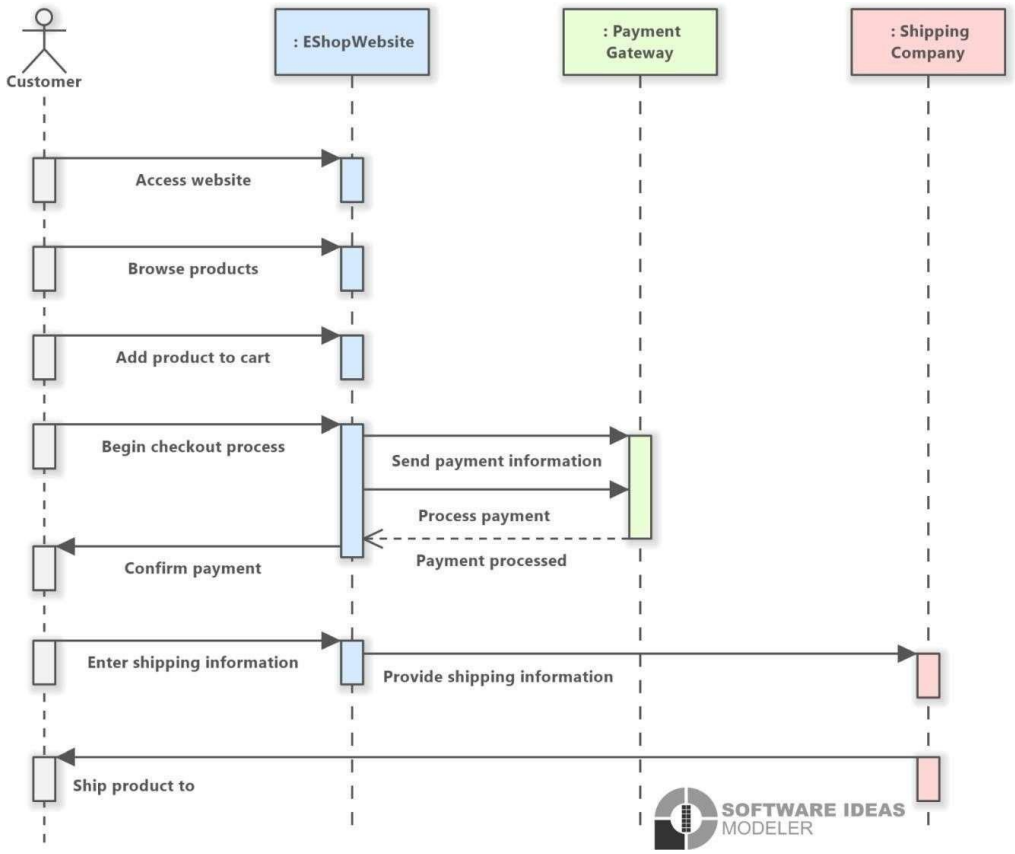
- 2.69 GHZ CPU
- 16 GB of RAM
- Internet Connection
- Monitor
- Keyboard/Mouse

4 SYSTEM DIAGRAM

- **SEQUENCE DIAGRAM**
- **SYSTEM ACTIVITY DIAGRAM**
- **USE-CASE DIAGRAM**
- **ARCHITECTURE OF THE SYSTEM**
- **DATA FLOW DIAGRAM**

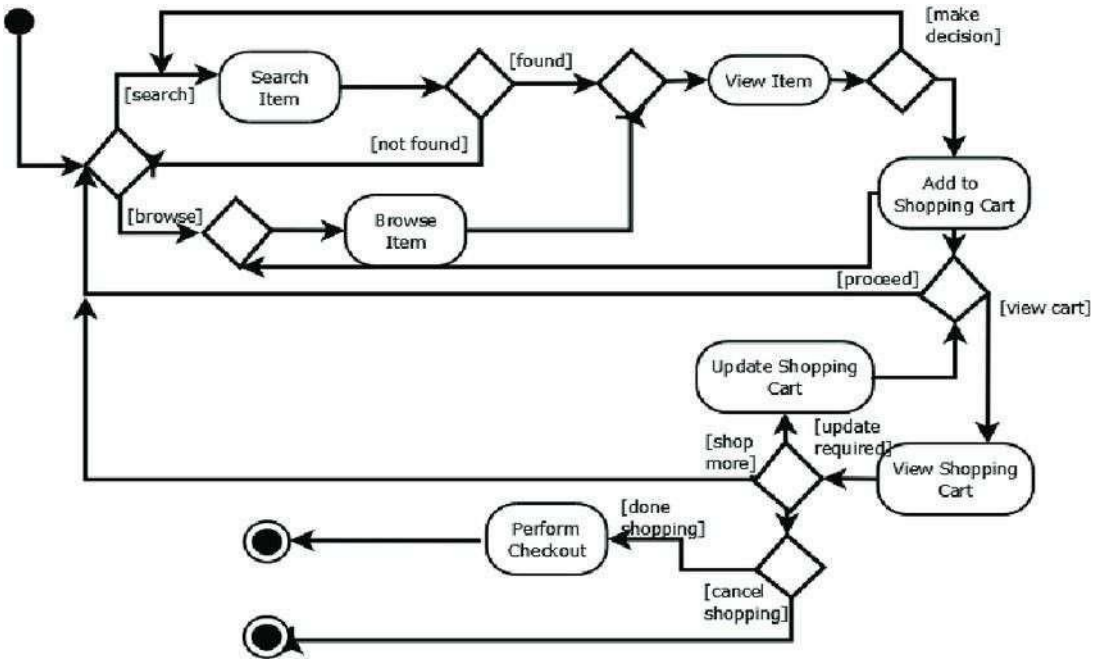
4.1 SEQUENCE DIAGRAM

A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the Logical View of the system under development. Sequence diagrams are sometimes called event diagrams or event scenarios.



4.2 SYSTEM ACTIVITY DIAGRAM

The activity diagram is an UML diagram that describes the system's dynamic aspects. In fact, it is a flowchart that regulates the flow every event. The event can be described as the operation of the system. The control flow shall be taken between operations.



4.3 USE-CASE DIAGRAM

A use case diagram for an object detection system would typically include the following elements:

- ACTORS: These are the entities that interact with the system, such as a user or another system.
- USE CASES: These are the specific actions or functionality that the system provides, such as “detect objects” or “display detected objects”.
- RELATIONSHIPS: These show the interactions between the actors and use cases, such as “a user initiates object detection” or “another system receives detected object information”.

➢ USE CASE DIAGRAM FOR OBJECT DETECTION SYSTEM:

Actors:

- Guest
- Registered User
- Admin

Use cases:

- Browse Products
- Search Products
- View Product Details
- Add to Cart
- Remove from Cart
- Manage User Profile
- Purchase Products
- View Order History
- Admin Login
- Add Product
- Remove Product
- Update Product Details

Relations:

-Guest:

- Browse Products
- Search Products
- View Product Details

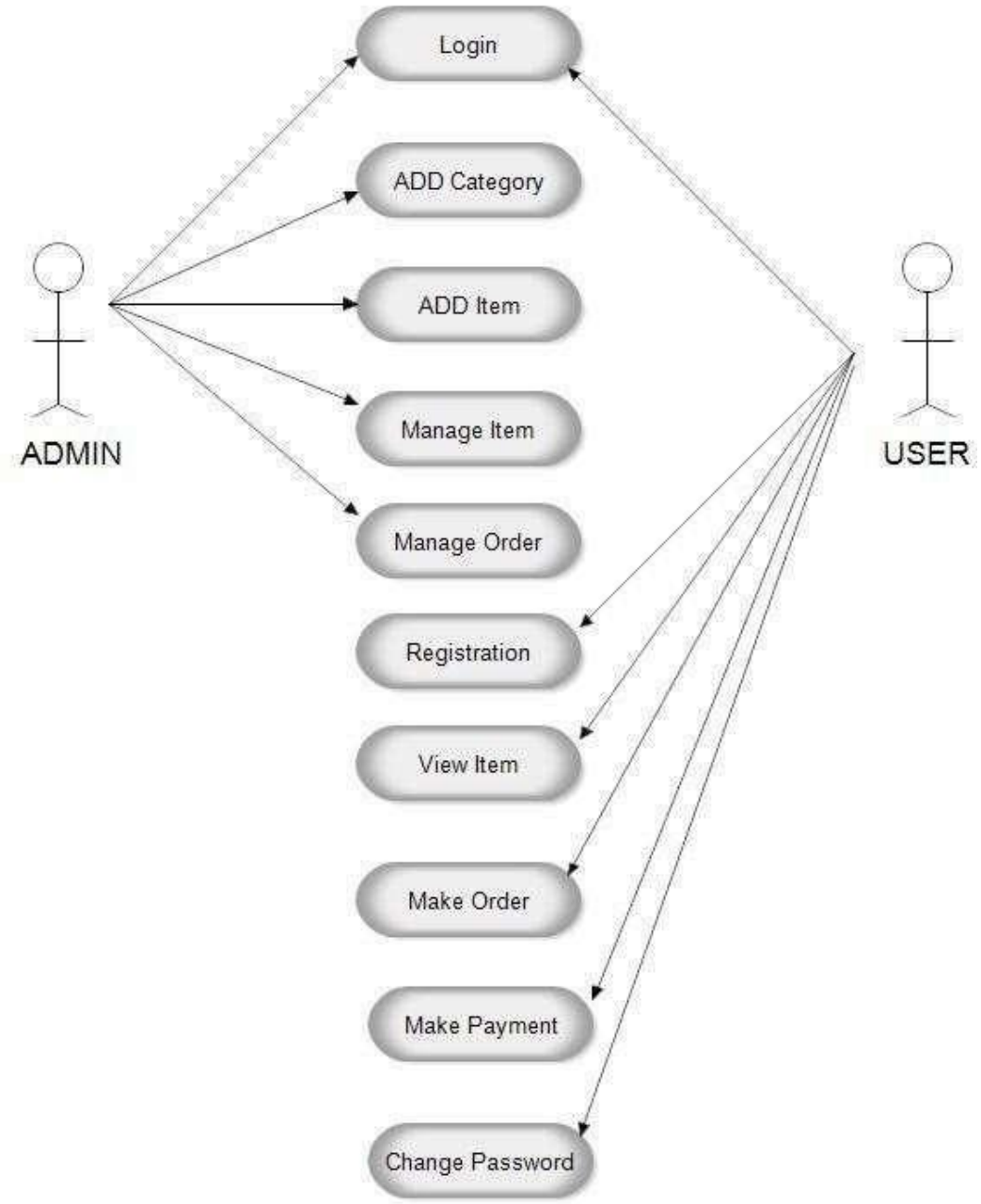
- Registered User:

- Browse Products
- Search Products
- View Product Details
- Add to Cart
- Remove from Cart
- Manage User Profile
- Purchase Products
- View Order History

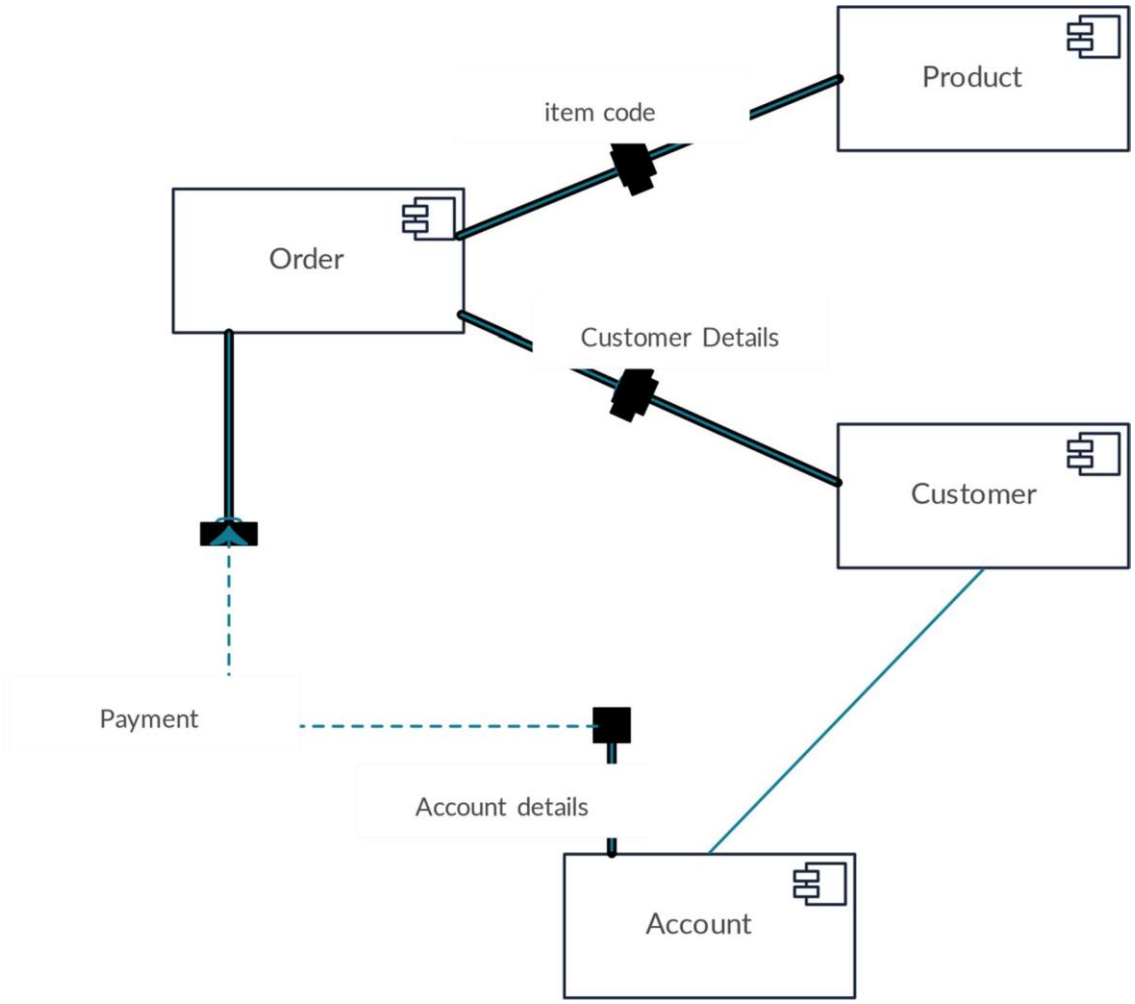
- Admin:

- Admin Login
- Add Product
- Remove Product
- Update Product Details

Use Case Diagram for Online Shopping Website



4.4 ARCHITECTURE OF THE SYSTEM



4.5 DATA FLOW DIAGRAM

A data flow diagram can dive into progressively more detail by using levels and layers, zeroing in on a particular piece. DFD levels are numbered 0, 1 or 2, and occasionally go to even Level 3 or beyond. The necessary level of detail depends on the scope of what you are trying to accomplish.

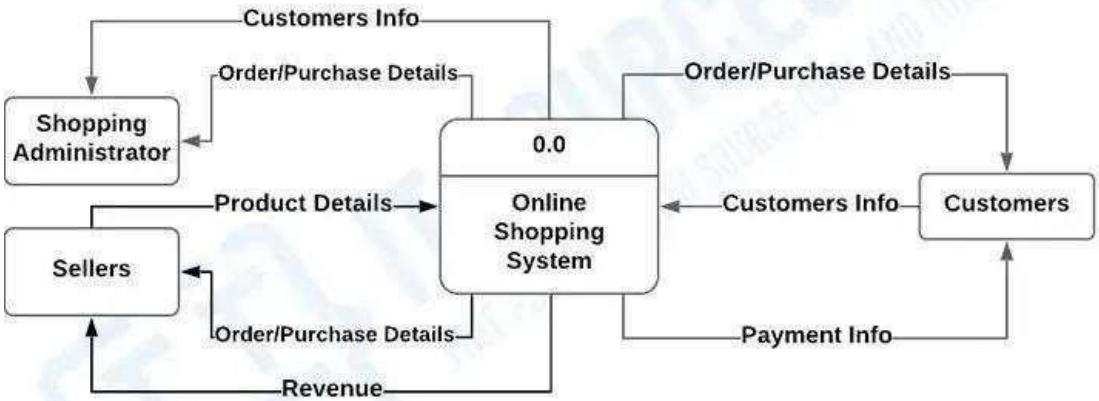
DFD Level 0 is also called a Context Diagram. It's a basic overview of the whole system or process being analyzed or modeled. It's designed to be an at-a-glance view, showing the system as a single high-level process, with its relationship to external entities. It should be easily understood by a wide audience, including stakeholders, business analysts, data analysts and developers.

DFD Level 1 provides a more detailed breakout of pieces of the Context Level Diagram. You will highlight the main functions carried out by the system, as you break down the high-level process of the Context Diagram into its subprocesses.

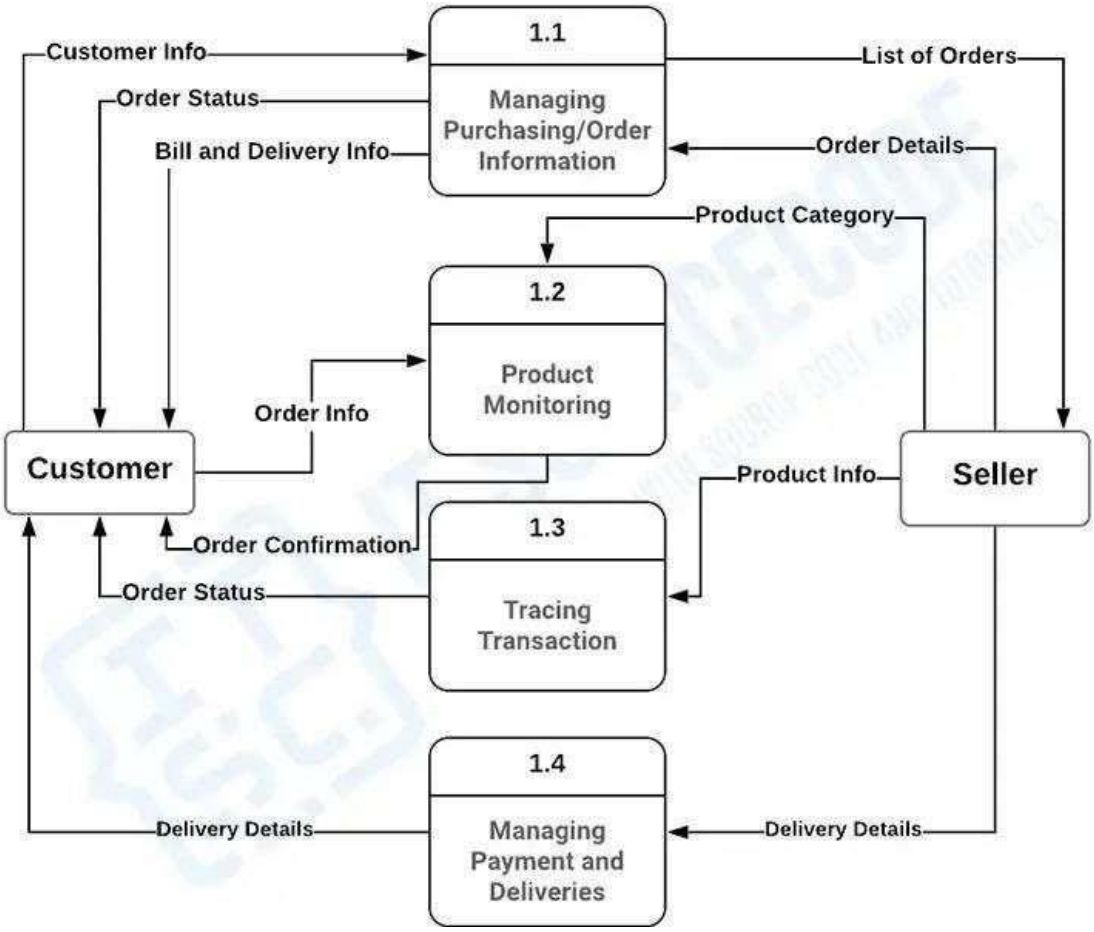
DFD Level 2 then goes one step deeper into parts of Level 1. It may require more text to reach

the necessary level of detail about the system's functioning.

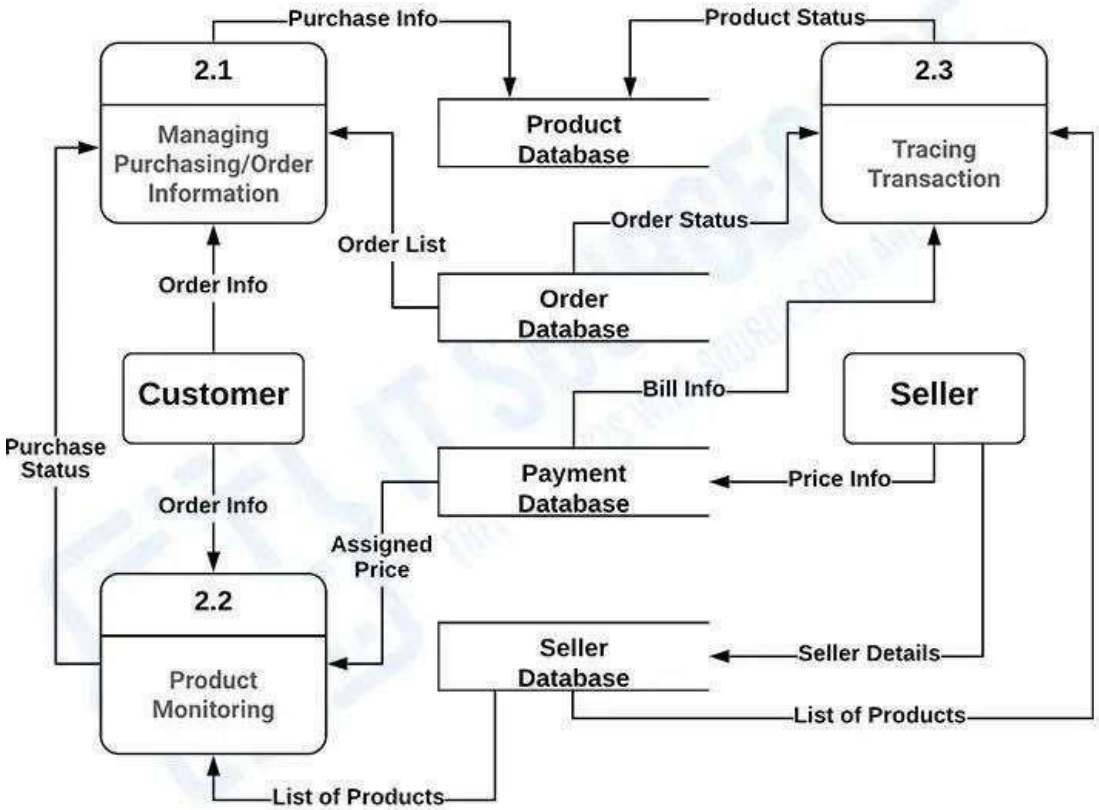
Level 0


Customers Info
Order/Purchase Details
Order/Purchase Details
Shopping Administrator
0.0
Online Shopping System
Customers Info
Customers
Product Details
Sellers
Order/Purchase Details
Payment Info
Revenue

Level 1


1.1
Managing Purchasing/Order Information
1.2
Product Monitoring
1.3
Tracing Transaction
1.4
Managing Payment and Deliveries
Customer
Seller
Customer Info
Order Status
Bill and Delivery Info
List of Orders
Order Details
Product Category
Order Info
Order Confirmation
Order Status
Product Info
Delivery Details
Delivery Details

Level 2


Purchase Info
Product Status
2.1
Managing Purchasing/Order Information
Product Database
2.3
Tracing Transaction
Order Status
Order List
Order Info
Order Database
Customer
Bill Info
Seller
Purchase Status
Payment Database
Price Info
Order Info
Assigned Price
2.2
Product Monitoring
Seller Database
Seller Details
List of Products
List of Products

5 TESTING

- **TESTING PLANS**
- **TESTING STRATEGIES**

5.1 Testing Plan

5.1.1 Planning Steps

1) Functionality Testing
2) Usability testing
3) Interface testing
4) Performance testing
5) Security testing

1) Functionality Testing:

Test for – all the links in web pages, database connection, forms used in the web pages for submitting or getting information from user, Cookie testing.

➢ Check all the links:

• Test the outgoing links from all the pages from specific domain under test.

• Test all internal links.

• Test links jumping on the same pages.

• Test links used to send the email to admin or other users from web pages.

• Test to check if there are any orphan pages.

• Lastly in link checking, check for broken links in all above-mentioned links.

➢ Test forms in all pages:

Forms are the integral part of any web site. Forms are used to get information from users and to keep interaction with them. So, what should be checked on these forms?

• First check all the validations on each field.

• Check for the default values of fields.

• Wrong inputs to the fields in the forms.

• Options to create forms if any, form delete, view or modify the forms.

Let's take example of the search engine project currently I am working on, In this project we have advertiser and affiliate signup steps. Each sign-up step is different but dependent on other steps. So sign up flow should get executed correctly. There are different field

validations like email Ids, User financial info validations. All these validations should get checked in manual or automated web testing.

➢ **Cookies testing:**

Cookies are small files stored on user machine. These are basically used to maintain the session mainly login sessions. Test the application by enabling or disabling the cookies in your browser options. Test if the cookies are encrypted before writing to user machine. If you are testing the session cookies (i.e., cookies expire after the sessions ends) check for login sessions and user stats after session end. Check effect on application security by deleting the cookies. (I will soon write separate article on cookie testing)

➢ **Validate your HTML/CSS:**

If you are optimizing your site for Search engines then HTML/CSS validation is very important. Mainly validate the site for HTML syntax errors. Check if site is crawlable to different search engines.

2) Usability Testing:

➢ **Test for navigation:**

Navigation means how the user surfs the web pages, different controls like buttons, boxes or how user using the links on the pages to surf different pages. Usability testing includes: Web site should be easy to use. Instructions should be provided clearly. Check if the provided instructions are correct means whether they satisfy purpose. Main menu should be provided on each page. It should be consistent.

➢ Content:

Content should be logical and easy to understand. Check for spelling errors. Use of dark colors annoys users and should not be used in site theme. You can follow some standards that are used for web page and content building. These are common accepted standards like as I mentioned above about annoying colors, fonts, frames etc.
Content should be meaningful. All the anchor text links should be working properly.

Images should be placed properly with proper sizes. These are some basic standards that should be followed in web development. Your task is to validate all for UI testing.

➢ Other user information for user help:

Like search option, sitemap, help files etc. Sitemap should be present with all the links in web sites with proper tree view of navigation. Check for all links on the sitemap. "Search in the site" option will help users to find content pages they are looking for easily and quickly. These are all optional items and if present should be validated.

3) Interface Testing:

The main interfaces are:

• Web server and application server interface

• Application server and Database server interface.

Check if all the interactions between these servers are executed properly. Errors are handled properly. If database or web server returns any error message for any query by application server then application server should catch and display these error messages appropriately to users. Check what happens if user interrupts any transaction in-between? Check what happens if connection to web server is reset in between?

4) Performance Testing

Web application should sustain to heavy load. Web performance testing should include:

• Web Load Testing

• Web Stress Testing

Test application performance on different internet connection speed. In web load testing test if many users are accessing or requesting the same page. Can system sustain in peak load times? Site should handle many simultaneous user requests, large input data from users, Simultaneous connection to DB, heavy load on specific pages etc.

Stress testing: Generally, stress means stretching the system beyond its specification limits.

Web stress testing is performed to break the site by giving stress and checked how system reacts to stress and how system recovers from crashes. Stress is generally given on input fields, login and sign-up areas.

In web performance testing web site functionality on different operating systems, different hardware platforms are checked for software, hardware memory leakage errors.

5) Security Testing:

Following are some test cases for web security testing:

- Test by pasting internal URL directly into browser address bar without login. Internal pages should not open.
- If you are logged in using username and password and browsing internal pages then try changing url options directly. I.e., If you are checking some publisher site statistics with publisher site ID= 123. Try directly changing the url site ID parameter to different site ID which is not related to logged in user. Access should denied for this user to view others stats.
- Try some invalid inputs in input fields like login username, password, input text boxes.

Check the system reaction on all invalid inputs.

- Web directories or files should not be accessible directly unless given download option.
- Test if SSL is used for security measures. If used proper message should get displayed when user switch from non-secure http:// pages to secure https:// pages and vice versa.
- All transactions, error messages, security breach attempts should get logged in log files somewhere on web server.

5.2 Testing Strategies

- **White Box Testing:**

White box testing (WBT) is also called Structural or Glass box testing. White box testing involves looking at the structure of the code. When you know the internal structure of a product, tests can be conducted to ensure that the internal operations performed according

to the specification. And all internal components have been adequately exercised.

➢ **Why we do White Box Testing?**

To ensure:

- That all independent paths within a module have been exercised at least once.
- All logical decisions verified on their true and false values.
- All loops executed at their boundaries and within their operational bounds internal data structures validity.

➢ **Need of White Box Testing?**

To discover the following types of bugs:

- Logical error tends to creep into our work when we design and implement functions, conditions or controls that are out of the program
- The design errors due to difference between logical flow of the program and the actual implementation
- Typographical errors and syntax checking.

Limitation Of WBT:

Not possible for testing each and every path of the loops in program. This means exhaustive testing is impossible for large systems. This does not mean that WBT is not effective. By selecting important logical paths and data structure for testing is practically possible and effective.

- **Black Box Testing:**

- Black box testing treats the system as a "black-box", so it doesn't explicitly use Knowledge of the internal structure or code.
- Main focus in black box testing is on functionality of the system as a whole. The term 'behavioral testing' is also used for black box testing and white box testing is also sometimes called 'structural testing'. Behavioral test design is slightly different from

black-box test design because the use of internal knowledge isn't strictly forbidden, but it's still discouraged.

- Each testing method has its own advantages and disadvantages. There are some bugs that cannot be found using only black box or only white box. Majority of the application are tested by black box testing method. We need to cover majority of test cases so that most of the bugs will get discovered by black box testing.
- Black box testing occurs throughout the software development and Testing life cycle i.e., in Unit, Integration, System, Acceptance and regression testing stages.

- **Advantages of Black Box Testing**
  - Tester can be non-technical.
  - Used to verify contradictions in actual system and the specifications.
  - Test cases can be designed as soon as the functional specifications are complete.

- **Disadvantages of Black Box Testing**
  - The test inputs need to be from large sample space.
  - It is difficult to identify all possible inputs in limited testing time. So writing test cases is slow and difficult. Chances of having unidentified paths during this testing.

6 LIMITATIONS AND FUTURE ENHANCEMENT

- **LIMITATIONS**

- **FUTURE ENHANCEMENT**

6.1 Limitations

Following are the limitations of Summarily:

Limited Physical Presence:
ComputerClinic operates as an online platform, limiting the ability for users to physically inspect or test components before purchase. This may pose challenges for those who prefer hands-on evaluation.

Dependency on Manufacturer Availability:
The platform's offerings are contingent on the availability of components from various manufacturers. Supply chain disruptions or limited availability of specific products may impact the range of choices for users.

Technical Skill Requirement:
While the platform aims to be user-friendly, the customization process involves technical decision-making. Users with minimal technical knowledge may find the configuration process daunting, necessitating additional support or guidance.

Shipping and Logistics:
The timely delivery of components is subject to shipping logistics, which may be influenced by factors such as location, customs regulations, or unexpected delays. This could impact the overall user experience, particularly for those with time-sensitive requirements.

6.2 Future Enhancement

ComputerClinic, the computer components website, holds substantial potential for future enhancements to elevate user experience, expand its offerings, and fortify its market presence. Firstly, the implementation of an advanced AI-driven recommendation system stands as a pivotal enhancement. This system could analyze user data intricately, considering factors like purchase history, and browsing behavior to offer personalized PC recommendations. By harnessing machine learning algorithms, ComputerClinic can provide tailored and accurate product suggestions, significantly enhancing user satisfaction and optimizing the shopping experience.

Secondly, augmenting the platform with virtual Assistant or consultant services could be a transformative addition. Users seeking expert guidance on which products would be best for their requirements ,which component upgradation will give better performance , and customers could benefit from interacting virtually with professionals. This interactive feature would not only provide personalized advice but also establish a deeper connection with users, fostering trust and loyalty toward ComputerClinic.

To foster a sense of community and engagement, Computer Clinic could introduce online forums or communities where Tech. enthusiasts can interact, share experiences, and exchange valuable tips. This community-building initiative can encourage active participation among users, create a platform for discussions, and establish a loyal user base invested in the Computer Clinic ecosystem.

7 BIBLIOGRAPHY

- **CONCLUSION**

- **BIBLIOGRAPHY**

7.1 CONCLUSION

In conclusion, Computer Clinic stands as a dynamic and user-centric e-commerce platform committed to redefining the landscape of custom-built PCs. Offering a comprehensive range of customizable pre-configured systems and an extensive Component Marketplace, our platform empowers users to craft personalized computing solutions. With a focus on user-friendly interfaces, expert guidance, and secure transactions, Computer Clinic simplifies the customization process. Looking ahead, we envision the integration of advanced technologies, expansion of our product catalog, and the cultivation of a vibrant user community. By embracing eco-friendly practices, staying at the forefront of industry trends, and continuously enhancing our user interface, Computer Clinic aims to be the premier destination for individuals and professionals seeking unparalleled customization and optimal performance in their computing experiences. Welcome to a new era of personalized computing with C.

7.2 BIBLIOGRAPHY

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