Acute Surgical BD

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A project in the Department of Computer Science and Engineering presented in partial fulfillment of the requirements for the Degree of Bachelor/Master of Science in Computer Science and Engineering

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Declaration

We, Md. Kamrul Islam, S.M. Shohan, Tanjimul Faysul, Tareq Hassan Rumel declare that this project Acute Surgical BD, Project Title and the work presented in it are my own. I confirm that:

- This work was done wholly or mainly while in candidature for a BSc degree at United International University.
- Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this project is entirely our own work.
- I have acknowledged all main sources of help.
- Where the project is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself.

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Certificate

I do hereby declare that the research works embodied in this project entitled "**Acute Surgical BD**" is the outcome of an original work carried out by Md. Kamrul Islam, S.M. Shohan, Tanjimul Faysul, Tareq Hassan Rumel under my supervision.

I further certify that the dissertation meets the requirements and the standard for the degree of BSc in Computer Science and Engineering.

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Abstract

Electronic Commerce is system of doing business through Online. A person sitting on his chair in front of a computer can entrance all the facilities of the Internet to buy the products or sell the products.

Unlike traditional commerce system that is carried out physically with more effort of a person to go and get products, ecommerce has made it easier for human to reduce physical work and to save time. Electronic Commerce which was started in early 1990's has taken a great jump in the world of computers, but the fact that has hampered the growth of e-commerce is security. Security is the major challenge that facing electronic-commerce today and there is still a lot of advancement built in the field of security.

The principal advantage of e-commerce over conventional commerce is the user can browse online shops, differentiate prices and order goods sitting at home on their computer.

For increasing the use of electronic-commerce in developing countries the business to business e-commerce is executed for improving access to global markets for firms in developing countries. For a developing country development in the field of e-commerce is essential. The research strategy shows the significance of the e-commerce in developing countries for business applications.

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Chapter 1

1.1 Introduction

E-commerce is fast growing ground as an accepted and used business model. More and more business houses are implementing web sites providing functionality for performing commercial transaction over the web. It is reasonable to say that the process of shopping on the web is becoming popular.
Another word, Online shopping is the process whereby customers directly buy products, services etc. from a seller interactively in real-time without an intermediary service over the internet that is more comfortable and also better than traditional shopping system.
The objective of this project is to develop an online surgical store where any kinds of medical & surgical equipment's can be brought from the comfort for home through online.

An online Surgical Shop is a virtual shop on the Internet where customers can browse and select items of needed. The selected items may be hold on the cart. During checkout time, the items in the shopping cart will be presented as an order. At that time, more information will be needed to complete the transaction, usually, the customer will be asked to fill a billing/shipping address and payment information such as cash on delivery or bkash. An SMS notification is sent to the customer as soon as the order is placed.

1.2 Literature Review:

Electronic Commerce (e-commerce) applications support the interaction between various stakeholders participating in a transaction via the network, as well as the management of the data involved in the process.

A better e-commerce site should present the following factors to the customer for better usability:

- Knowing when an item was stored or not stored in the shopping cart.
- Returning to the product page of the web site after adding a product to the shopping cart.
- Simple security notifications or messages.
- Consistent layout of product information.
- Simple transition from home page to information and order links for require items
- Categorical organization of products.
- Easy searching and picking products in a list.

Another major factor in the design of an e-commerce site is review. The interactive cycle between a consumer and a site is not complete until the web site responds to a command given by the consumer.

1.3 Objective of the project:

Main objective for this project are as follows:

- To learn and adapt the programming languages used until the development of this e-commerce site.
- To run and maintain the ((Online surgical shop)) so that users and sellers can use it and get benefit from this site.
- Provide home delivery.
- To sell at actual rate.
- Acute surgical BD will in the comfort of your own home, without having to step out of the door.

1.4 Scope of the Project:

(acutesurgicalbd.com) is an e-commerce based project where both users and sellers deal for their required medicine equipment and surgical equipment. By using this site user are able to provide their medical equipment with details information in (acutesurgicalbd.com) site. This is easy for any user to get actual information about their required surgical products which includes product name, product category, product quantity, product quality, product price. We also implement shopping cart in our website, so that consumer are able to add product in the shopping cart. Then also provide a different method of payment for the customer is Cash on Delivery method. This document contains a complete Description of the design of (acutesurgicalbd.com).
An admin is in charge of this website will have full access to make changes, as admin seems necessary. The changes to adding, removing and updating the data collected on each Customer or Client. Admin has a crucial role in this site, because admin can do all the CRUD operations.

Finally, we can claim that our project is too much necessary and helpful in this modern life, because everyone needs simple and secure shopping experience.

1.5 Over View of the project:

In our project " Acute Surgical BD" we studied the basics web programming the Standards of web development tools, the use of the logical and object –oriented development technique using designs and descriptions before implementation. Through our study, we want to find out the solution to the following question:

- How developers can work as a team?
- Which things are mandatory to create a secure structure of website?
- Which design is efficient for our project and why?
- Who will be benefited from our project?
- Will there any further development or future plan of our project?

- What will be the life cycle of our project?

To find out information about our topic and to find the answer to our research inquires, we read, analyzed and justified different e-commerce platform as well as discuss it with our supervisor and other web developers to get a better overview and focus on the project.
Our supervisor provides proper guidelines and we collected samples of reference documents related to different projects available in our University library. We also browse the internet for more info regarding design, development and programming solution.
.Our team consists of four members and we divided our works into four parts and these parts are:

- Design and Documenting
- Research
- Coding and Implementation
- Testing

We have written brief descriptions and captions to explain different charts and other information .A List of this sources we used during development is at the end of this documentation in 'Reference" section.

CHAPTER 2

Requirement Analysis

2.1 **Background Studies**

We conduct benchmark studies across a wide range of products, typically under the auspices of product information and Usability. Our benchmark products for this project are described below,

2.1.1 Usamedicalsurgical.com

Usamedicalsurgical.com provides accurate and independent information on more than 21,000 products, over-the-country and natural products.

Key Features:

This site has many useful features and information. Some of the key features are as follows

- Product Full Information
- Over View
- Side Effects
- Interactions
- Natural Product
- Rating
- News
- Search

Limitations:

Though this site has too many information about products, we find some flows and limitations those are as follows,

- Do not have good search options.
- Products filter is very bad.
- Cannot generate report for specific products information.

2.1.2 Keysurgical.com

Keysurgical.com is the leading online global destination for users and Offering the latest product news and expert perspectives.

Key Features:

- This site has many useful features and information. Some of the key features are as follows
- Product Information
- Over View
- Side Effects
- Interactions
- Search

Limitations:

Though this site has too many information about products but we find some flows and limitations those are as follows,

- Don not have face book login.
- Products filter is not possible.
- Do not have professionals rating system for any products.

2.1.3 Zepfsurgical.com

Zepfsurgical.com is the most usable online shop in Bangladesh. It brings information about Products.

Key Features:

This site has many useful features and information. Some of the key features are as follows -

- Product Information
- Brand Name
- Properties
- Form
- Manufacturer
- Price
- Search

Limitations:

Though this site has information about products, we find some flows and limitations those are as follows,

- Do not have specific search options for product class, Indications brand name of companies.
- Products filter is not possible with manufacture name.
- Do not have any kinds of rating system.
- Cannot generate report.
- Do not have any social media Icon option.
- Do not have video of products.

2.1.4 Acute Surgical BD

Acute Surgical BD is surgical equipment's related Ecommerce system in Bangladesh. It is the most comprehensive, advanced and up-to-date information source on available and recent products that serve the User all over the Country.

Key Features:

This site has many useful features and information. Some of the key features are as follows

- Brand name
- Language Support
- Search Product
- Product Reviews
- Wish list

Limitations:

Though this site has too many information about products, we find some flows and limitations those are as follows,

- Online payment system will not be there.
- Do not use any algorithm for recommendation.

2.2 **Functional Requirements**

We studied some benchmark products (Section: 2.1) and identify some very interesting and useful feature which can be very important for user. We also find some flaws and limitation which can be fixable. So finally, we met our project features which contain some important features from our benchmark studies and try to overcome the limitations of them. Our projects key features are described below,

2.2.1 Key Features

- Search
- Brand Name

- Manufacture Name
- Indication
- Products Information

- User can find product for particular brand name for particular manufacture name with full information about this product form, manufacturer and price information.

Manufacture by Class name

- All products and their classification can be found in here. Each product can be classified into one or more product classes.

-Mail sent

In general Admin can't memorize all product name for particular problem. Sometimes it can create problem for Admin. Using this service automatically sent a main after buying a product.

- Product Details Information Side effects
- Information form
- Interaction
- Precautions and Warnings
- Product Image
- Price
- Product Rating
- Professional rating
- User rating

- Manifold
- Manufacture company's information

- Brand Information

2.2.2 Development Model

Using Waterfall Model with feedback so that every stage of the development process is up to date with minimum error. [Figure 2.1] In this figure we are showing our system development model which is waterfall model with feedback.

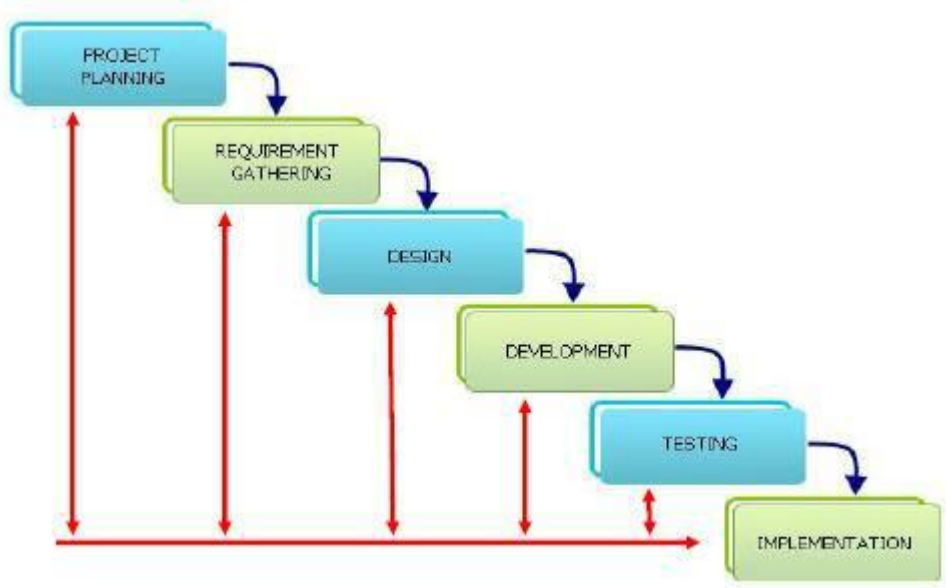


Figure 2.1: Waterfall model with Feedback

2.3 **Non-Functional Requirements**

We identify some Non-Functional requirements that can help with wonderful user- experience. Our Non-Functional requirements are as follows -

- o Register
- o Login
- o Using Local account
- o Using Social site account
- o Search
- o Performance smooth and fast
- o Products Video
- o Google Map
- o Responsive website

2.4 **Benchmark systems VS Our Proposed System**

In this figure [Figure 2.2] we are comparing our proposed system's main features with

Benchmark products,

Category	KEYSURGICAL	stryker	DOLPHIN INSTRUMENTS	ZEPF	USA MEDICAL AND SURGICAL SUPPLIES	RICA	Our Proposed System
Registration/Login	No	Yes	No	Yes	Yes	Yes	Yes
Different Language Support	Yes	Yes	Yes	No	No	No	Yes
Customer Support	Yes	Yes	Yes	Yes	Yes	No	Yes
Search Bar	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shopping Cart	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sitemap	No	No	No	No	Yes	No	Yes
Cash On delivery	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Review	Yes	Yes	Yes	Yes	Yes	No	Yes
Short Audio /Video	No	No	No	No	No	No	Yes
Similar Product Comparison	No	No	No	No	Yes	No	Yes
Advertisement	Yes	No	No	No	Yes	No	Yes
Logo	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Figure 2.2: Benchmark system vs. our proposed system

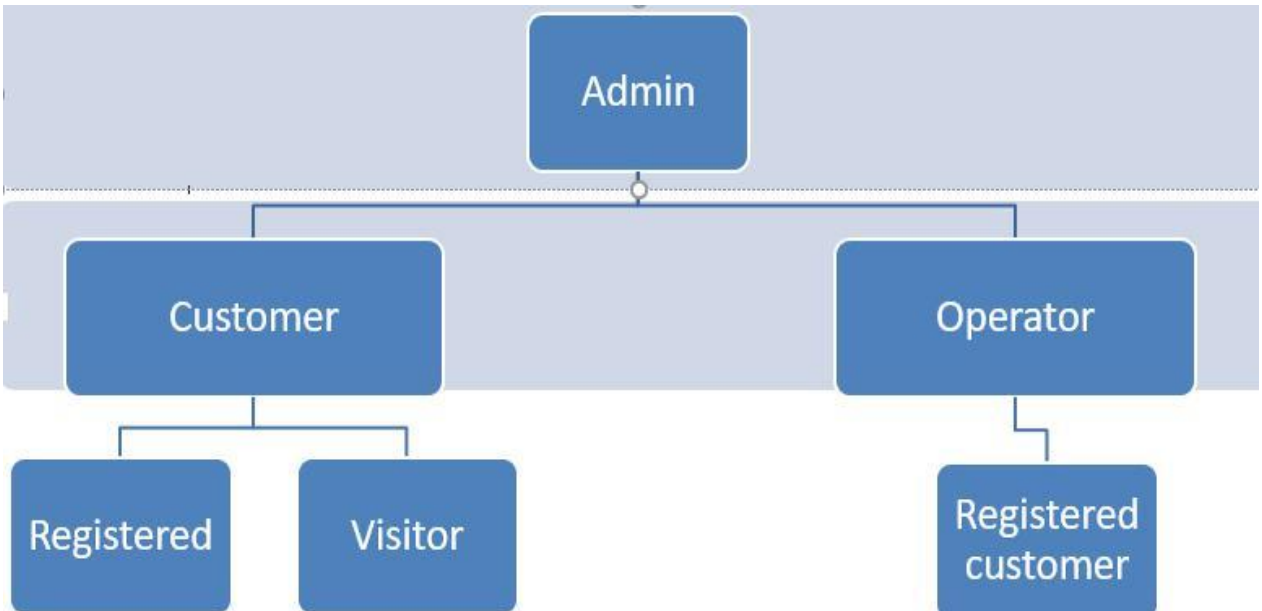
CHAPTER 3

System Design, Development and Reporting

Stake Holders/Actors:

- Admin
  - Can Manage others roles
  - Ensures High Quality Products
  - Ensures Instant Customer Service
  - Manages High Security Transactions
- Operators
  - Develop Website Design
  - Upload books
  - Handle user
  - Responds & Deletes Comment
  - Give permissions to advertisers to give ads
- Customers
  - Buy/Download books
  - Can Visit
- Visitors
  - Visit Only

The Hierarchy List



Comparisons of Roles of different Stake Holders

	Admins	Operators	Customers	Viewers
Manage Admin Roles	Yes			
Edit the Page and Add Apps	Yes	Yes		
Respond & Delete comments	Yes	Yes		
Permits the Advertisers to add Ads	Yes	Yes		
Handle Customers	Yes	Yes		
Buy Books	Yes	Yes	Yes	
Visits	Yes	Yes	Yes	Yes

3.1 Use Case

A use case is a bridge between requirements and systems design and aids in the understanding of functional requirements. A use case utilizes a persona element, which can be created using the use case all modules. Here we are showing and describe our system use case module by module. All use case module are as follows,

Whole System in Use Case Diagram

3.1.1 Website main Modules

[Figure 3.1] In this use case we are showing our system main modules. This use case caries a brief idea about our system. Basically, in this system have five main modules. Those modules are Login or register module, Online Order module, Payment Module, Online viewing module and Update Database Module.

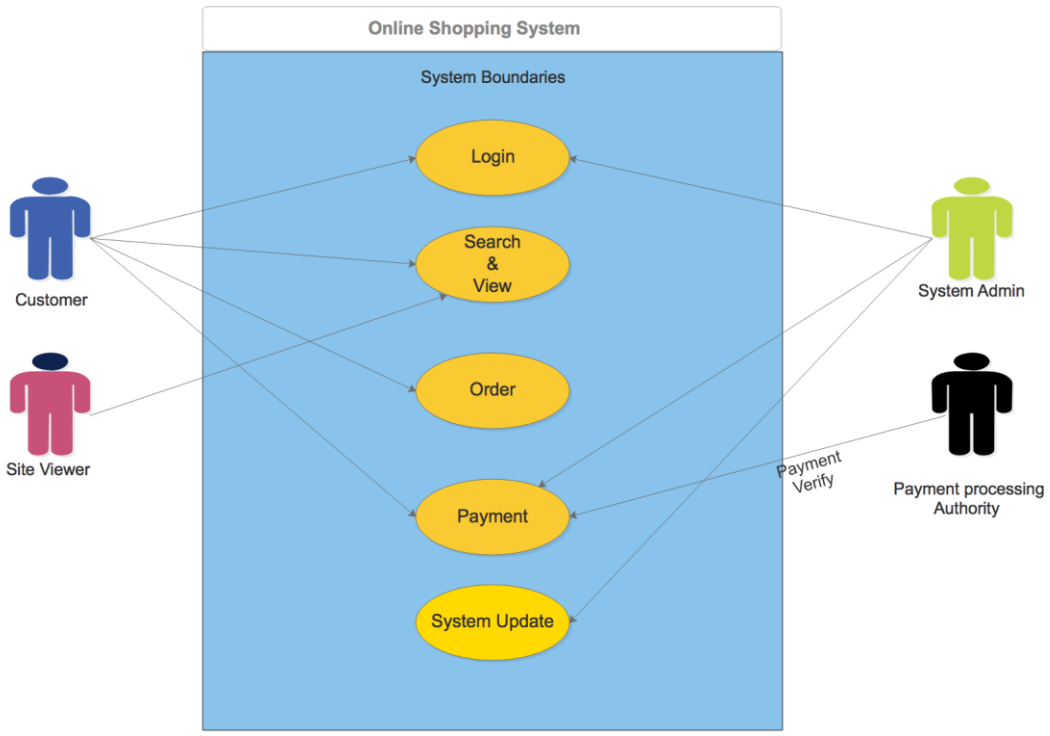


Figure 3.1: Use Case of Main Modules

3.1.2 Login Module

In this module we are focus in our login system and its different functionality. [Figure 3.2] In this use case we are showing our system login module. Login module have mainly four types of functionality, those are Local account, Face book account, Google account and Twitter account.

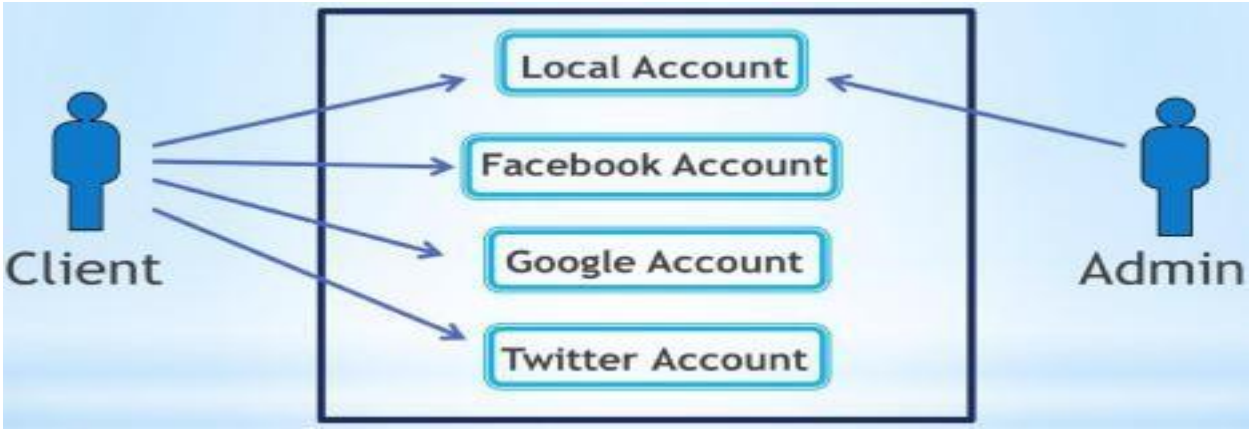


Figure 3.2: Use Case of Login Module

Use Case 1: Online Order

- Primary Actor: CUSTOMER
- Stake Holder and Interest:

  CUSTOMER (registered user): Want to Order products and needs confirmation message

  OPERATOR: Confirm the order and give confirmation message
- Pre-Condition: Customer logged in.
- Post-Condition: Verify the Order and Update the Database
- Success-Scenario:

  1. Select desire products
  2. Conform order
  3. Payment the Order money by Card-Payment or Mobile-Payment or select Payment on delivery option
  4. Cancel Order if want
  5. Cancel Order if want
  6. Update database
- Alternative-Scenario:
- Issues: Any how ordered book should be arrive customer

hand. Use Case 2: Online viewing

- Primary Actor: CUSTOMER
- Stake Holder and Interest:
- Pre-Condition: Need to login the System
- Post-Condition: Update the Database
- Success-Scenario:

  1. Select desire online product to read
  2. View book
  3. give feed-back
  4. Update database
- Alternative-Scenario

1. If View failed, give error massage to user and system

2. If System crashes recover the system with prior state

Use Case 3: Update Database

- Primary Actor: ADMIN
- Stake Holder and Interest:

  OPERATOR: Want to upload products information and update database
  ADMIN: Give permission and create role and maintain product bench-mark
- Pre-Condition: Need to login the System
- Post-Condition: Update the Database
- Success-Scenario:

  1. Operator and Admin login the System.
  2. Operator want to upload products information and edit, if any product information need to edit.
  3. Admin give permission and maintain product bench-mark.
  4. Update database.
- Alternative-Scenario:
  If System crashes recover the system with prior state.
- Issues: maintain bench-mark.

3.2 **Entity Relationship Diagram (ERD)**

In this [Figure 3.3] figure we are showing our system entity relationship diagram. This diagram represents our system basic database entity and its relation between them. With this ERD anyone can easily understand how our system works in database label

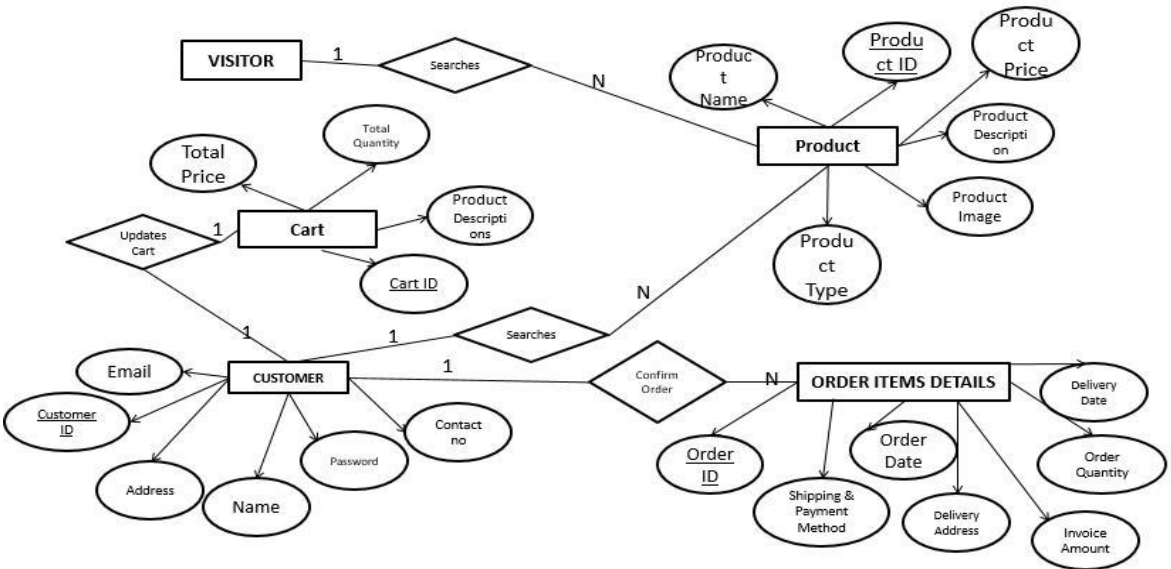


Figure 3.3: Entity Relationship Diagram (ERD)

3.3 **Activity Diagram**

In this figure [Figure 3.4] we are showing our system's activity diagram. This diagram represents all of the activity in our system which can be possible by users.

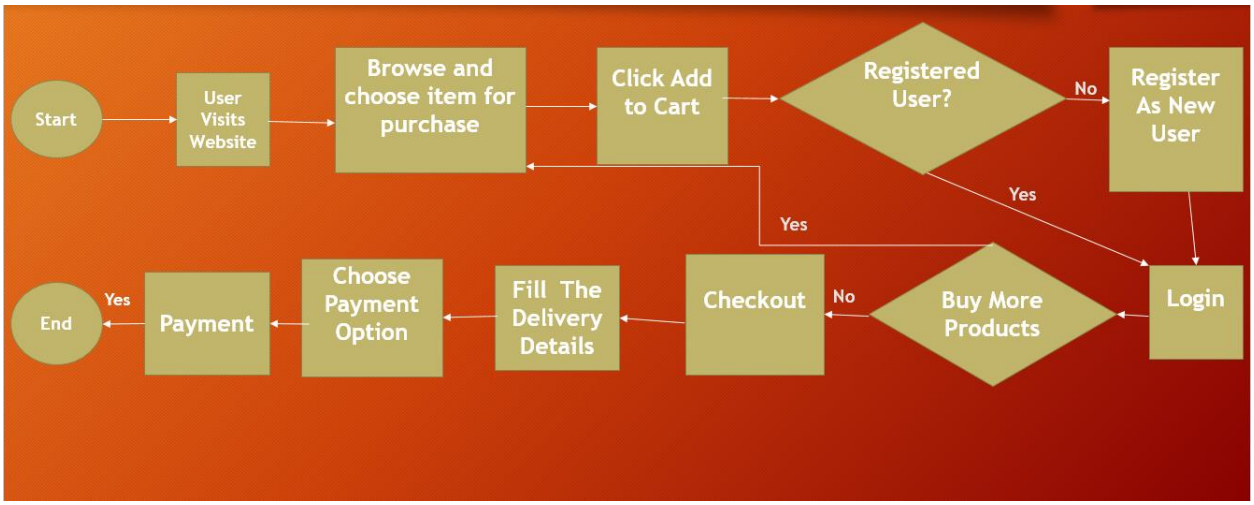


Figure 3.4: Activity Diagram

3.4 **Data Flow Diagram**

A Data Flow Diagram (DFD) maps out the flow of information for any process or system. In our system we are define our DFD into 3 level, so can every single process can understandable. Our data flow diagrams are as follows,

3.4.1 Level 0 Diagram

In this figure [Figure 3.5] we are described our level 0 diagram with all main processes.

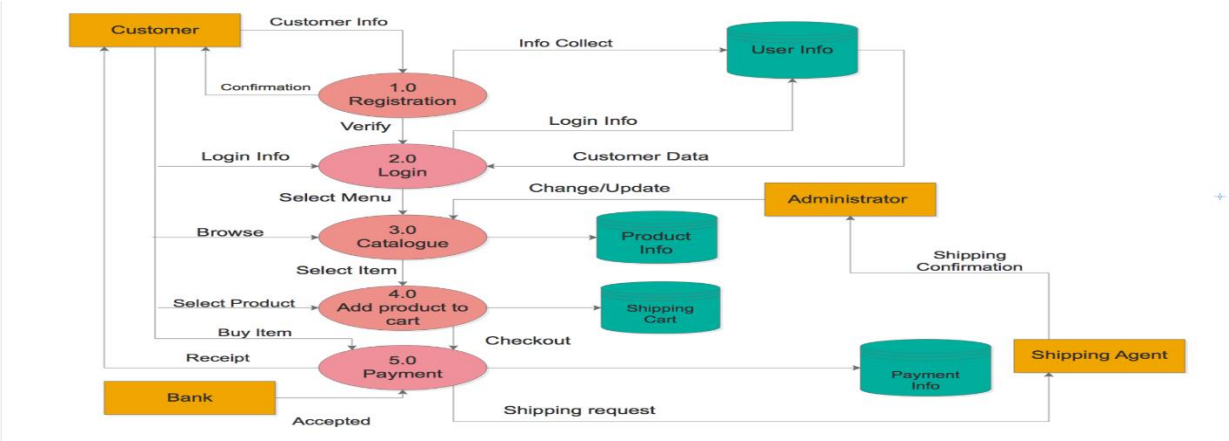


Figure 3.5: Level 0 DFD

3.4.2 Level 1 Diagram

In this figure [Figure 3.6] we are described our level 1 diagram have two main processes with a database entity.

Figure 3.6: Level 1 DFD

3.4.3 Level 2 Diagram for the process ADDING TO CART

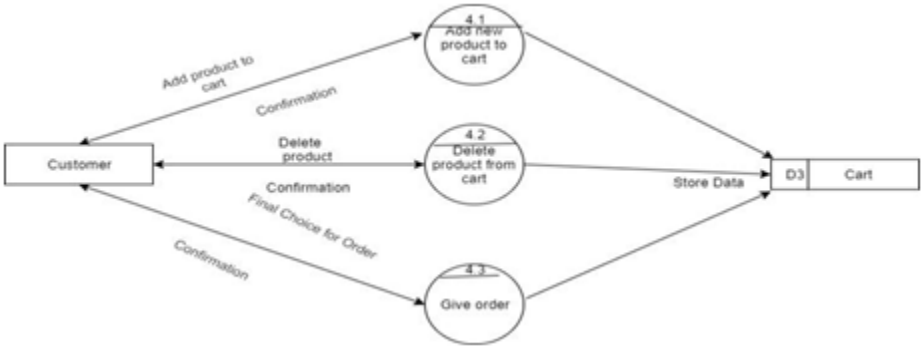


Figure 3.7: Level 2 DFD

3.4.4 Level 3 Diagram for the process Give Order

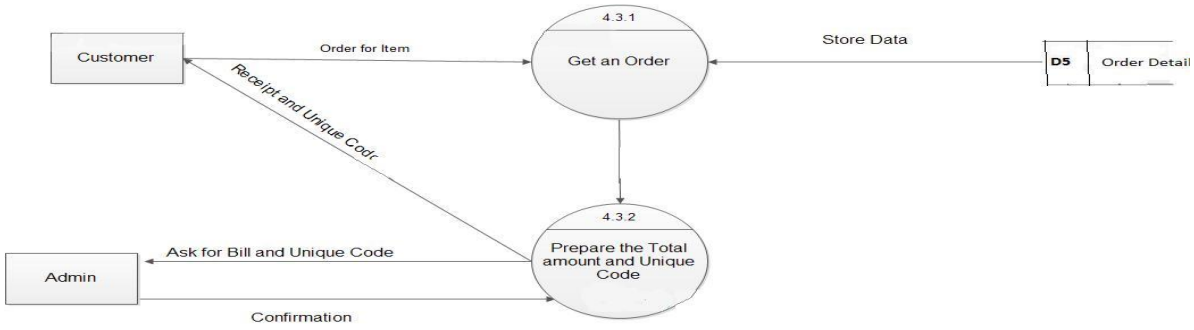


Figure 3.8: Level 3 DFD

3.4.5 Context Diagram

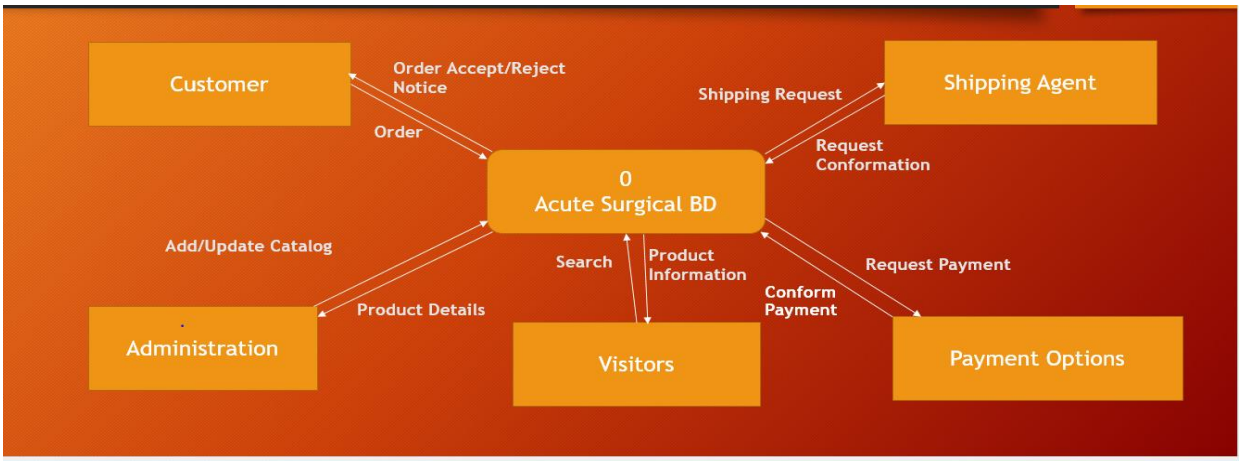


Figure 3.9: Context Diagram

3.4.6 Class Diagram

- The class diagram is the main building block of object-oriented modeling.
- It is used both for general conceptual modeling of

The systematic of the application, and for detailed modeling translating the models into programming code.

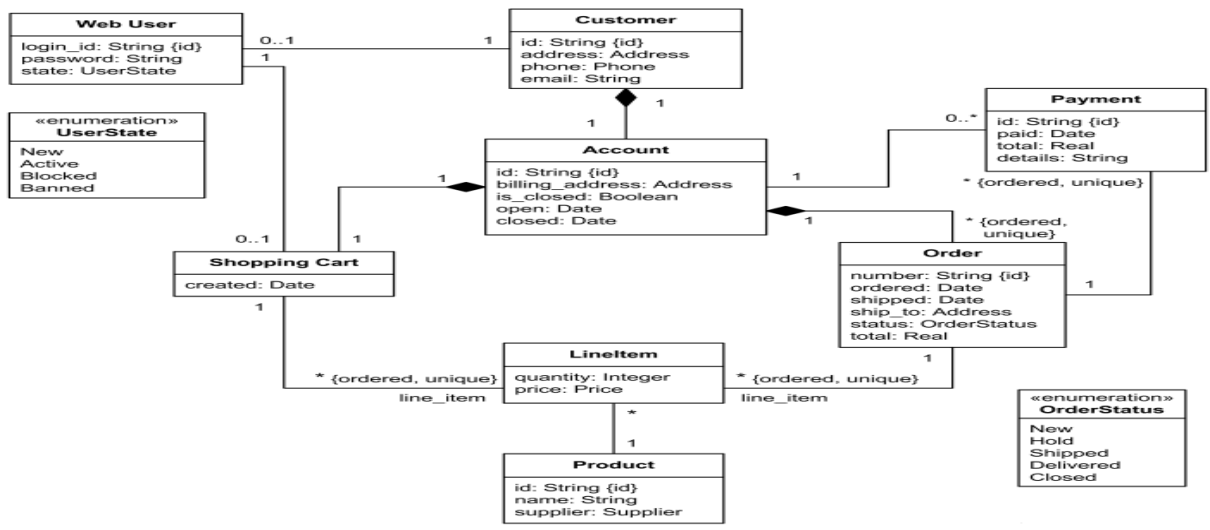


Figure 3.10: Class Diagram

3.4.7 Sequence Diagram

- UML sequence diagrams are used to show how objects interact in a given situation.
- An important characteristic of a sequence diagram is that time passes from top to bottom: the interaction starts near the top of the diagram and ends at the bottom

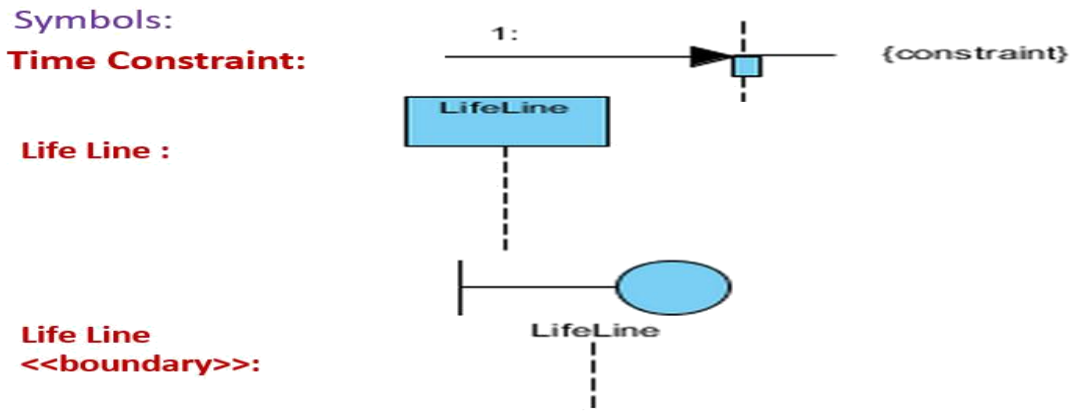


Figure 3.11: Sequence Diagram

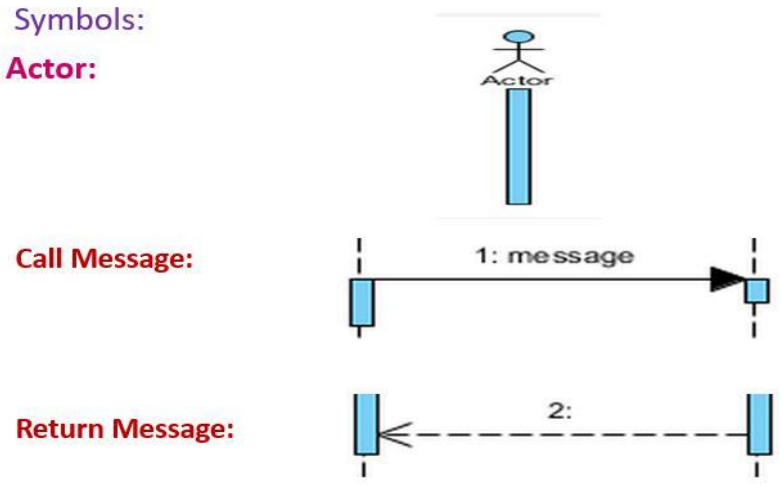


Figure 3.12: Sequence Diagram

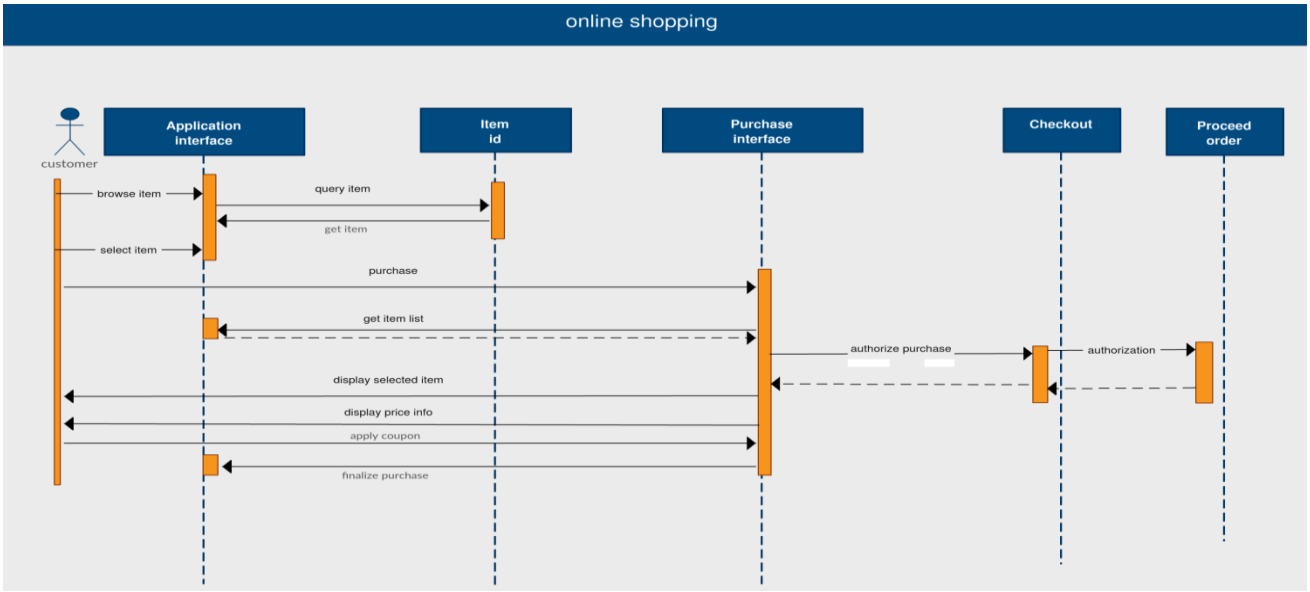


Figure 3.13: Sequence Diagram

3.4.8 State Diagram

In this figure [Figure 3.14] we are described State Diagram for Placing an Order

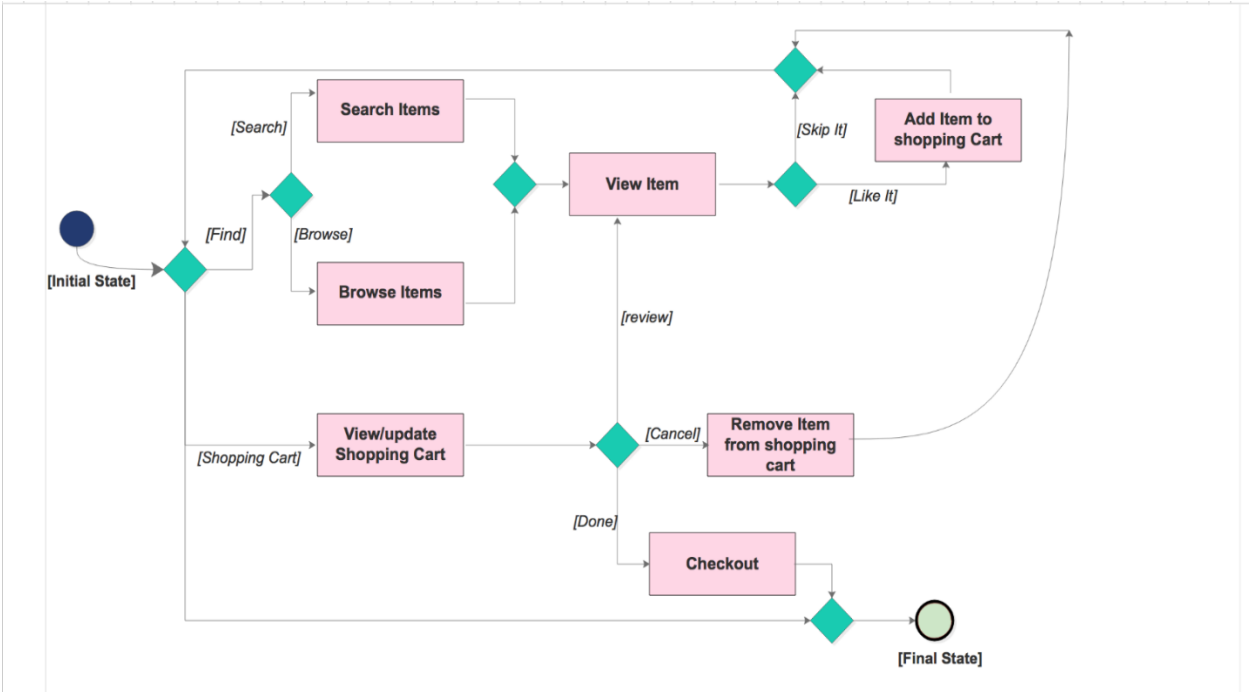


Figure 3.14: State Diagram

3.5 Implementation Environment

In our system environment we are selecting Laravel framework as a development platform. This framework helps the developers build applications that adhere to the MVC pattern. This framework has added functionality like Html Helpers, validators that work unobtrusively; attribute based model validation, pluggable components and dependency injection, which in turn improved testability and much more.

We are also use Entity Framework (EF) in our project. EF is an Object Relational Mapping (ORM) framework that enables developers to work with relational database. It enabling developers to deal with data as objects and properties. Using the EF, developers issue queries using LINQ, then retrieve and manipulate data as strongly typed objects using C#.

3.5.1 Framework

- Laravel5.6
- Entity Framework 6

3.5.2 Language

- Php (Back end)
- HTML, CSS, Bootstrap (Front-End)
- Java Script, jQuery, AJAX

3.5.3 Database

- MySQL
- We Followed Code First Approach to integrate database in our project.

3.5.4 Tools

- NetBeans, Sublime Text

3.5.5 Version Control System

- GIT

3.5.6 Domain & Hosting

- Our Domain: http://acutesurgicalbd.com & https://iithost.com (Hosting)

3.6 System Module User Interfaces

[Figure 3.15] This is our system's home page. Initially users can find lots of activity options with search options. User can also find popular products information in our site. User can easily interact with our system. This application's user interface is so simple but attractive and easier to understand.

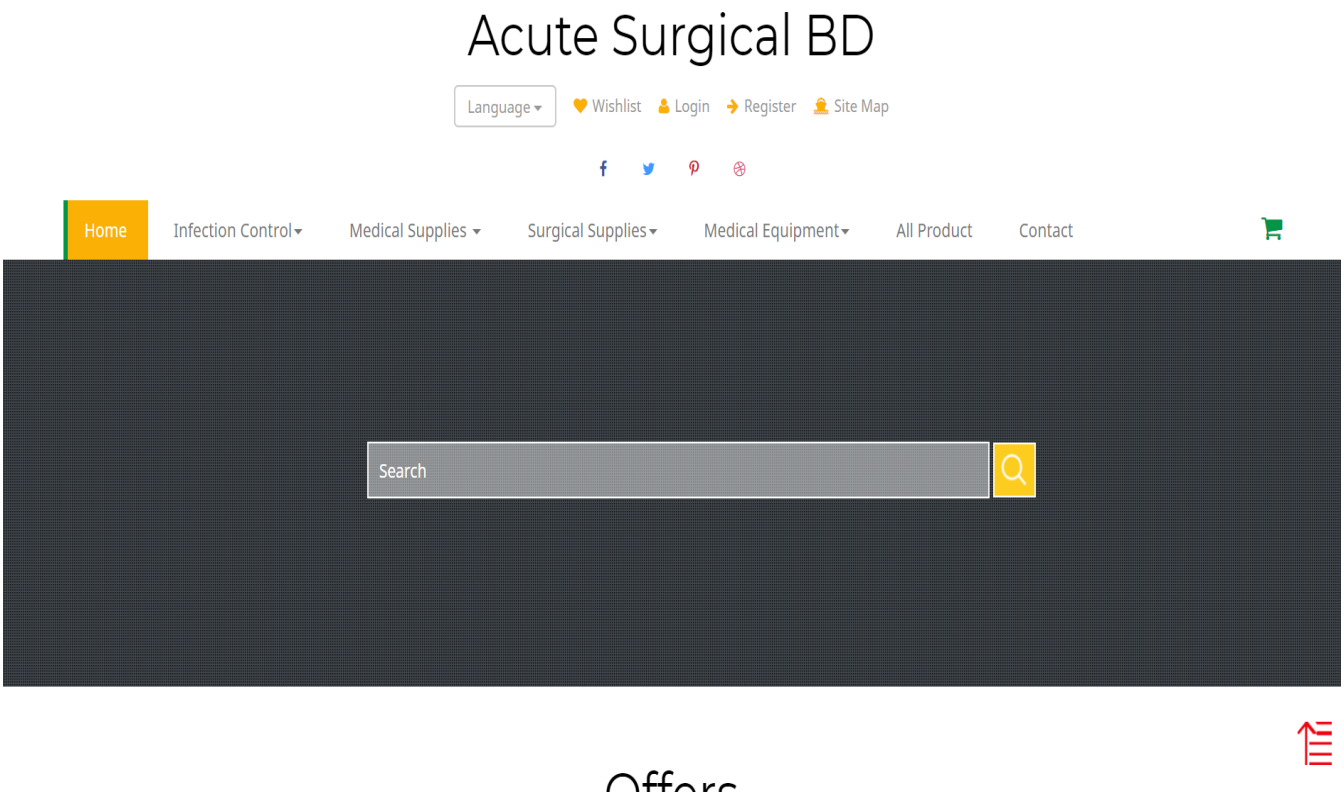


Figure 3.15: Home Page

Admin perspective:

[Figure 3.16, 3.17, 3.18] This is our admin category page & product page. Initially an admin can add the category & product with description, name and publication status. An admin can publish or unpublished the category for upcoming new category if he needs to publish he can easily done that. Any of our admin can easily edit or delete the category if he wants.

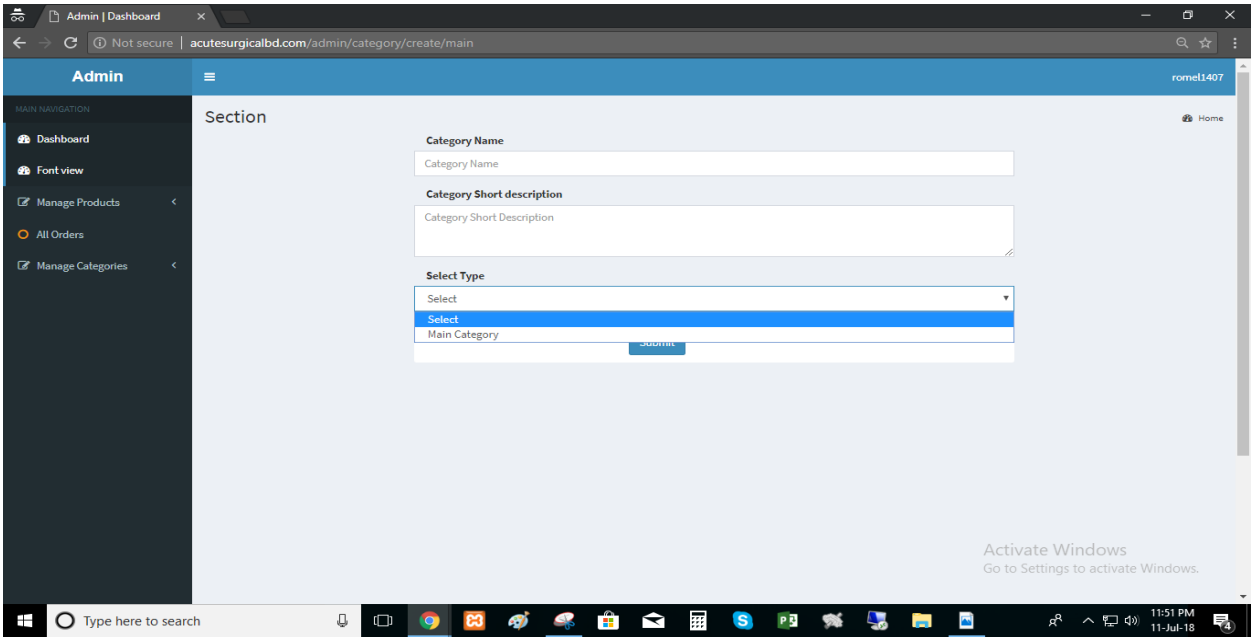
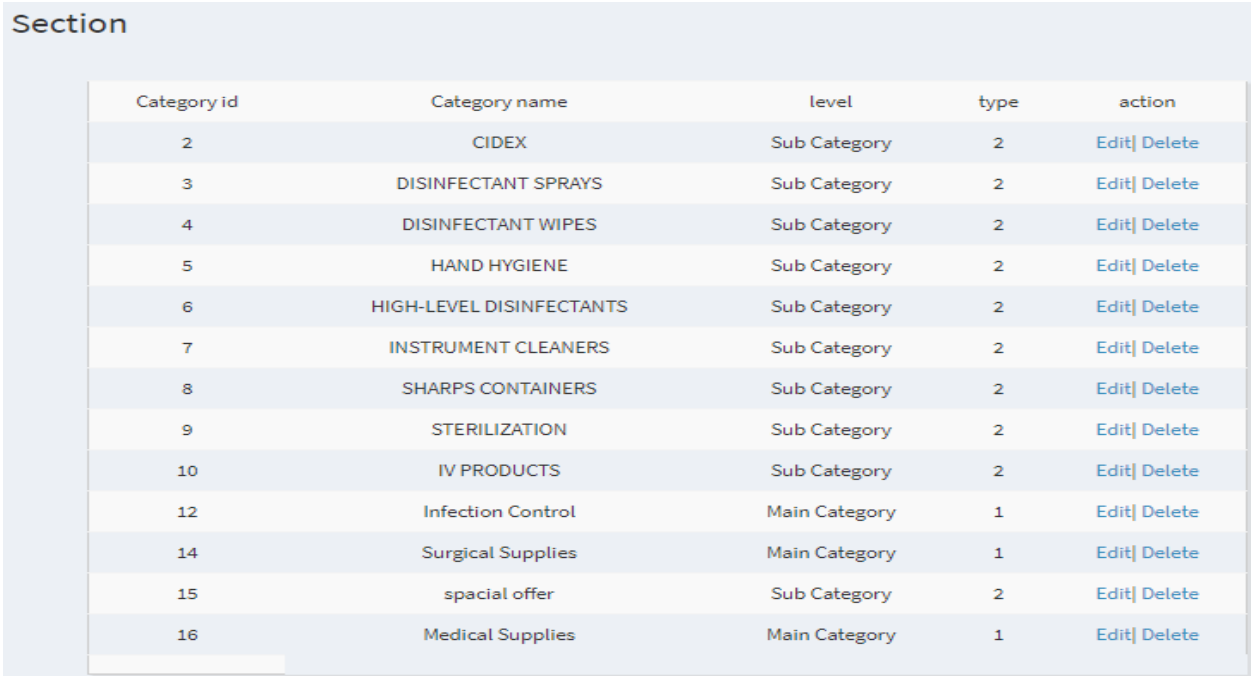


Figure 3.16: Category Page



Category id	Category name	level	type	action
2	CIDEX	Sub Category	2	Edit| Delete
3	DISINFECTANT SPRAYS	Sub Category	2	Edit| Delete
4	DISINFECTANT WIPES	Sub Category	2	Edit| Delete
5	HAND HYGIENE	Sub Category	2	Edit| Delete
6	HIGH-LEVEL DISINFECTANTS	Sub Category	2	Edit| Delete
7	INSTRUMENT CLEANERS	Sub Category	2	Edit| Delete
8	SHARPS CONTAINERS	Sub Category	2	Edit| Delete
9	STERILIZATION	Sub Category	2	Edit| Delete
10	IV PRODUCTS	Sub Category	2	Edit| Delete
12	Infection Control	Main Category	1	Edit| Delete
14	Surgical Supplies	Main Category	1	Edit| Delete
15	spacial offer	Sub Category	2	Edit| Delete
16	Medical Supplies	Main Category	1	Edit| Delete

Figure 3.17: Category edit/delete Page

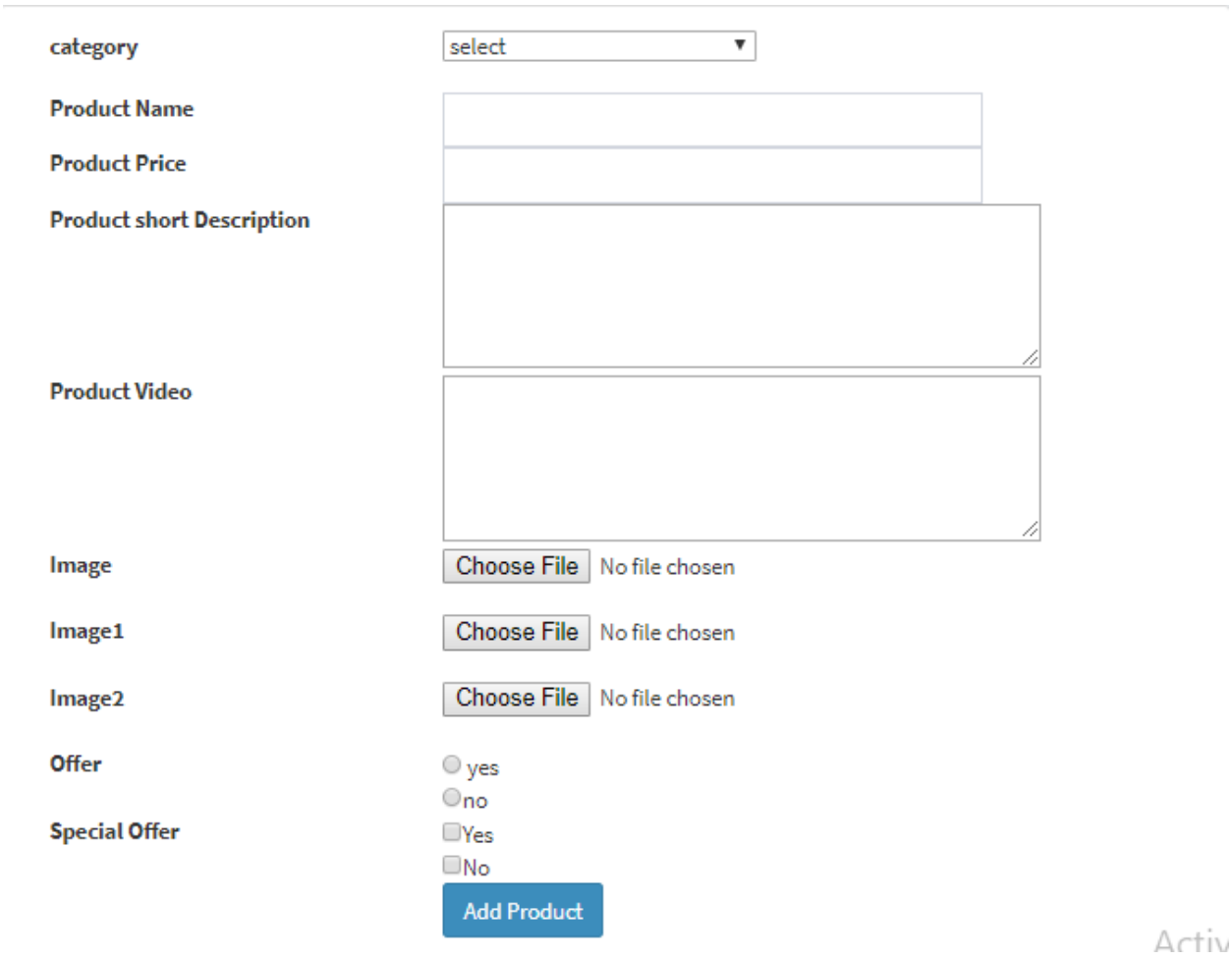


Figure 3.18: Add product page

User perspective:

[Figure 3.19] This is our system's User login page. Initially a user can login here if the user are not register then he/she need to register first.

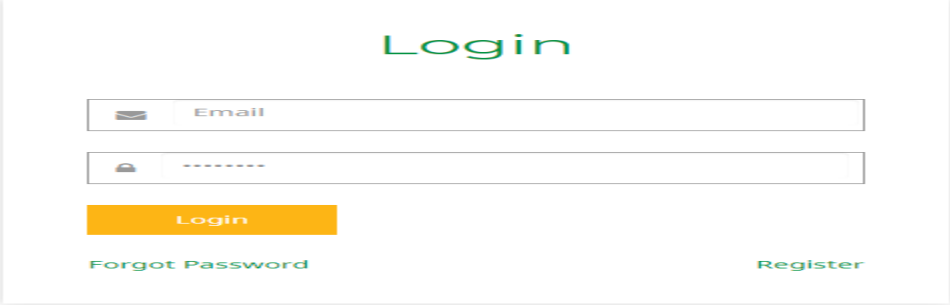


Figure 3.19: login Page

[Figure 3.20, 3.21] This is User login cart page. User can easily find a product and save it to his cat and want to see the information details in future or buy. Before check-in the user and can add more products or add product quantity easily or the user can check out.

Figure 3.20: Product Detail Page

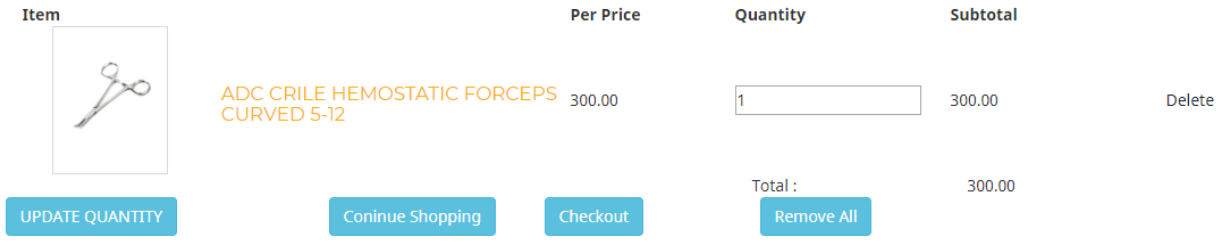


Figure 3.21: Cart Page

In [Figure 3.22] if the user is not register previously the user needs to register first to buy the product. After successfully register the user can see a welcome message.

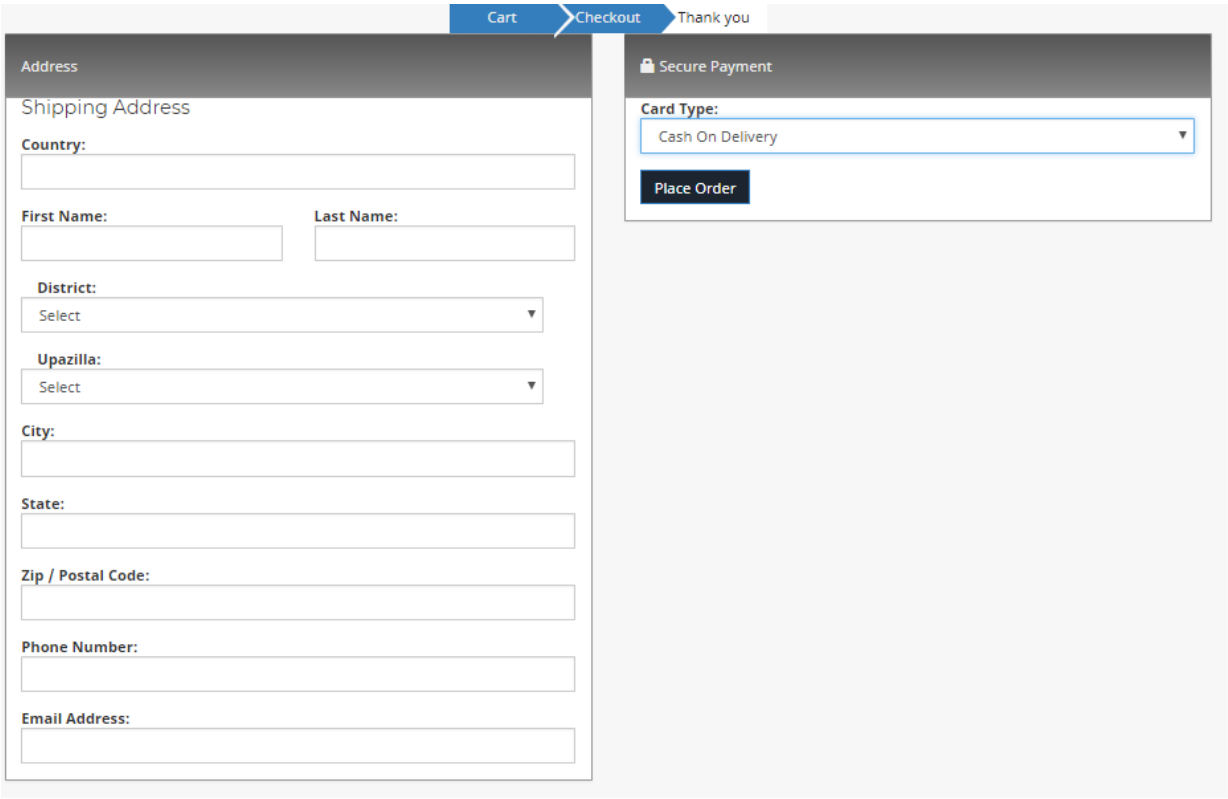


Figure 3.22: Check out shipping Page

Initially two payment system is available which cash on delivery is.

3.7 Testing

3.7.1 Introduction

Testing is one of the important phases for any system development, asset concerns about the performance of the system. Whenever any mistake crept in the system, the system should be capable enough to handle absurd data. Testing is the process of exercising a program with the specific intent of finding errors prior to delivery to the end user. It is the next important phase after completion of the design phase successfully. This phase enables the developer to be assured, at least up to some extent that the proposed solution is going to be a quality solution.

3.7.2 Objectives of Testing

The objective of testing is not to show absence of errors or defects, rather to show the presence of the errors. In our system product information mismatch can be very bad impact for all the users because of the information. In this system all module must work perfectly. However, some important objectives of testing are as follows,

To uncover different cases of potential errors and bugs

To find out whether the system's functionalities work according to the specification or not.

To ensure that the produced system is complete and performs efficiently.

To evaluate whether the software perform all activities specified without crashing individual modules after integration with the existing operating environment (hardware, software etc.)

To measure up the reliability and overall quality of the software.

3.7.3 Test Level

Test level is defined in three levels, which are as follows,

 Unit Test

 Integration Test or System Test

 Acceptance Test

3.7.3.1 Unit Test

Unit testing focuses first on the independent modules to locate errors [Figure 3.23]. This enabled to detect errors in coding and logic that were contained within that module alone. The unit testing was performed by bottom up testing. If any error is found, the module is revised and possible cause of error is defined and corrected. We performed unit testing while coding as well as after completion of coding of each module. We tried my best to find the following types of bugs.

• Data type mismatch means the required data type and input data type are not same
• Illegal operations
• Operations performing on database errors
• Tracking system generated errors for any illegal operations due to my application
Doing this project work, the mostly found error message was the following –

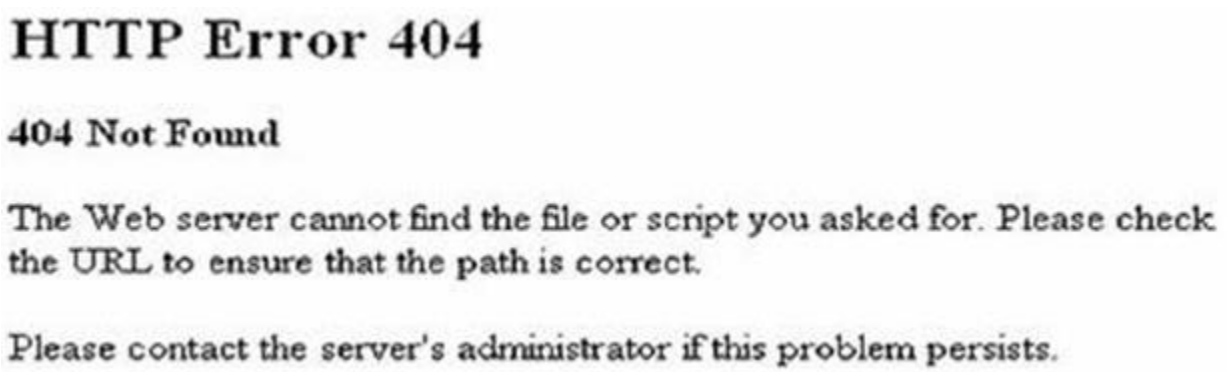


Figure 3.23: Error message for wrong query statement

3.7.3.2 System Test

System testing does not test the software; however, it tests the integration of each module of the system. Our proposed system was also put through the system test to find any sort of discrepancy. But our primary concern was the compatibility of individual modules. To attain perfection some special level system tests were performed. After testing the results, it was found that our proposed system met all the specified requirements.

3.7.3.3 Acceptance Test

We are currently executing the acceptance testing of the proposed system. Both the computerized system and the organization's traditional manual system are running simultaneously to find out the lacking of the system. It has been planned that, this process will continue for the next few weeks (approximately 2 weeks).

3.7.4 Reports

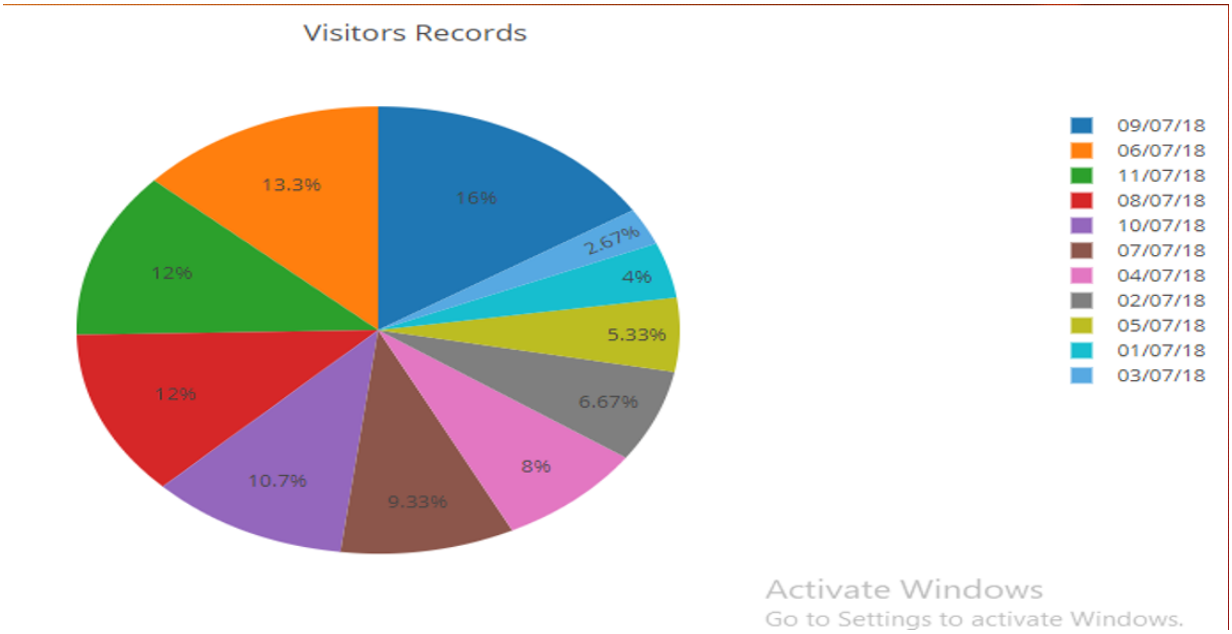


Figure 3.24: Visitor's Report

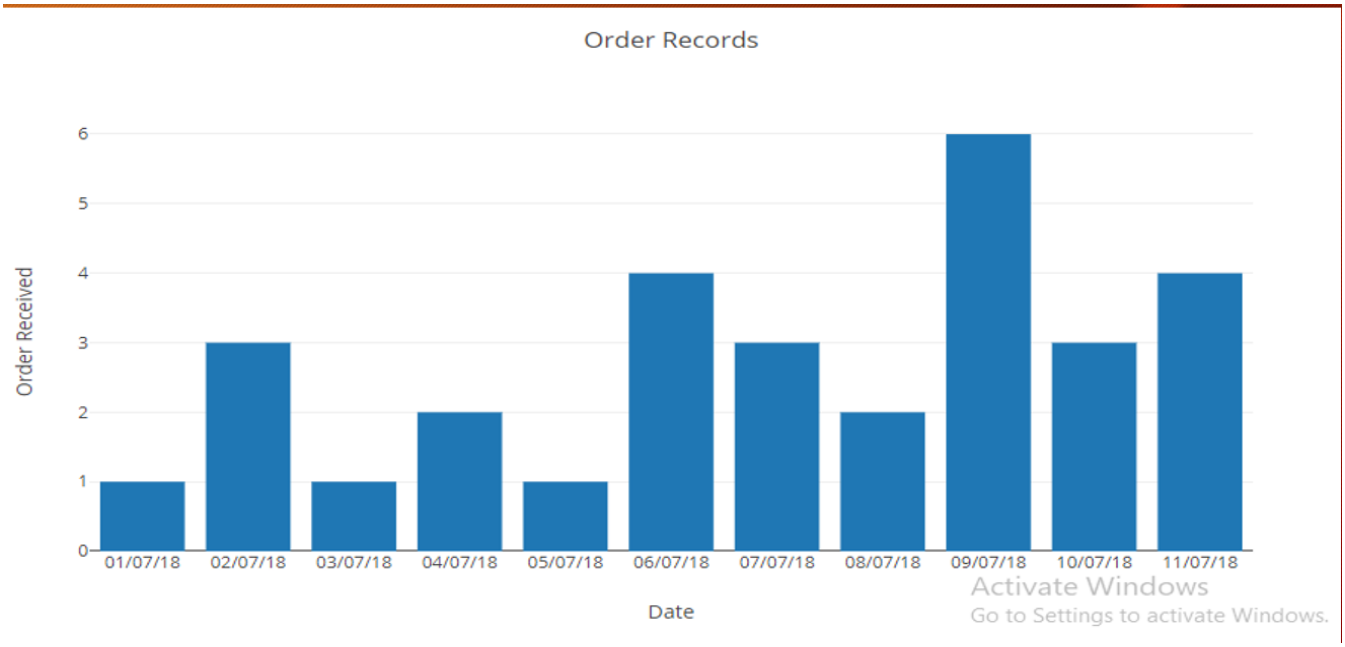


Figure 3.25: Order Report

CHAPTER 4

Conclusion

4.1 **Summary**

BD Surgical Store was designed in such a way that future modifications can be done easily. The following conclusions can be deduced from the development of the project.

- Automation of the entire system improves the efficiency.
- It provides a friendly graphical user interface which proves to be better.
- It gives appropriate access to the authorized users depending on their permissions.
- It effectively overcomes the delay in communications.
- Updating of information becomes so easier.
- System security, data security and reliability are the striking features.
- The System has adequate scope for modification in future if it is necessary.

4.2 **Limitations**

Due to time constraint, the project that is developed covers only the aspect of surgical equipment and surgical medicine ordering and payments.

4.3 **Future Work**

Due to the time constrains, we were not able to meet the whole development process for this project. Some of our future steps on this project are as follows

- Create a mobile application with all of our system features.
- Officially launch our application for all users.
- We set our database in the cloud.
- Provide Natural Products Information.
- Identify International Products and provide their Information.
- Introduce bar code checker.
- Collaborating with e-Commerce owners and working on customer uses data that can be collected from server.

REFFERENCES

[1] https://www.keysurgical.com

[2] https://www.stryker.com

[3] http://dolphin-surgicals.com

[4] http://www.zepfsurgical.com

[5] https://www.usamedicalsurgical.com

[6] https://www.ricasurgical.com

[7] https://www.loop11.com (Testing)