ABSTRACT

Online Gift Portal is a web-application used in e-commerce to assist people making purchases any products online. This project deals with developing an e-commerce website for online different types of gifts. It provides the user with a catalog of different types of gifts available for purchase in the store. In order to facilitate online purchase a shopping cart is provided to the user. The system is implemented using a 3-tier approach, with a backend database, a middle tier of Java Technologies, and a web browser as the front end client. The Online Gift Portal project has been developed to allow business grows larger and faster. This site will let customers to view and order products online from any part of the world. The site sells different types of Gifts. Under this website many products and services can be ordered. The Online Gift Portal is expanded permanently through new products and services in order to offer a product portfolio corresponding to the market. Private customer and business customers can order the selected products of the Online Gift Portal online quickly and comfortably. Target groups of customer of the Online Gift Portal are huge. The customers can have a payment option through credit card only. In order to use the load writing procedure, the customer registers itself and receives a login for its purchases name. It is an Internet application. Customer is the user of the system. An administrator of the website is the super user. When the user types in the URL of the website, a Welcome page is shown which has a menu at the top. This site contains an online catalog for the user. User has to login to Welcome Page before ordering anything. Login functionality should check the authenticity of the user from the database. The Online Gift Portal needs to sell different types of products to customer living in any part of the world. The website will show all products in categorized manner. Customer can browse any product for its price and other details and can order the product. Orders needs to accompany with shipping & billing details. The main purpose of the system is to enable customers to browse and order from any part of the world and hence increasing business scope. The development of the new system contains the following activities, which try to automate the entire process keeping in view of the database integration approach. User friendliness is provided in the application with various controls. The system makes the overall project management much easier and flexible. There is no risk of data mismanagement at any level while the project development is under process. It provides high level of security with different level of authentication. Users from any part of the world can make use of the system. New system will process accurate results. New system will be much better in performance as compared to existing one.

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Chapter-1 Introduction

1.1 Rationale

E-commerce is fast gaining ground as an accepted and used business paradigm. More and more business houses are implementing web sites providing functionality for performing commercial transactions over the web. It is reasonable to say that the process of shopping on the web is becoming common-place.

The objective of this project is to develop a general purpose e-commerce store where any product (such as Birthday, Festival Gifts etc.) can be bought from the comfort of home through the Internet. However, for implementation purposes, this report will deal with an Online Gift Portal.

The Online Gift Portal is a virtual store on the Internet where customers can browse the catalog and select products of interest. The selected items may be collected in a shopping cart. At 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 or select a billing address, a shipping address, a shipping option, and payment information such as credit card number. An e- mail notification is sent to the customer as soon as the order is placed.

The Online Gift Portal is expanded permanently through new products and services in order to offer a product portfolio corresponding to the market. Private customer and business customers can order the selected products of the Online Gift Portal service online quickly and comfortably.

Target groups of audience of the Online Gift Portal are the customers that can have a payment option through credit card only. In order to use the load writing procedure, the customer registers itself and receives a login for its purchases name. It is an Internet application.

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

1.2 Problem Definition

The Online Gift Portal needs to sell different types of products to customer living in any part of the world. The website will show all products in categorized manner. Customer can browse any product for its price and other details and can order the product. Orders needs to accompany with shipping & billing details. Customer has to pay order amount online through credit cards. Products can be managed by operators from admin panel.

The main purpose of the system is to enable customers to browse and order from any part of the world and hence increasing business scope.

1.3 Proposed Solution

The development of the new system contains the following activities, which try to automate the entire process keeping in view of the database integration approach.

1. User friendliness is provided in the application with various controls.
2. The system makes the overall project management much easier and flexible.
3. There is no risk of data mismanagement at any level while the project development is under process.
4. It provides high level of security with different level of authentication.
5. Users from any part of the world can make use of the system.
6. New system will process accurate results.
7. New system will be much better in performance as compared to existing one.

1.4 Report Organisation

In Chapter-1, Introduction of the Project is Covered Problem Domain and Its Solution Domain is proposed. In Chapter-2, the Literature survey of various website is carried out and related tools used for development. In Chapter-3, the analysis of the system is described in which Process Model, Requirement Analysis, Feasibility Study, Architectural Specification and Use Case Model is explained. In Chapter-4, Designing part of the System is detailed by Sequence Diagrams and Database Design which include E-R diagram, Database Schema and Data Dictionary. In Chapter-5, Testing is explained, which includes Languages used characteristics, Testing Objectives and Test Cases are provided. In Chapter-6, Conclusion of the Project is dictated and discussion on Benefits, Limitations, and Future Work is given.

Chapter-2 Literature Survey

2.1 Related Works

IGP.com

This website is also known as Indian Gift Portal. This website enables user to send gift in India and also in USA. Headquarter of this website is currently in Delhi. The website is very user-friendly and have lot of categories. The user can purchase any product only after logging into the website. However, there are few flaws in this website is that the user has to pay only through credit cards or debit cards only.

Archiesonline.com

The Archies is a gifting brand which has started their business now online also. There are many stores of Archies in all over India. However, the appearance of the website is good enough. This brand allows delivery of products only in India. The user has to register to website before making any purchase. The loading time of website is more than IGP.com. The archiesonline.com sell only products of their brand.

Giftcart.com

The website is operated from Mumbai. The UI of website is good enough. The user has to register before making any purchase. This website provides only internet banking option. However, there is a security flaw in this website because, after logout if press back button, it returns to the user profile page because cache files are not deleted in the browser by website. This may cause risk of user information.

FernsandPetals.com

The website has dynamic loading of the pages. The website gives suggestion according to the previous searches. The user has to login to before making any payments. The OTP is generated for each product purchased and the tracking of each product is provided through SMS. The website is very popular and used all over in North America and also in India. The additional feature is that the user can attach a digital note with the product purchased which is then delivered as printout to the receiver. The UI of this website is very user-friendly and has lot of categories. Filters are provided on each page for easy access.

Giftingnation.com

The website is the new start-up which is operated from Mumbai. The UI component is good. It has vertical navigation bar which makes it unique from other websites. The user has to register before making any payments. However it only provide payment through PayPal which is an online money transaction application.

2.2 Technologies and Tools Used

HTML

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language like HTML. CSS is a cornerstone technology of the World Wide Web. CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file, and reduce complexity and repetition in the structural content.

Java Script

JavaScript often abbreviated as JS, is a high-level, interpreted programming language. It is a language which is also characterized as dynamic, weakly typed, prototype-based and multi-paradigm. Alongside HTML and CSS, JavaScript is one of the three core technologies of the World Wide Web. JavaScript enables interactive web pages and thus is an essential part of web applications. The vast majority of websites use it, and all major web browsers have a dedicated JavaScript engine to execute it.

Java

Java is a general-purpose computer-programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible. Java servlet technology provides Web developers with a simple, consistent mechanism for extending the functionality of a Web server and for accessing existing business systems. Servlets are server-side Java EE components that generate responses (typically HTML pages) to requests (typically HTTP requests) from clients. Java Server Pages (JSP) are server-side Java EE components that generate responses, typically HTML pages, to HTTP requests from clients. JSPs embed Java code in an HTML page by using the special delimiters <% and %>. A JSP is compiled to a Java servlet, a Java application in its own right, the first time it is accessed. After that, the generated servlet creates the response.

Chapter-3 Analysis

3.1 Process Model Adopted

3.1.1 Description

The model that is basically being followed is the WATER FALL MODEL, which states that the phases are organized in a linear order. First of all the feasibility study is done. Once that part is over the requirement analysis and project planning begins. If system exists one and modification and addition of new module is needed, analysis of present system can be used as basic model.

The design starts after the requirement analysis is complete and the coding begins after the design is complete. Once the programming is completed, the testing is done. In this model the sequence of activities performed in a software development project are: -

- Requirement Analysis: During this initial phase, the potential requirements of the application are methodically analyzed and written down in a specification document that serves as the basis for all future development. The result is typically a requirements document that defines what the application should do, but not how it should do it.
- Project Planning: During this second stage, the system is analyzed in order to properly generate the models and business logic that will be used in the application.
- System Design: This stage largely covers technical design requirements, such as programming language, data layers, services, etc. A design specification will typically be created that outlines how exactly the business logic covered in analysis will be technically implemented.
- Coding: The actual source code is finally written in this fourth stage, implementing all models, business logic, and service integrations that were specified in the prior stages.
- Testing: During this stage, unit testing, integration testing is performed to systematically discover and report issues within the application that need to be resolved. It is not uncommon for this phase to cause a “necessary repeat” of the previous coding phase, in order for revealed bugs to be permanently removed.

Here the linear ordering of these activities is critical. End of the phase and the output of one phase is the input of other phase. The output of each phase is to be consistent with the overall requirement of the system. Some of the qualities of spiral model are also incorporated like after the people concerned with the project review completion of each of the phase the work done.

WATER FALL MODEL was being chosen because all requirements were known beforehand and the objective of our software development is the computerization/automation of an already existing manual working system.

3.1.2 Advantages and Disadvantages

Advantages –

- This model is simple and easy to understand and use.
- It is easy to manage due to the rigidity of the model – each phase has specific deliverables and a review process.
- In this model phases are processed and completed one at a time. Phases do not overlap.
- Waterfall model works well for smaller projects where requirements are very well understood.

Disadvantages –

- Once an application is in the testing stage, it is very difficult to go back and change something that was not well-thought out in the concept stage.
- No working software is produced until late during the life cycle.
- High amounts of risk and uncertainty.
- Poor model for long and ongoing projects.
- Not suitable for the projects where requirements are at a moderate to high risk of changing.

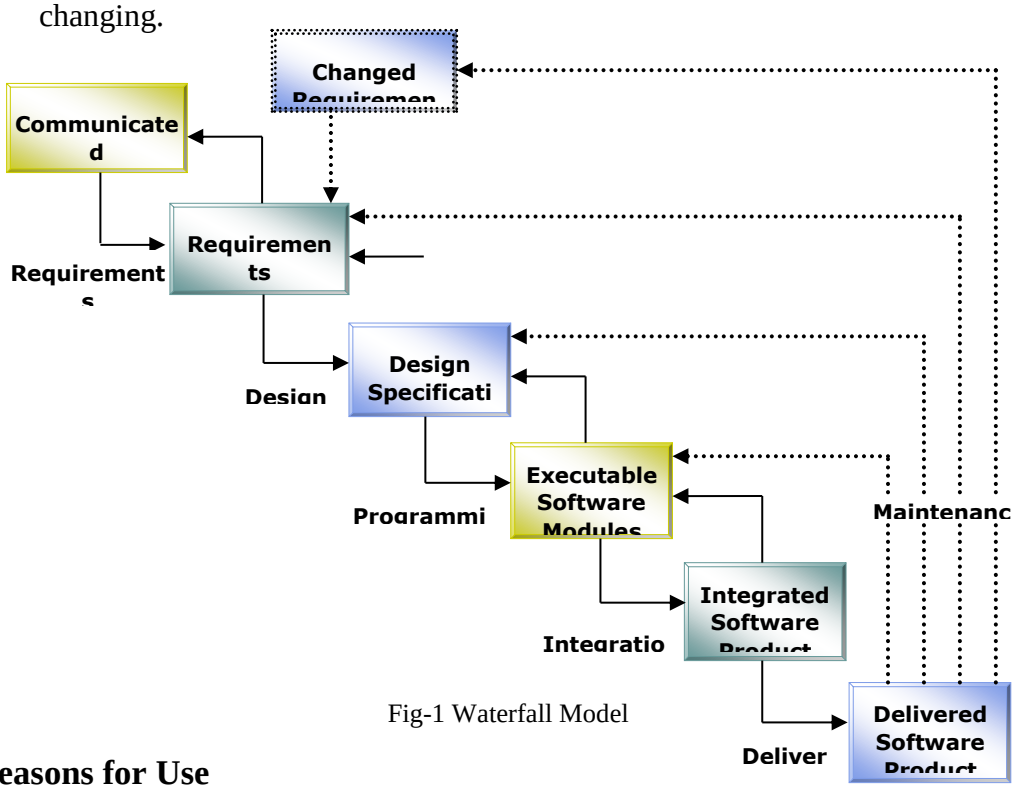


Fig-1 Waterfall Model

3.1.3 Reasons for Use

This model is simple and easy to understand and use. As each phase has specific deliverables, it is very easy to manage due to the rigidity of the model. In this model, only one phase at a time is completed, hence no phases overlap with each other.

3.2 Requirement Analysis

3.2.1 Software Requirements

- Windows OS (XP/2000 or Above).
- NetBeans IDE 6.0 or above.
- Apache Tomcat Server 7.0 or above.
- Java Development Kit 6.0 or above.
- Sublime Text Editor 2 or above.
- MySQL 4.1 or above.

3.2.2 Hardware Requirements

- PIV 2.8 GHz Processor and Above
- RAM 512MB and Above
- HDD 20 GB Hard Disk Space and Above

3.3 Feasibility Study

Preliminary investigation examine project feasibility, the likelihood the system will be useful to the organization. The main objective of the feasibility study is to test the Technical, Operational and Economical feasibility for adding new modules and debugging old running system. All system is feasible if they are unlimited resources and infinite time. There are aspects in the feasibility study portion of the preliminary investigation:

- Technical Feasibility
- Economical Feasibility
- Operational Feasibility

3.3.1 Technical Feasibility

The technical issue usually raised during the feasibility stage of the investigation includes the following:

- Does the necessary technology exist to do what is suggested?
- Do the proposed equipment's have the technical capacity to hold the data required to use the new system?
- Will the proposed system provide adequate response to inquiries, regardless of the number or location of users?
- Can the system be upgraded if developed?
- Are there technical guarantees of accuracy, reliability, ease of access and data security?

The system provides an easy access to the users. The database's purpose is to create, establish and maintain a workflow among various entities in order to facilitate all concerned users in their various capacities or roles. Permission to the users would be granted based on the roles specified. Therefore, it provides the technical guarantee of accuracy, reliability and security. The software and hard requirements for the development of this project are not many or are available as free as open source. The work for the project is done with the current equipment and existing software technology. Necessary bandwidth exists for providing a fast feedback to the users irrespective of the number of users using the system.

3.3.2 Economic Feasibility

A system can be developed technically and that will be used if installed must still be a good investment for the organization. In the economical feasibility, the development cost in creating the system is evaluated against the ultimate benefit derived from the new systems. Financial benefits must equal or exceed the costs.

The system is economically feasible. It does not require any addition hardware or software. Since the interface for this system is developed using the existing resources and technologies available as open source. There is nominal expenditure and economical feasibility for certain.

3.3.3 Operational Feasibility

Proposed projects are beneficial only if they can be turned out into information system. That will meet the organization's operating requirements. Operational feasibility aspects of the project are to be taken as an important part of the project implementation. Some of the important issues raised are to test the operational feasibility of a project includes the following: -

- Is there sufficient support for the management from the users?
- Will the system be used and work properly if it is being developed and implemented?
- Will there be any resistance from the user that will undermine the possible application benefits?

This system is targeted to be in accordance with the above-mentioned issues. Beforehand, the management issues and user requirements have been taken into consideration. So there is no question of resistance from the users that can undermine the possible application benefits.

The well-planned design would ensure the optimal utilization of the computer resources and would help in the improvement of performance status.

3.4 Architectural Specification

3.4.1Functional Requirement

Output Design

Outputs from computer systems are required primarily to communicate the results of processing to users. They are also used to provide a permanent copy of the results for later consultation. The various types of outputs in general are:

- External Outputs, whose destination is outside the organization.
- Internal Outputs whose destination is with in organization.
- User's main interface with the computer.
- Operational outputs whose use is purely with in the computer department.
- Interface outputs, which involve the user in communicating directly with application.

Output Definition

The outputs should be defined in terms of the following points:

- Type of the output
- Content of the output
- Format of the output

- Location of the output
- Frequency of the output
- Volume of the output
- Sequence of the output

It is not always desirable to print or display data as it is held on a computer. It should be decided as which form of the output is the most suitable. For Example

- Will decimal points need to be inserted
- Should leading zeros be suppressed.

Output Media

In the next stage it is to be decided that which medium is the most appropriate for the output. The main considerations when deciding about the output media are:

- The suitability for the device to the particular application.
- The need for a hard copy.
- The response time required.
- The location of the users
- The software and hardware available.

Keeping in view the above description the project is to have outputs mainly coming under the category of internal outputs. The main outputs desired according to the requirement specification are:

The outputs were needed to be generated as a hot copy and as well as queries to be viewed on the screen. Keeping in view these outputs, the format for the output is taken from the outputs, which are currently being obtained after manual processing. The standard printer is to be used as output media for hard copies.

Input Design

Input design is a part of overall system design. The main objective during the input design is as given below:

- To produce a cost-effective method of input.
- To achieve the highest possible level of accuracy.
- To ensure that the input is acceptable and understood by the user.

Input Stages

The main input stages can be listed as below:

- Data recording
- Data transcription
- Data conversion
- Data verification
- Data control
- Data transmission

- Data validation
- Data correction

Input Types

It is necessary to determine the various types of inputs. Inputs can be categorized as follows:

- External inputs, which are prime inputs for the system.
- Internal inputs, which are user communications with the system.
- Operational, which are computer department's communications to the system?
- Interactive, which are inputs entered during a dialogue.

Input Media

At this stage choice has to be made about the input media. To conclude about the input media consideration has to be given to;

- Type of input
- Flexibility of format
- Speed
- Accuracy
- Verification methods
- Rejection rates
- Ease of correction
- Storage and handling requirements
- Security
- Easy to use
- Portability

Keeping in view the above description of the input types and input media, it can be said that most of the inputs are of the form of internal and interactive. As Input data is to be the directly keyed in by the user, the keyboard can be considered to be the most suitable input device.

Error Avoidance

At this stage care is to be taken to ensure that input data remains accurate form the stage at which it is recorded unto the stage in which the data is accepted by the system. This can be achieved only by means of careful control each time the data is handled.

Error Detection

Even though every effort is make to avoid the occurrence of errors, still a small proportion of errors is always likely to occur, these types of errors can be discovered by using validations to check the input data.

Data Validation

Procedures are designed to detect errors in data at a lower level of detail. Data validations have been included in the system in almost every area where there is a possibility for the user to commit errors. The system will not accept invalid data. Whenever an invalid data is keyed in,

the system immediately prompts the user and the user has to again key in the data and the system will accept the data only if the data is correct. Validations have been included where necessary.

The system is designed to be a user friendly one. In other words the system has been designed to communicate effectively with the user. The system has been designed with pop up menu.

User Interface Design

It is essential to consult the system users and discuss their needs while designing the user interface:

User Interface Systems Can Be Broadly Classified As:

- User initiated interface: The user is in charge, controlling the progress of the user/computer dialogue. In the computer-initiated interface, the computer selects the next stage in the interaction.
- Computer initiated interfaces: In the computer initiated interfaces the computer guides the progress of the user/computer dialogue. Information is displayed and the user response of the computer takes action or displays further information.

User Initiated Interfaces

User initiated interfaces fall into tow approximate classes:

- Command driven interfaces: In this type of interface the user inputs commands or queries which are interpreted by the computer.
- Forms oriented interface: The user calls up an image of the form to his/her screen and fills in the form. The forms oriented interface is chosen because it is the best choice.

Computer-Initiated Interfaces

The following computer – initiated interfaces were used:

- The menu system for the user is presented with a list of alternatives and the user chooses one; of alternatives.
- Questions – answer type dialog system where the computer asks question and takes action based on the basis of the users reply.

Right from the start the system is going to be menu driven, the opening menu displays the available options. Choosing one option gives another popup menu with more options. In this way every option leads the users to data entry form where the user can key in the data.

Error Message Design:

The design of error messages is an important part of the user interface design. As user is bound to commit some errors or other while designing a system the system should be designed to be helpful by providing the user with information regarding the error he/she has committed. This application must be able to produce output at different modules for different inputs.

3.4.2. Performance Requirements

Performance is measured in terms of the output provided by the application.

Requirement specification plays an important part in the analysis of a system. Only when the requirement specifications are properly given, it is possible to design a system, which will fit into required environment. It rests largely in the part of the users of the existing system to give the requirement specifications because they are the people who finally use the system. This is because the requirements have to be known during the initial stages so that the system can be designed according to those requirements. It is very difficult to change the system once it has been designed and on the other hand designing a system, which does not cater to the requirements of the user, is of no use.

The requirement specification for any system can be broadly stated as given below:

- The system should be able to interface with the existing system
- The system should be accurate
- The system should be better than the existing system
- The existing system is completely dependent on the user to perform all the duties.

3.5 Use Case Model

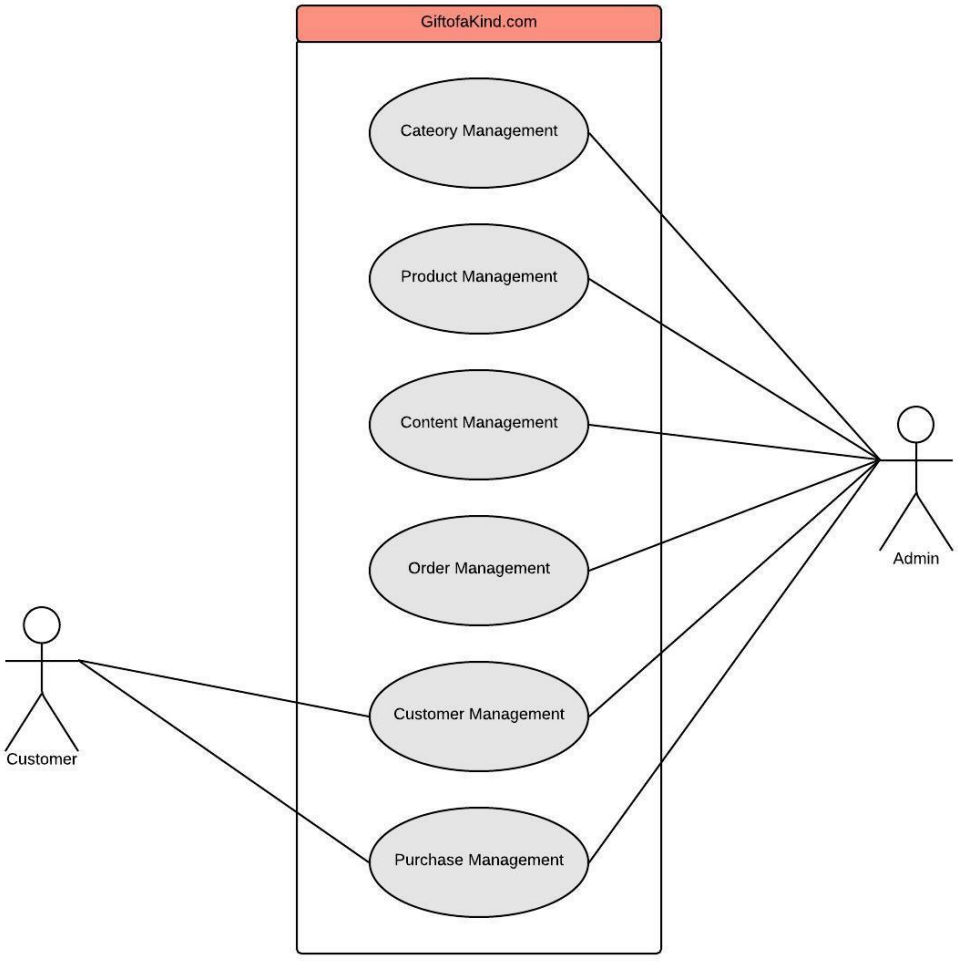
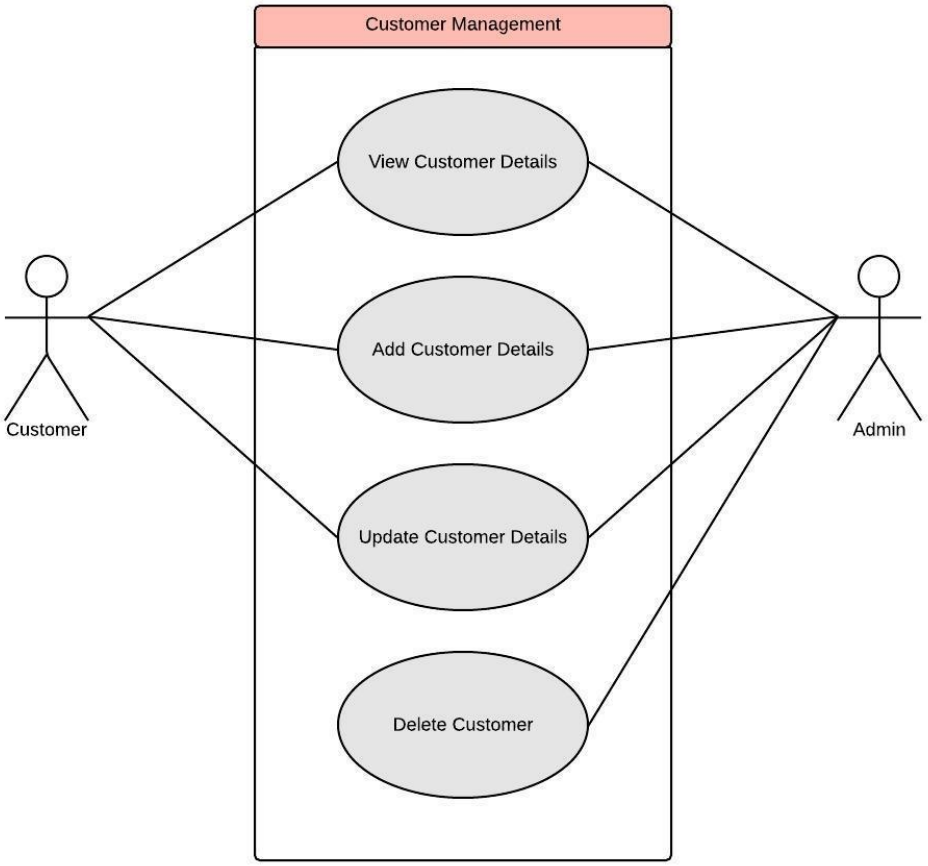


Fig-2 Use Case Model-1

Fig-3 Use Case Model-2



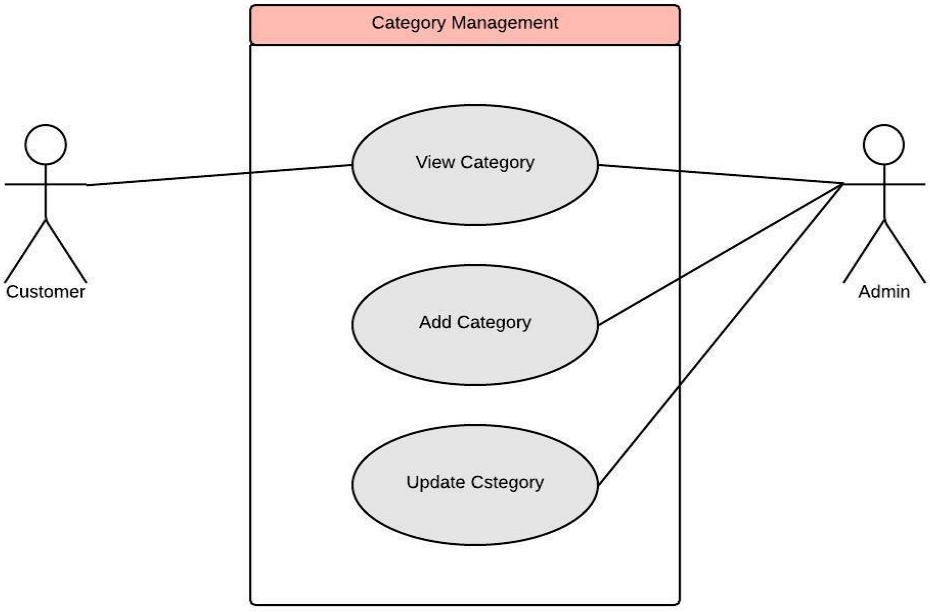


Fig-4 Use Case Model-3

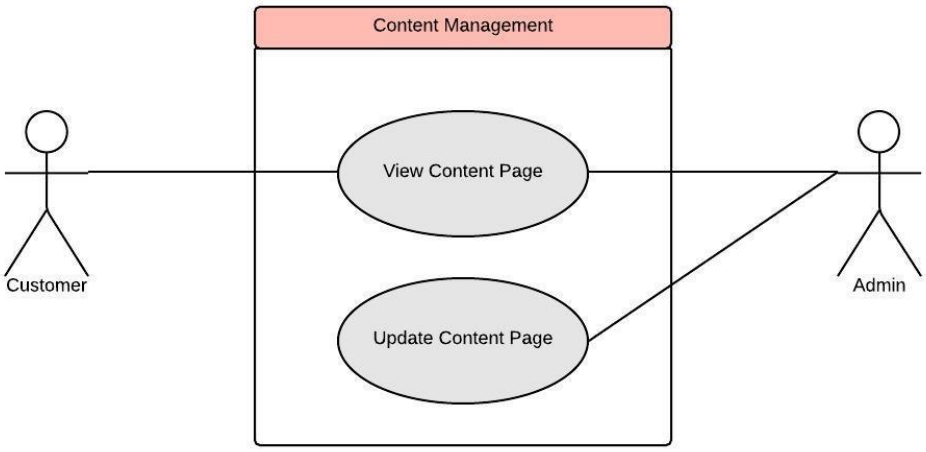


Fig-5 Use Case Model-4

3.6 Use Case Description

The Use Case model consist of two actors: User and Admin. The Admin will look forward for the category management, product management, content management, order management, customer management and purchase management. The Customer can only perform customer management i.e. it can update his or her information, and can purchase products.

The management of category will be done by Admin i.e. view, add and update category where as Customer can only view category.

The Customer can Update, View and Add his or her details to the customer interface and the Admin has the right to Update, View, Add and Delete the Customer details.

The Admin can View and Update the content of any product but the Customer can only View the contents.

Chapter-4 Design

4.1 Sequence Diagrams

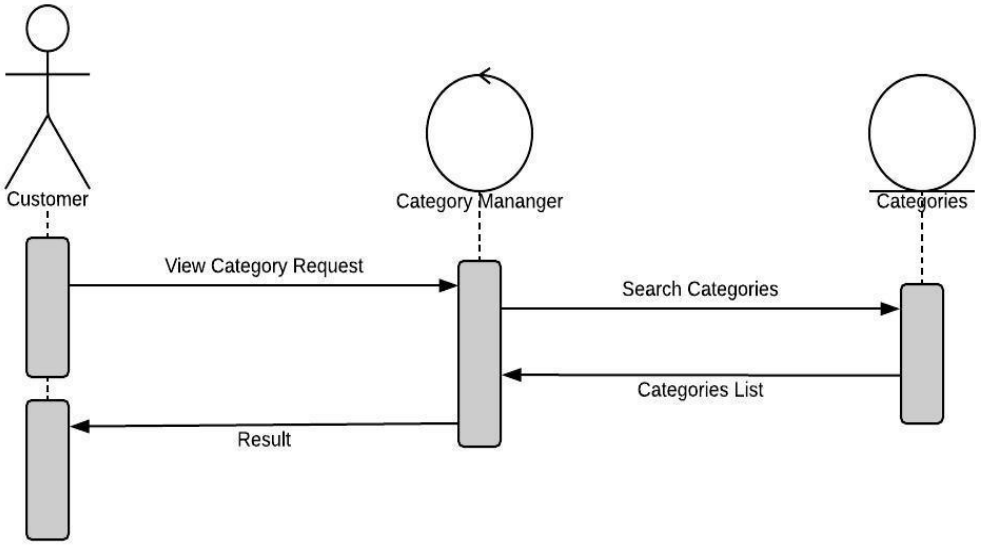


Fig-6 Searching Categories

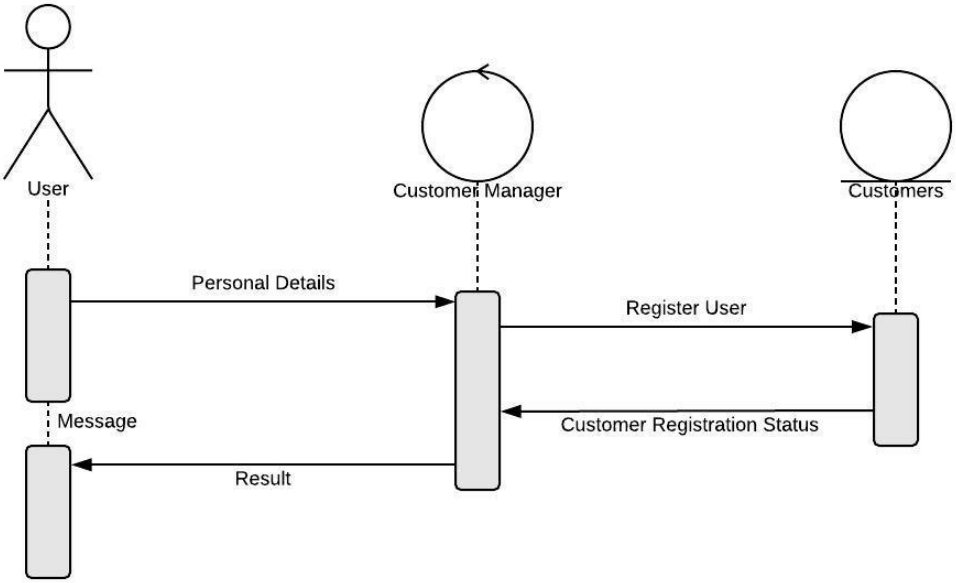


Fig-7 User Registration

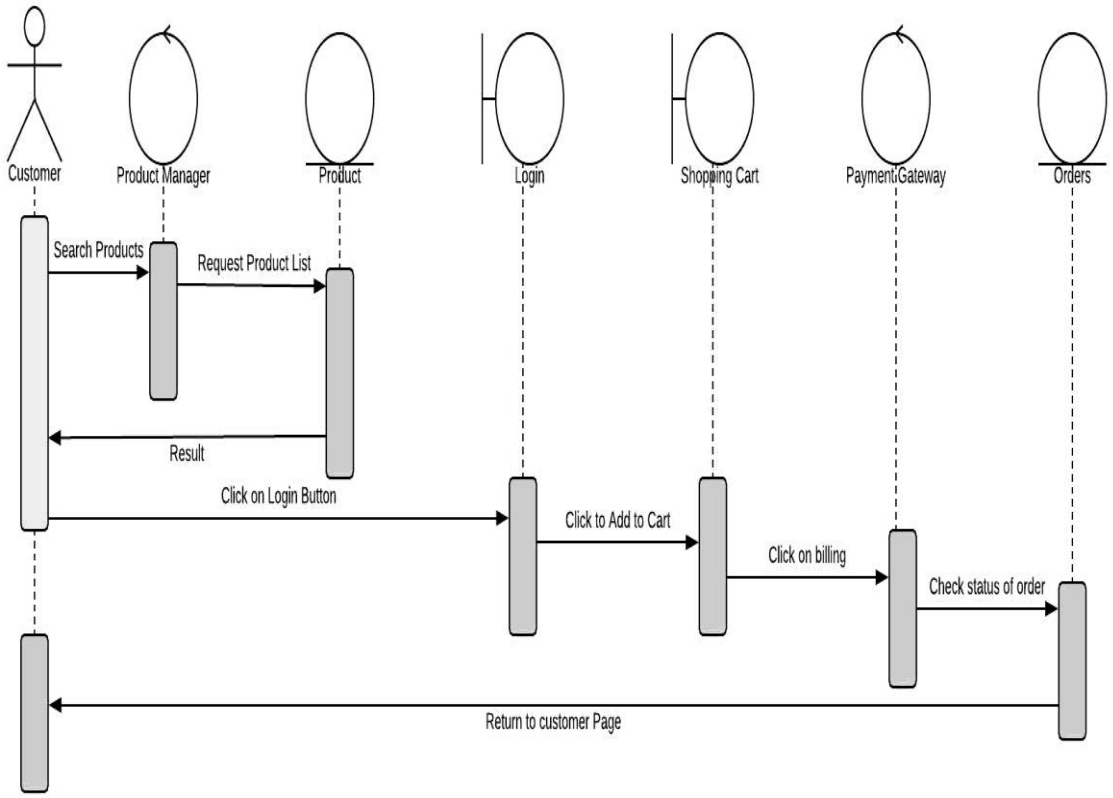


Fig-8 Product Purchase Process

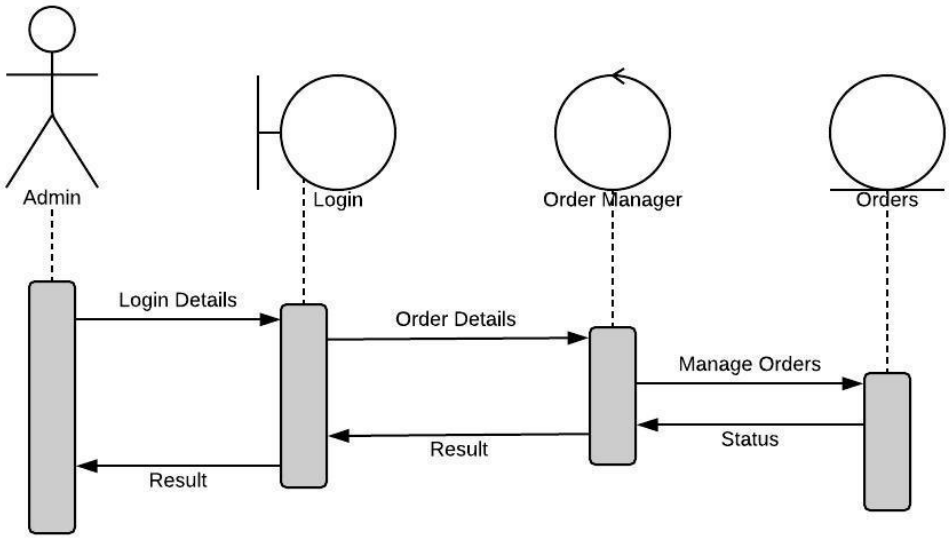


Fig-9 Order Management

4.2 Database Design

4.2.1 Entity Relationship Diagram

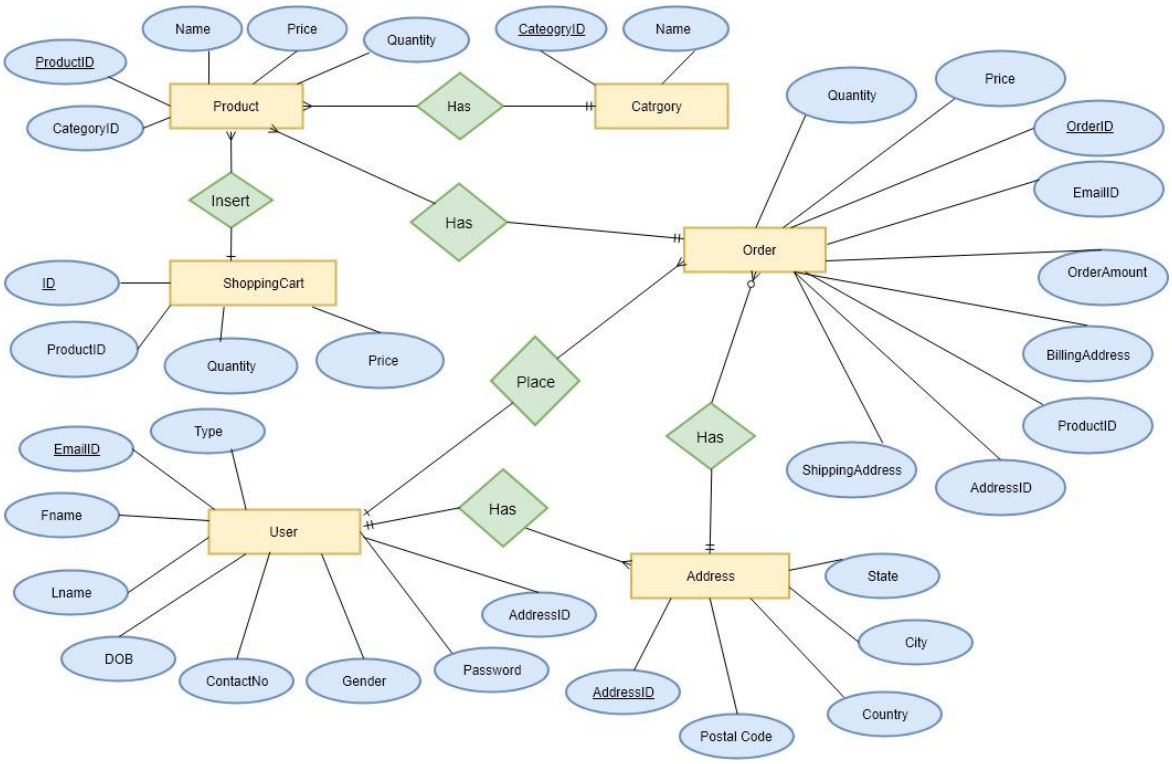


Fig-10 E-R diagram

4.2.2 Database Schema

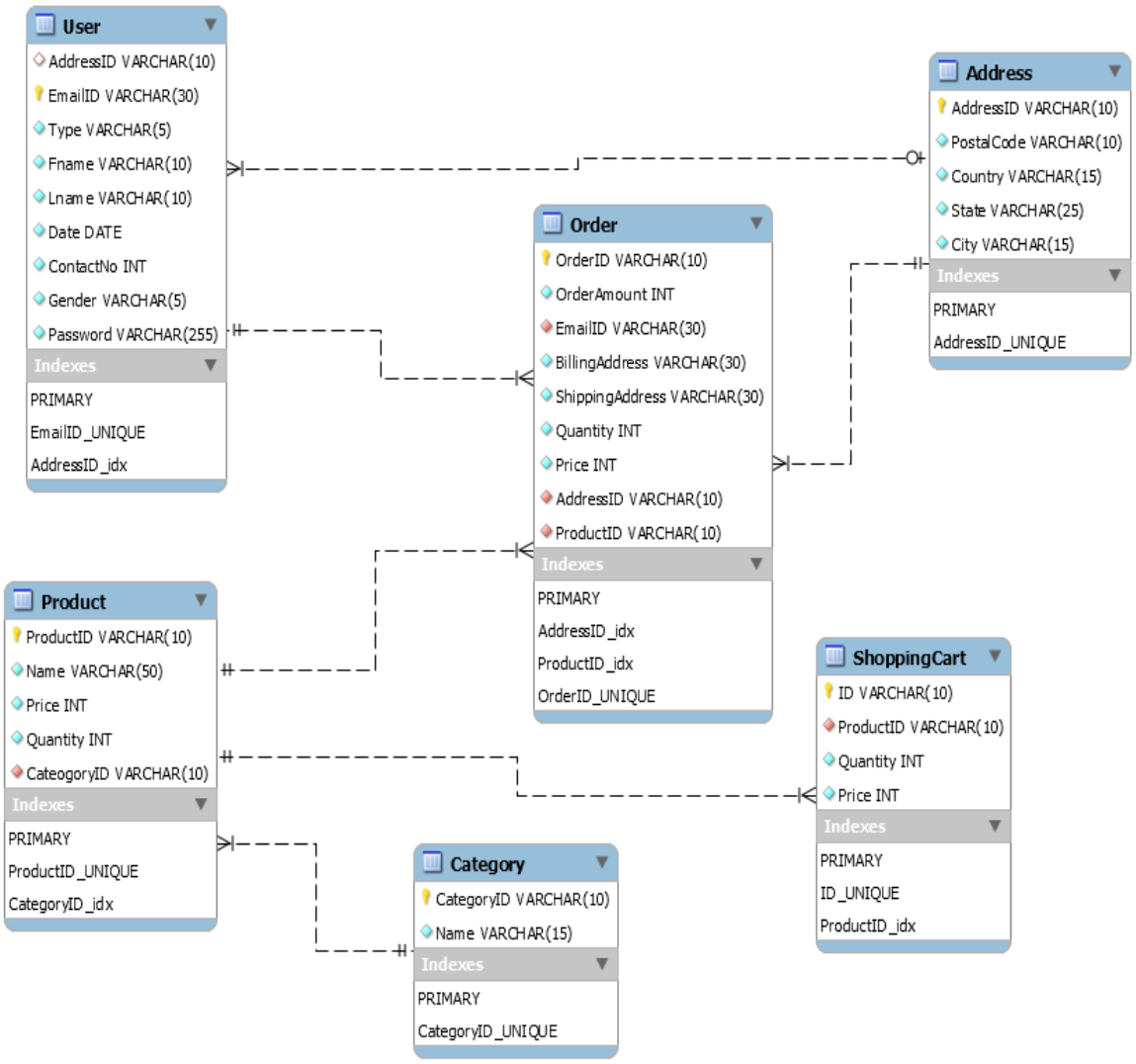


Fig-11 Database Schema

4.2.3 Data Dictionary

User Table:

Query 1 | category | SQL File 3 | SQL File 4 | address | giftofakind.user

Info | Columns | Indexes | Triggers | Foreign keys | Partitions | Grants | DDL

Column	Type	Default Value	Nullable	Character Set
EmailID	varchar(30)		NO	utf8
Type	varchar(5)		NO	utf8
Fname	varchar(10)		NO	utf8
Lname	varchar(10)		NO	utf8
Date	date		NO	
ContactNo	int(11)		NO	
Gender	varchar(5)		NO	utf8
Password	varchar(255)		NO	utf8
AddressID	varchar(10)		NO	utf8

Table-1: User

The attribute EmailID is the Primary Key of this table. The table is use to store users information. The Attribute AddressID is the Foreign Key.

Address Table:

Query 1 | category | SQL File 3 | SQL File 4 | address | giftofakind.address

Info | Columns | Indexes | Triggers | Foreign keys | Partitions | Grants | DDL

Column	Type	Default Value	Nullable	Character Set
AddressID	varchar(10)		NO	utf8
PostalCode	varchar(10)		NO	utf8
Country	varchar(15)		NO	utf8
State	varchar(25)		NO	utf8
City	varchar(15)		NO	utf8

Table 2: Address

The address table stores the fixed address of the areas where delivery of products is possible. The AddressID is the Primary Key in this table.

Category Table:

Query 1 | category | SQL File 3 | SQL File 4 | address | giftofakind.category

Info | Columns | Indexes | Triggers | Foreign keys | Partitions | Grants | DDL

Column	Type	Default Value	Nullable	Character Set
CategoryID	varchar(10)		NO	utf8
Name	varchar(15)		NO	utf8

Table 3: Category

The Category Table has two attributes in which CategoryID is the Primary Key and Name of the Category.

Product Table:

Query 1 | category | SQL File 3 | SQL File 4 | address | giftofakind.product

Info | Columns | Indexes | Triggers | Foreign keys | Partitions | Grants | DDL

Column	Type	Default Value	Nullable	Character Set
ProductID	varchar(10)		NO	utf8
Name	varchar(50)		NO	utf8
Price	int(11)		NO	
Quantity	int(11)		NO	
CateogoryID	varchar(10)		NO	utf8
Image	varchar(45)		YES	utf8

Table 4: Product

The Product Table has ProductID which is the Primary Key and CategoryID is the Foreign Key. The Product Table store the details of the Products entered by the Admin.

Shopping Cart Table:

y 1 | category | SQL File 3 | SQL File 4 | address | giftofakind.shoppingcart

Info | Columns | Indexes | Triggers | Foreign keys | Partitions | Grants | DDL

Column	Type	Default Value	Nullable	Character Set
ID	varchar(10)		NO	utf8
ProductID	varchar(10)		NO	utf8
Quantity	int(11)		NO	
Price	int(11)		NO	

Table-5: Shopping Cart

The attribute ID the Primary Key of this table. The ProductID is the Foreign Key.

Order Table:

Query 1 | category | SQL File 3 | SQL File 4 | address | giftofakind.order

Info | Columns | Indexes | Triggers | Foreign keys | Partitions | Grants | DDL

Column	Type	Default Value	Nullable	Character Set
OrderID	varchar(10)		NO	utf8
OrderAmount	int(11)		NO	
EmailID	varchar(30)		NO	utf8
BillingAddress	varchar(30)		NO	utf8
ShippingAddress	varchar(30)		NO	utf8
Quantity	int(11)		NO	
Price	int(11)		NO	
AddressID	varchar(10)		NO	utf8
ProductID	varchar(10)		NO	utf8

Table 6: Order

The Order Table has OrderID as Primary Key and EmailID, AddressID and ProductID as Foreign Keys.

Chapter-5 Implementation and Testing

5.1 Language Used Characteristics

5.1.1 Introduction to Java Technology:

The Java Technology is a platform that simplifies application development in the highly distributed environment of the Internet. The Java Technology is designed to fulfill the following objectives:

- To provide a consistent object-oriented programming environment whether object code is stored and executed locally, executed locally but Internet-distributed, or executed remotely.
- To provide a code-execution environment that minimizes software deployment and versioning conflicts.
- To provide a code-execution environment that guarantees safe execution of code, including code created by an unknown or semi-trusted third party.
- To provide a code-execution environment that eliminates the performance problems of scripted or interpreted environments.
- To make the developer experience consistent across widely varying types of applications, such as Windows-based applications and Web-based applications.
- To build all communication on industry standards to ensure that code based on the Java Technology can integrate with any other code.

The Java Technology has three main components: the Java Runtime Environment (JRE), Java Virtual Machine (JVM) and the Java Class library. The runtime environment is the foundation of the Java Technology. You can think of the runtime as an agent that manages code at execution time, providing core services such as memory management, thread management, and Remoting, while also enforcing strict type safety and other forms of code accuracy that ensure security and robustness. In fact, the concept of code management is a fundamental principle of the runtime. Code that targets the runtime is known as byte code. The class library, the other main component of Java Technology, is a comprehensive, object-oriented collection of reusable types that you can use to develop applications ranging from traditional command-line or graphical user interface (GUI) applications to applications based on the latest innovations provided by Java Technology, such as Lambda Classes.

For example, Java Technology requires Server at the runtime to provide a scalable, server-side environment for managed code. Java works directly with the runtime to enable Web Applications and Database Connection Services, both of which are discussed later in this topic.

The following illustration shows the relationship of the runtime and the class library to your applications and to the overall system. The illustration also shows how managed code operates within a larger architecture.

5.2 Testing

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive rather than constructive.

A strategy for software testing integrates software test case design methods into a well-planned series of steps that result in the successful construction of software. Testing is the set of activities that can be planned in advance and conducted systematically. The underlying motivation of program testing is to affirm software quality with methods that can economically and effectively apply to both strategic to both large and small-scale systems.

5.2.1 Testing Objectives

The software engineering process can be viewed as a spiral. Initially system engineering defines the role of software and leads to software requirement analysis where the information domain, functions, behavior, performance, constraints and validation criteria for software are established. Moving inward along the spiral, we come to design and finally to coding. To develop computer software we spiral in along streamlines that decrease the level of abstraction on each turn.

A strategy for software testing may also be viewed in the context of the spiral. Unit testing begins at the vertex of the spiral and concentrates on each unit of the software as implemented in source code. Testing progress by moving outward along the spiral to integration testing, where the focus is on the design and the construction of the software architecture. Talking another turn on outward on the spiral we encounter validation testing where requirements established as part of software requirements analysis are validated against the software that has been constructed. Finally we arrive at system testing, where the software and other system elements are tested as a whole.

5.2.2 Testing Methods and Strategies

1. Unit Testing

Unit testing focuses verification effort on the smallest unit of software design, the module. The unit testing we have is white box oriented and some modules the steps are conducted in parallel.

2. White Box Testing

This type of testing ensures that

- All independent paths have been exercised at least once
- All logical decisions have been exercised on their true and false sides
- All loops are executed at their boundaries and within their operational bounds
- All internal data structures have been exercised to assure their validity.

To follow the concept of white box testing we have tested each form .we have created independently to verify that Data flow is correct, All conditions are exercised to check their validity, All loops are executed on their boundaries.

3. Conditional Testing

In this part of the testing each of the conditions were tested to both true and false aspects. And all the resulting paths were tested. So that each path that may be generate on particular condition is traced to uncover any possible errors.

4. Data Flow Testing

This type of testing selects the path of the program according to the location of definition and use of variables. This kind of testing was used only when some local variable were declared. The definition-use chain method was used in this type of testing. These were particularly useful in nested statements.

5. Loop Testing

In this type of testing all the loops are tested to all the limits possible. The following exercise was adopted for all loops:

- All the loops were tested at their limits, just above them and just below them.
- All the loops were skipped at least once.
- For nested loops test the inner most loop first and then work outwards.
- For concatenated loops the values of dependent loops were set with the help of connected loop.
- Unstructured loops were resolved into nested loops or concatenated loops and tested as above.

Each unit has been separately tested by the development team itself and all the input have been validated.

5.3.3 Test Case

Test case 01: Test case for successful login

Login ID: ruqaiyaarif8@gmail.com

Password: 123ABCabc

System Output: Successful Login

Test case 02: Test case for Incorrect Password

Login ID: ruqaiyaarif8@gmail.com

Password: 123ABCdef

System Output: Incorrect Password

Test case 03: Test case for Incorrect ID

Login ID: ruqaiyaarif@gmail.com

Password: 123ABCabc

System Output: Incorrect ID

Test case 04: Test case for logout

Click Button: logout

System Output: Successful Logout

Test case 05: Category Search

Search Category: Flowers

System Output: Successful opening of Page

Test case 06: View Product

Search Category: Product

System Output: Product viewed

Chapter- 6 Conclusion and Discussion

The Internet has become a major resource in modern business, thus electronic shopping has gained significance not only from the entrepreneur's but also from the customer's point of view. For the entrepreneur, electronic shopping generates new business opportunities and for the customer, it makes comparative shopping possible. As per a survey, most consumers of online stores are impulsive and usually make a decision to stay on a site within the first few seconds. "Website design is like a shop interior. If the shop looks poor or like hundreds of other shops the customer is most likely to skip to the other site. Hence we have designed the project to provide the user with easy navigation, retrieval of data and necessary feedback as much as possible

In this project, the user is provided with an e-commerce web site that can be used to buy Products online. To implement this as a web application we used Java, HTML, CSS and JavaScript as the Technology. Java has several advantages such as enhanced performance, scalability, built- in security and simplicity. Java was the language used to build this application. For the client browser to connect to the Server we used Apache Tomcat as the Web Server. Java uses My SQL connector to interact with the database. The My SQL server is used as a back-end database to connect the database frequently since it is one of the popular database server and it can easily maintain Java Web application and it provides fast data access, easy installation and simplicity.

A good shopping cart design must be accompanied with user-friendly shopping cart application logic. It should be convenient for the customer to view the contents of their cart and to be able to remove or add items to their cart. The Online Gift Portal application described in this project provides a number of features that are designed to make the customer more comfortable.

This project helps in understanding the creation of an interactive web page and the technologies used to implement it. The design of the project which includes Process Model illustrates how the database is built with different tables, how the data is accessed and processed from the tables. The building of the project has given me a precise knowledge about how Java is used to develop a website, how it connects to the database to access the data and how the data and web pages are modified to provide the user with an Online Gift Portal application.

It has been a great pleasure for me to work on this exciting and challenging project. This project proved good for me as it provided practical knowledge of not only programming in Java but also in JavaScript, HTML and CSS web based application, but also about all handling procedure related with "ONLINE GIFT PORTAL (Giftofakind.com)". It also provides knowledge about the latest technology used in developing web enabled application and client server technology that will be great demand in future. This will provide better opportunities and guidance in future in developing projects independently.

Benefits

The project is identified by the merits of the system offered to the user. The merits of this project are as follows: -

- It’s a web-enabled project.
- This project offers user to enter the data through simple and interactive forms. This is very helpful for the client to enter the desired information through so much simplicity.
- The user is mainly more concerned about the validity of the data, whatever he is entering. There are checks on every stages of any new creation, data entry or updating so that the user cannot enter the invalid data, which can create problems at later date.
- Sometimes the user finds in the later stages of using project that he needs to update some of the information that he entered earlier. There are options for him by which he can update the records. Moreover there is restriction for his that he cannot change the primary data field. This keeps the validity of the data to longer extent.
- User is provided the option of monitoring the records he entered earlier. He can see the desired records with the variety of options provided by him.
- From every part of the project the user is provided with the links through framing so that he can go from one option of the project to other as per the requirement. This is bound to be simple and very friendly as per the user is concerned. That is, we can sat that the project is user friendly which is one of the primary concerns of any good project.
- Data storage and retrieval will become faster and easier to maintain because data is stored in a systematic manner and in a single database.
- Decision making process would be greatly enhanced because of faster processing of information since data collection from information available on computer takes much less time then manual system.
- Allocating of sample results becomes much faster because at a time the user can see the records of last years.
- Easier and faster data transfer through latest technology associated with the computer and communication.
- Through these features it will increase the efficiency, accuracy and transparency,

Limitations

There are some limitations for the current system to which solutions can be provided as a future development:

- The system is not configured for multi- users at this time. The concept of transaction can be used to achieve this.
- The Website is not accessible to everyone. It can be deployed on a web server so that everybody who is connected to the Internet can use it.
- Credit Card validation is not done. Third party proprietary software can be used for validation check.

Future Work

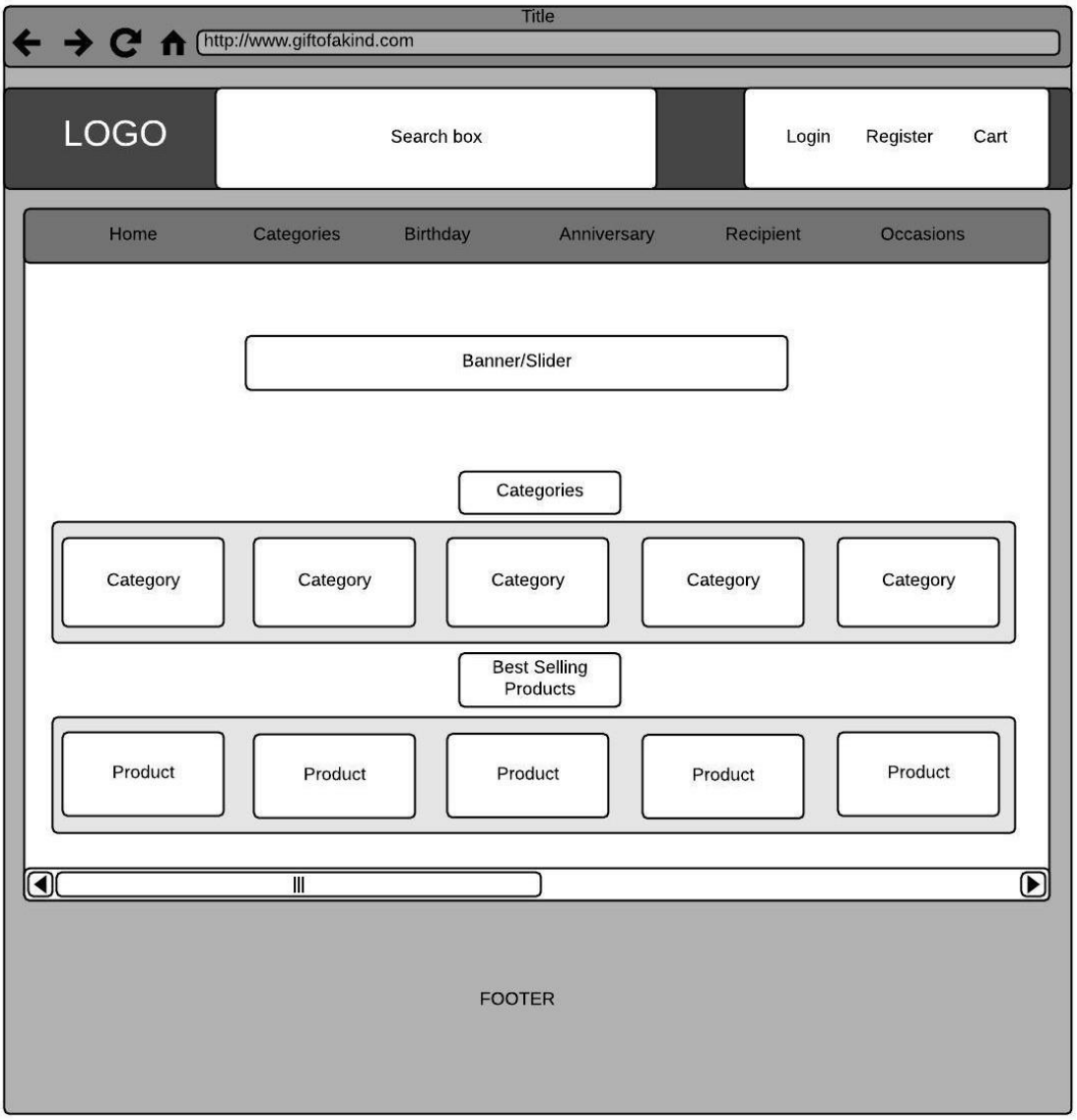
There are some future expansion which is to done before deploying the software to server are:

- There is a need of credit card validation.

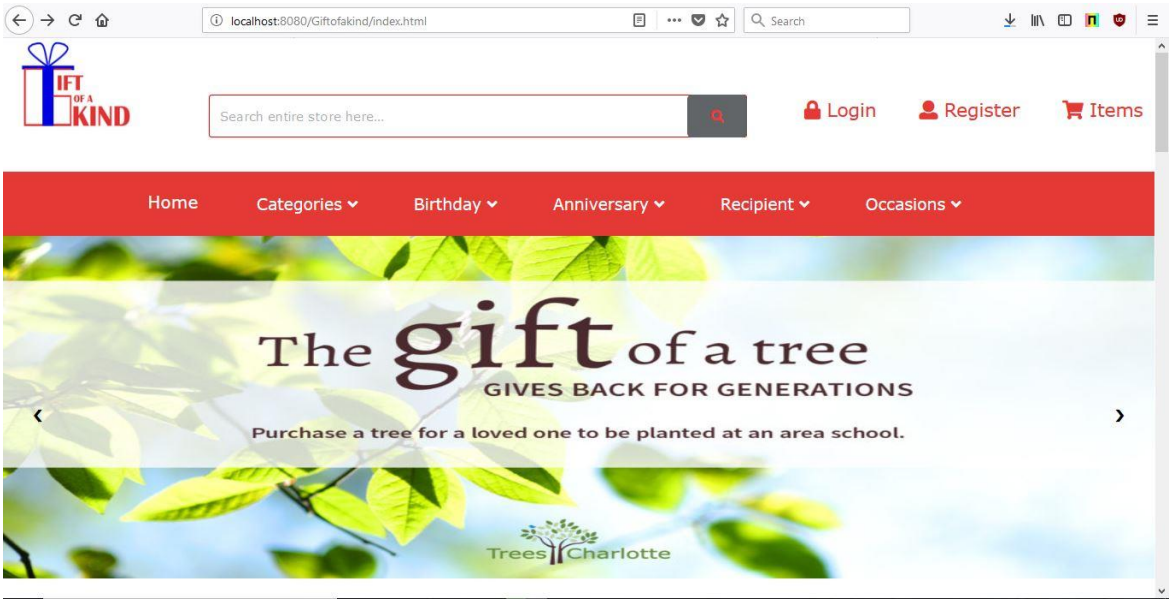
- The customer can enter one shipping address at this time, I will expand to add more shipping address.
- The online money transactions applications API's will be deployed so that the customer can buy from their online wallets.
- After making transaction, an OTP will be given on the registered contact number to maintain user details authenticity.
- Avail the customer social media store so that they can purchase from their social media accounts.

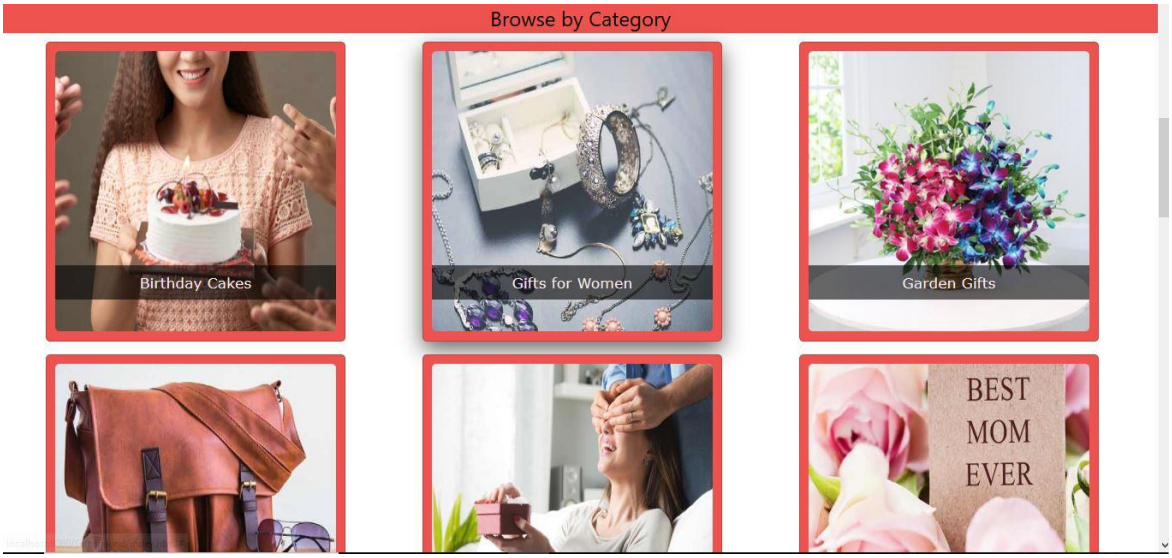
Appendix

Wireframe- Homepage:

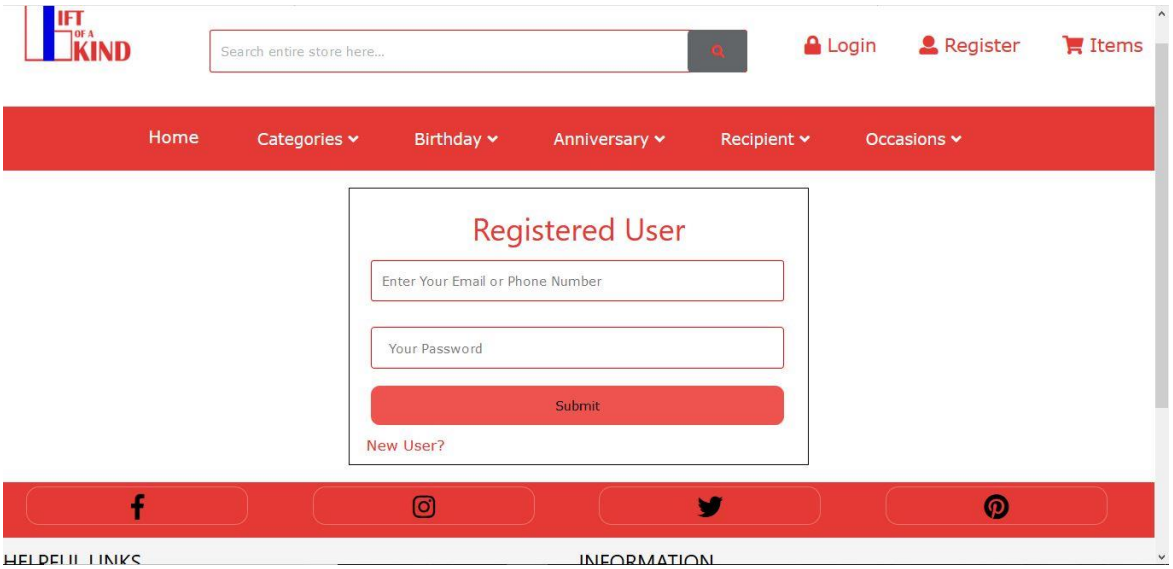


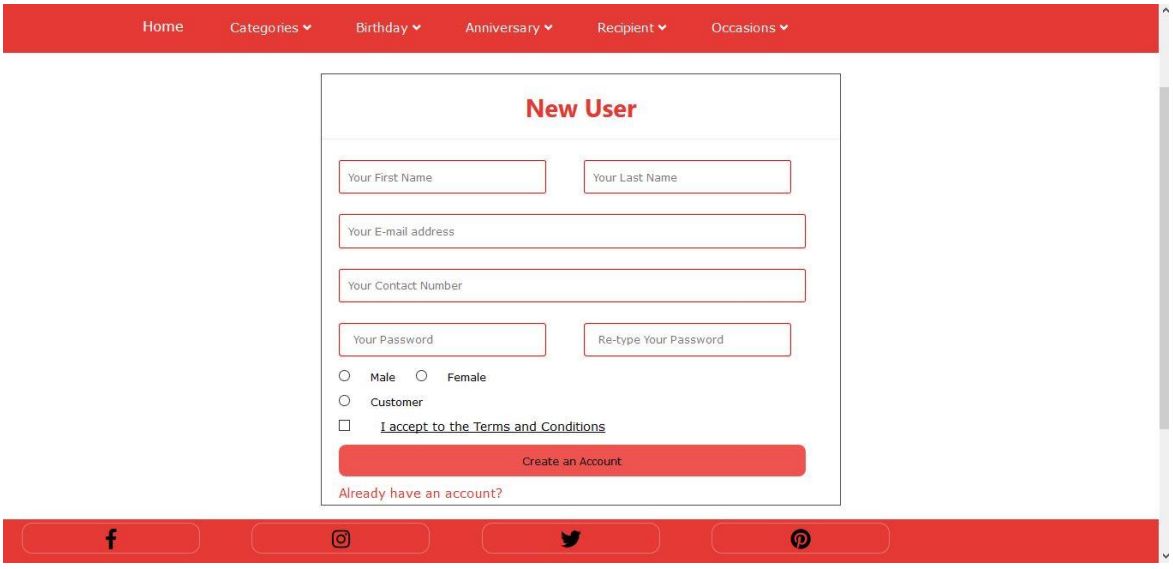
Home Page:


localhost:8080/Giftofakind/index.html
Search
IFT OF A KIND
Search entire store here...
Login
Register
Items
Home
Categories
Birthday
Anniversary
Recipient
Occasions
The gift of a tree
GIVES BACK FOR GENERATIONS
Purchase a tree for a loved one to be planted at an area school.
Trees Charlotte

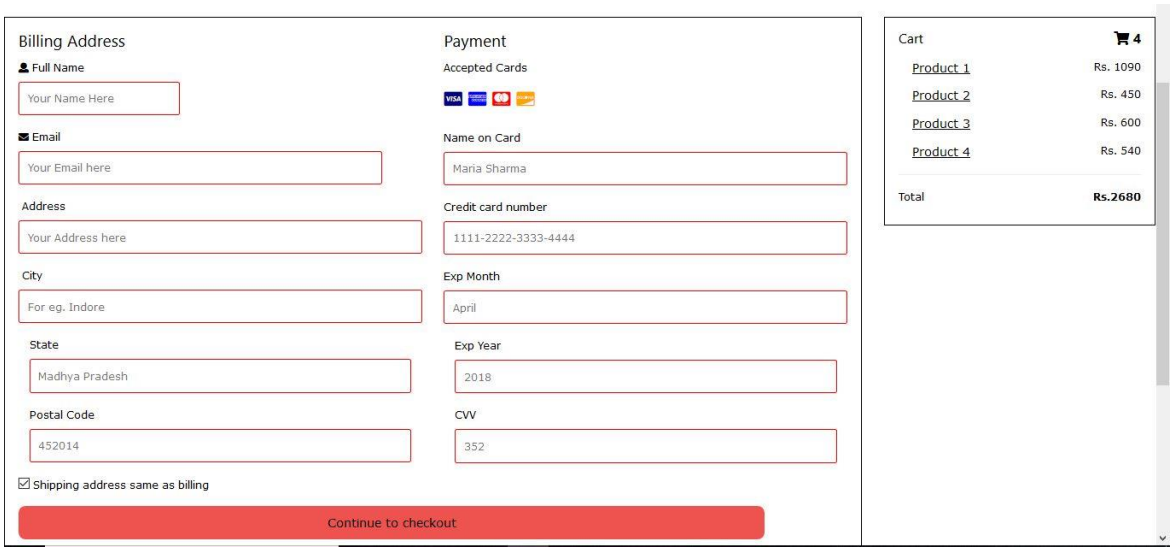

Browse by Category
Birthday Cakes
Gifts for Women
Garden Gifts
BEST MOM EVER

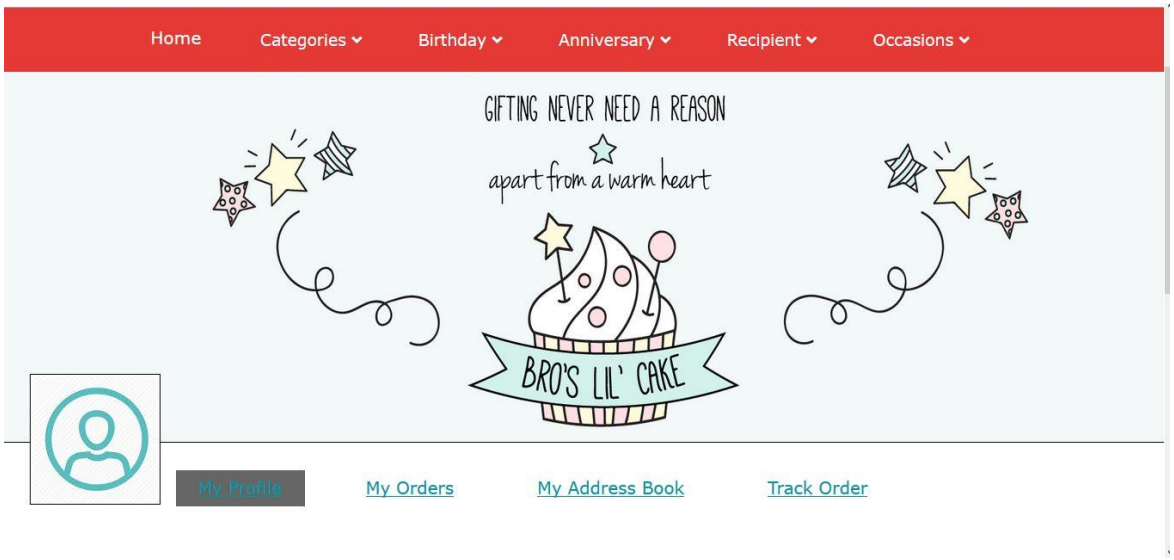
Login and Registration Page:



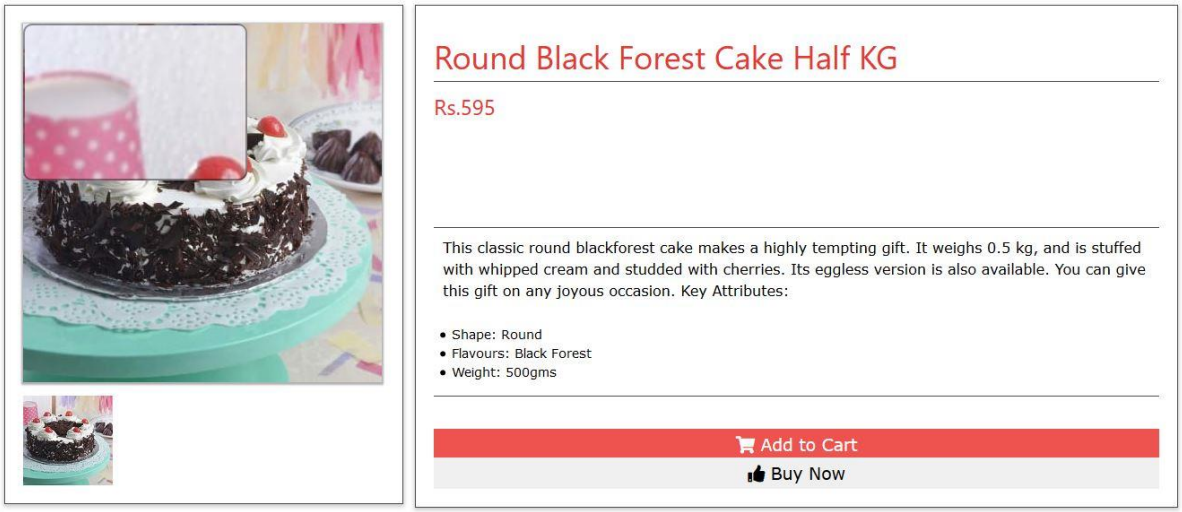


Checkout and User Profile Page





Product Page:



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