INDIRA GANDHI NATIONAL OPEN UNIVERSITY

Online Mobile Store

by

Rejcy Nair

Under Guidance

of

Mrs. Deepa Krishnan

Submitted to the School of Computer and Information Sciences
in partial fulfilment of the requirements
for the degree of

Masters
of
Computer Applications

Indira Gandhi National Open University
Maidan Garhi
New Delhi – 110068.

SCHOOL OF COMPUTER AND INFORMATION SCIENCES
IGNOU, MAIDAN GARHI, NEW DELHI – 110 068

II. PROFORMA FOR THE APPROVAL OF MCA PROJECT PROPOSAL (MCSP-060)

*(**Note:** All entries of the proforma of approval should be filled up with appropriate and complete information. Incomplete proforma of approval in any respect will be summarily rejected.)*

Project Proposal No :……..
(for office use only)

Enrolment No.: ……
Study Centre: ……..……
Regional Centre:…… RC Code:……
E-mail: ……..……..……...
Mobile/Tel No.: …..……

1. Name and Address of the Student ……

   ……

2. Title of the Project*** ……

3. Name and Address of the Guide ……

   ……

4. Educational Qualification of the Guide (Attach bio-data also)

Ph.D*	M.Tech.*	B.E*/B.Tech.*	MCA	M.Sc.*
☐	☐	☐	☐	☐

(*in Computer Science / IT only)

5. Working / Teaching experience of the Guide** ……

   ……

(***Note:** At any given point of time, a guide should not provide guidance for more than 5 MCA students of IGNOU)*

6. Software used in the Project*** ……

(*** Please refer to section VIII of these guidelines)

7. If already pursued BCA/BIT from IGNOU, mention the title of the project (CS-76) and the s/w used……

8. Project title of the Mini Project (MCS-044) and the s/w used……

9. Is this your first submission? ☐ Yes ☐ No

Signature of the Student
Date: ……

Signature of the Guide
Date: ……

For Office Use Only

☐ Approved ☐ Not Approved

Name:……

……
Signature, Designation, Stamp of the Project Proposal Evaluator
Date: ……

Suggestions for reformulating the Project:

Contents

1 Introduction **1**
- 1.1 Background . . . 2
  - 1.1.1 Purpose and Motivation . . . 2
- 1.2 Objectives . . . 3

2 Project Category **4**

3 Tools/Platform, Hardware & Software Requirements **4**

4 Requirements and Analysis **7**
- 4.1 Problem Definition . . . 7
- 4.2 Admin Module . . . 7
  - 4.2.1 Manage Products . . . 7
  - 4.2.2 Reports . . . 7
- 4.3 User Module . . . 7
  - 4.3.1 Self-Registration . . . 7
  - 4.3.2 Sign-On . . . 7
  - 4.3.3 Search Products . . . 7
  - 4.3.4 Shopping Cart . . . 7
  - 4.3.5 Place Order . . . 7
  - 4.3.6 Make Payment . . . 8
  - 4.3.7 Invoice . . . 8
  - 4.3.8 Notifications . . . 8
- 4.4 Planning and Scheduling . . . 9

5 Scope of the Solution **10**
- 5.1 Purpose . . . 10
- 5.2 Scope . . . 10

6 Analysis **11**

7 Structure **14**
- 7.1 Module Details . . . 14
- 7.2 Data Structures . . . 14
- 7.3 Process logic . . . 15
- 7.4 Implementation Methodology . . . 16
- 7.5 List of Reports . . . 16

8 Implementation of Security Mechanisms **17**

9 Future Scope and further enhancement of Project **17**

10 Bibliography **17**

1 Introduction

Electronic commerce commonly written as E-commerce or ecommerce is the trading or facilitation of trading using computer networks such as Internet or Social Networks. Electronic Commerce draws on technologies such as mobile commerce, electronics funds transfer, supply chain management, Internet Marketing, Online Transaction Processing, Electronic Data Interchange (EDI), inventory management systems and automated data collection systems. Modern electronic commerce typically uses the world wide web for atleast one part of the transaction's life cycle although it may also use other technologies like email.

Online Shopping is a from of electronic commerce which allows consumers to directly buy good or services from a seller over the internet using a web browser. Consumers find a product of interest by visiting the website of the retailer directly or by searching among alternative vendors using a shopping search engine which displays the same product's availablity and pricing at different vendors. Customers can shop online using a range of different computers and devices including desktop computers, laptops, tablet computers and smartphones.

In this synopsis high-level details of implementation of an Online Mobile Store will be provided.

1.1 Background

An online shop evokes the physical analogy of buying products and services at a regular ”bricks-and-mortar” retailer or shopping center; the process is called business-to-consumer (B2C) obline shopping. A typical online store enables the customer to browse the firm's range of products and services, view photos or images of the products, along with information about the product specifications, features and prices.

Online stores typically enable shoppers to use ”search” features to find specific models, brands or items. Online customers must have access to the Internet and a valid method of payment in order to complete a transaction, such as a credit card, an Interac-enabled debit card, or a service such as PayPal. For physical products (e.g., paperback books or clothes), the e-tailer ships the products to the customer; for digital products, such as digital audio files of songs or software, the e-tailer typically sends the file to the customer over the Internet. The largest of these online retailing corporations are Alibaba, Amazon.com, and eBay

English entrepreneur Michael Aldrich was a pioneer of online shopping in 1979[1]. His system connected a modified domestic TV to a real-time transaction processing computer via a domestic telephone line.The first World Wide Web server and browser, created by Tim Berners-Lee in 1990, opened for commercial use in 1991.Thereafter, subsequent technological innovations emerged in 1994: online banking, the opening of an online pizza shop by Pizza Hut, Netscape's SSL v2 encryption standard for secure data transfer, and Intershop's first online shopping system. The first secure retail transaction over the Web was either by NetMarket or Internet Shopping Network in 1994.Immediately after, Amazon.com launched its online shopping site in 1995 and eBay was also introduced in 1995. Alibaba's sites Taobao and Tmall were launched in 2003 and 2008 respectively.

Mobile Phone online buying platforms can be broadly classified into 2 types

- Owned by Retailer to sell own products
- Marketplace, which allows various merchants to showcase and sell their products. The retailer only manages the marketplace.

This project initially focuses on the implementation of a platform which the retailer can use to sell own products i.e the retailer is accountable and responsible for the product inventory.

1.1.1 Purpose and Motivation

The main purpose of this project is to create an online store to buy mobile phones. The site will allow users to search mobile phone based on a set of features. Users can add the selected products to a shopping cart and checkout

by making payment. Users will receive an order copy of their invoice.

The retailer website will be managed by an Admin. Admin will have additional functionality such as managing product catalouge and generating reports.

Motivation to work on this project includes

- Work on a project in the Retail domain
- Interest to find out the working of a good user friendly website that facilitates online transactions using a database
- Interest in technologies like GOLang, CSS, HTML and SQL for web development
- Explore data analytics that can be implemented using GOLang

1.2 Objectives

- Implement Admin Module for managing a website facilitating buying of mobile phones using online transactions
- Develop and host website which allows users to search and explore mobile phones
- Implement the Shopping Cart feature for the site that allows users to add selected products and tag it to a single order
- Implement the Online Payment Module (Credit Cards Only)
- Explore technologies like GOLang, CSS, HTML and SQL for web development
- Explore data analytics that can be implemented using GOLang for Reports generation

2 Project Category

This project can be categorised as a web development project that uses concepts of Internet technologies and web design, Web security and RDBMS. Though GOLang is not an OOPs language per se, nonetheless concepts of OOPs will be used using Interfaces allowed in GOlang. Network Security to secure the payment gateway shall be explored and implemented.

3 Tools/Platform, Hardware & Software Requirements

A good e-commerce site should present the following factors to users for better usability

- Simple navigation from home page to information and order links for specific products.
- Obvious shopping links or buttons.
- Effective categorical organization of products.
- Easy scanning and selecting items in a list.
- Consistent layout of product information.
- Minimal and effective security notifications or messages.
- Knowing when an item was saved or not saved in the shopping cart.
- Returning to different parts of the site after adding an item to the shopping cart.

To deploy a website with the basic benchmarks as stated above the following tools, platforms , hardware and software are being considered.

The development environment shall be set up on a i686 computer loaded with a 32-bit Linux Operating System The host environment shall also be the same i686 computer with the 32-bit Linux Operating System i.e the development machine and host server are one and the same machine.

Table 1: **Software & Hardware Requirements**

Sr. No.	Tools & Technologies	Description
1.0	Go ver 1.7 linux/386	Tool for managing Go source code.Go (also commonly referred to as golang) is an open source systems programming language developed at Google
2.0	Apache2	Web Server to develop and deploy the application
3.0	PostgreSQL	Database
4.0	PGAdmin3	Database Administration Utility
5.0	Emacs ver. 24.3	Development Environment
6.0	go-mode	Emacs package for GOLang
7.0	React.js	Javascript library for building User Interfaces
8.0	Github	Repository Management Cloud
9.0	Git	Version Control System
10.0	HTML5	Markup Language for designing Web Pages
11.0	CSS	Style sheet language for describing presentation of a document created using a markup language

12.0	Crunchbang Linux Waldorf 11.0	Operating System
13.0	stripe-go	GOlang client for Stripe API. Stripe is a Payment Gateway Service provider

4 Requirements and Analysis

4.1 Problem Definition

A Mobile Phone Retailer requires that it presents inventory to customers online and facilitate users to search, select and place orders for mobile phones as well as make payments online.
Retailer should be able to manage the platform that allows the buying of mobile phones online.

4.2 Admin Module

Administrator of the website can manage the product catalouge and view basic reports

4.2.1 Manage Products

Admin can create, edit and delete products maintained in the product catalouge. User is presented with the list managed by Admin

4.2.2 Reports

Admin can generate basic report of products purchased on the website

4.3 User Module

Users can register, login, search for products, add selected products to shopping cart and place orders after check-out

4.3.1 Self-Registration

User can register using email address on the website

4.3.2 Sign-On

User can sign-on using email address

4.3.3 Search Products

User can search for specific products in the search catalogue by description or by features that completely describe the product

4.3.4 Shopping Cart

Selected products can be added to shopping cart. Shopping Cart is not persistent i.e it is valid only for the session

4.3.5 Place Order

Users can trigger orders after checkout by making payment.

4.3.6 Make Payment

Users can use the payment gateway integrated into the website using API

4.3.7 Invoice

Users can receive invoice copy on their registered email addresses

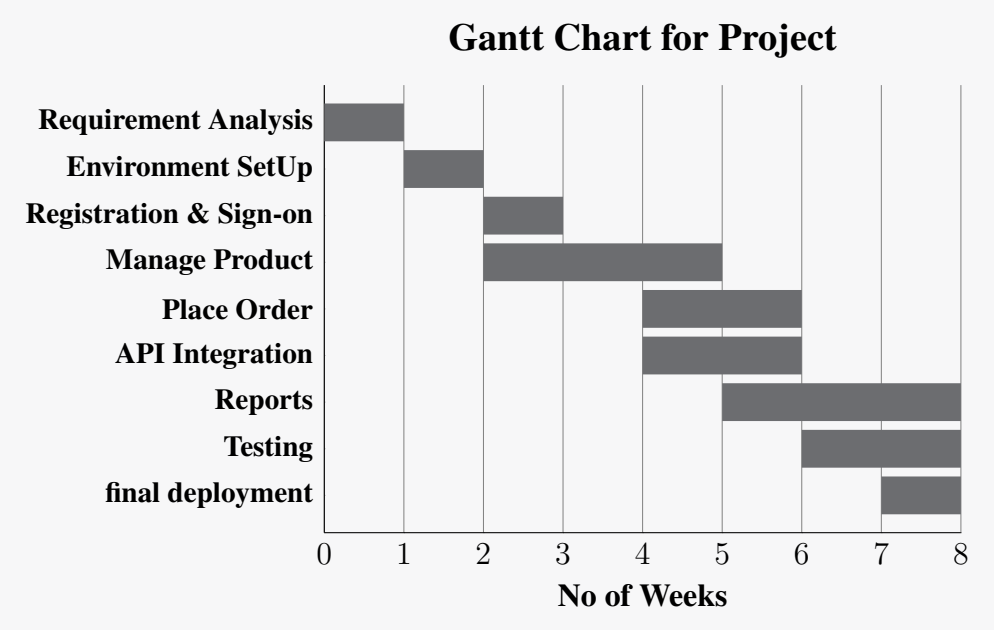
4.3.8 Notifications

User can receive notifications regarding sign-in, selected products, payment success and order confirmation

4.4 Planning and Scheduling

Major deliverables of this project are:

- Setting up the development environment
- Code implementation of the key functions i.e Product Catalogue, Sign-on, Order management & Reports
- Payment API Integration
- Test Scenarios, Test Cases & Testing
- Deployment & Hosting



These estimates may change nominally depending on the exact nature of detailed requirements.

5 Scope of the Solution

5.1 Purpose

This synopsis presents the scope to implement an "**Online Mobile Store**"

5.2 Scope

This Synopsis presents high level details of functionality in the implementation of a web-based online mobile store. The current scope of the application is limited to

- User Registration & Sign-on
- Manage Products Catalogue
- Order Management
    - Shopping Cart
    - Place Order
    - Cancel Order
- Payment gateway integration
- Notifications
- Analytics & reports

6 Analysis

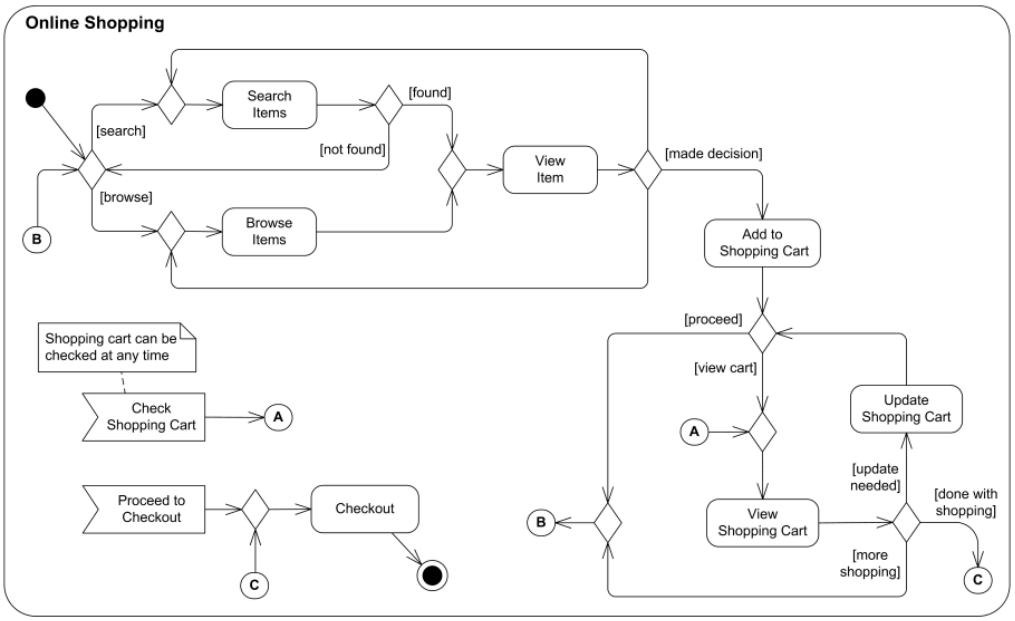


Figure 1: Activity Diagram of Online Mobile Store

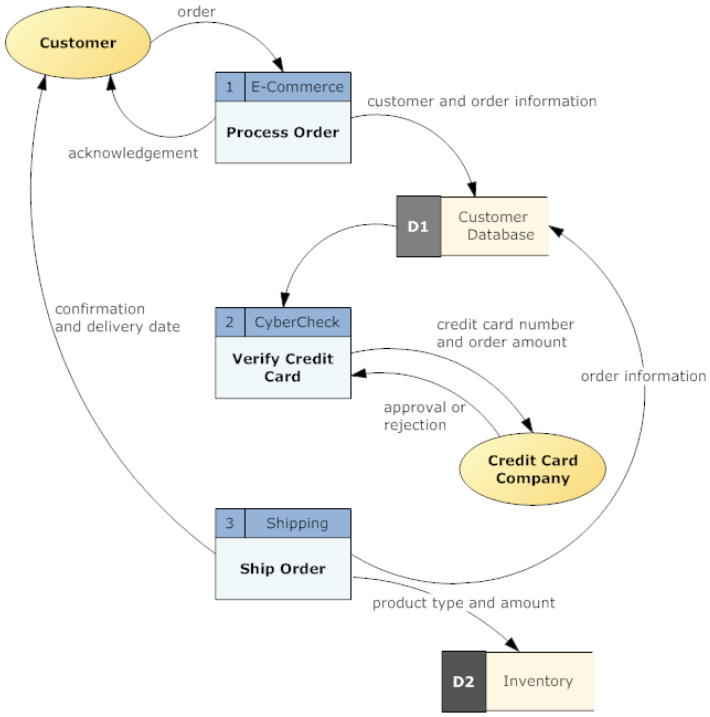


Figure 2: Dataflow Diagram of Online Mobile Store

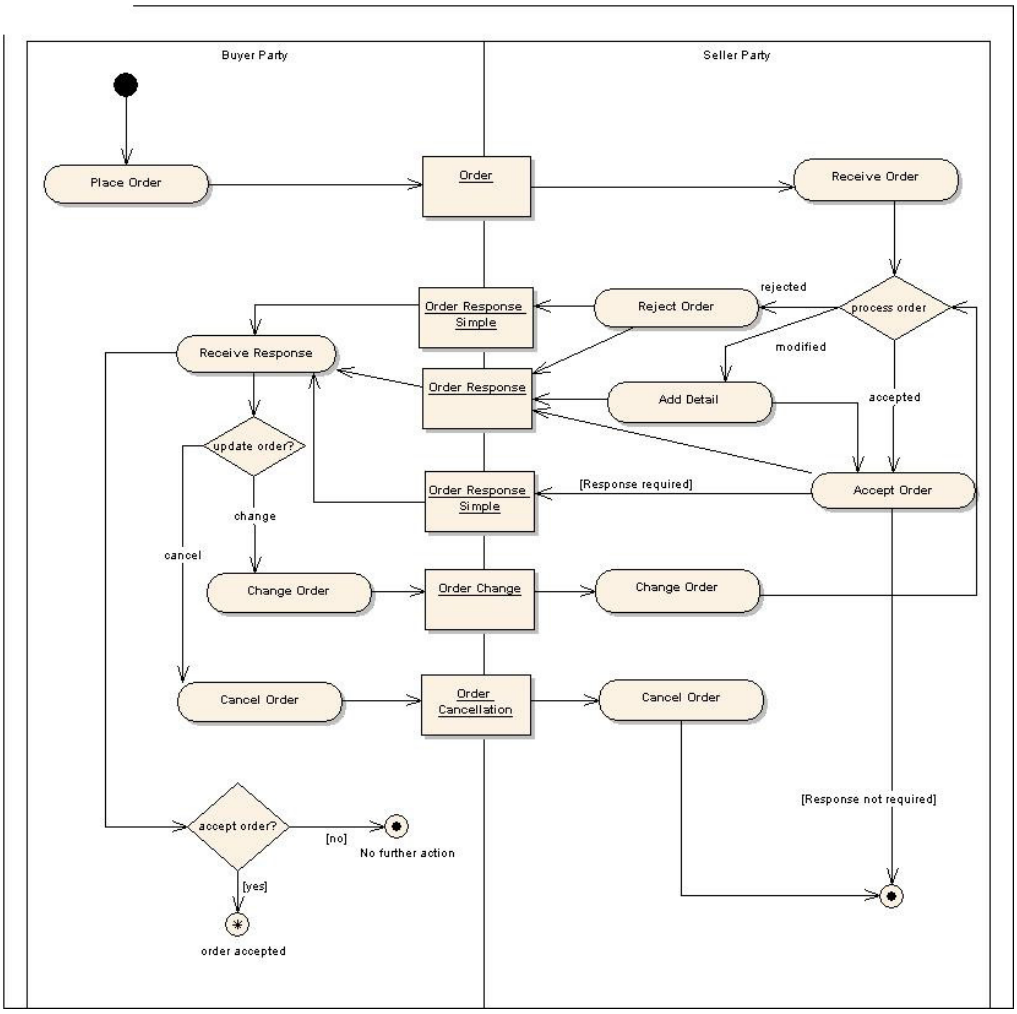


Figure 3: Ordering Process of Online Mobile Store

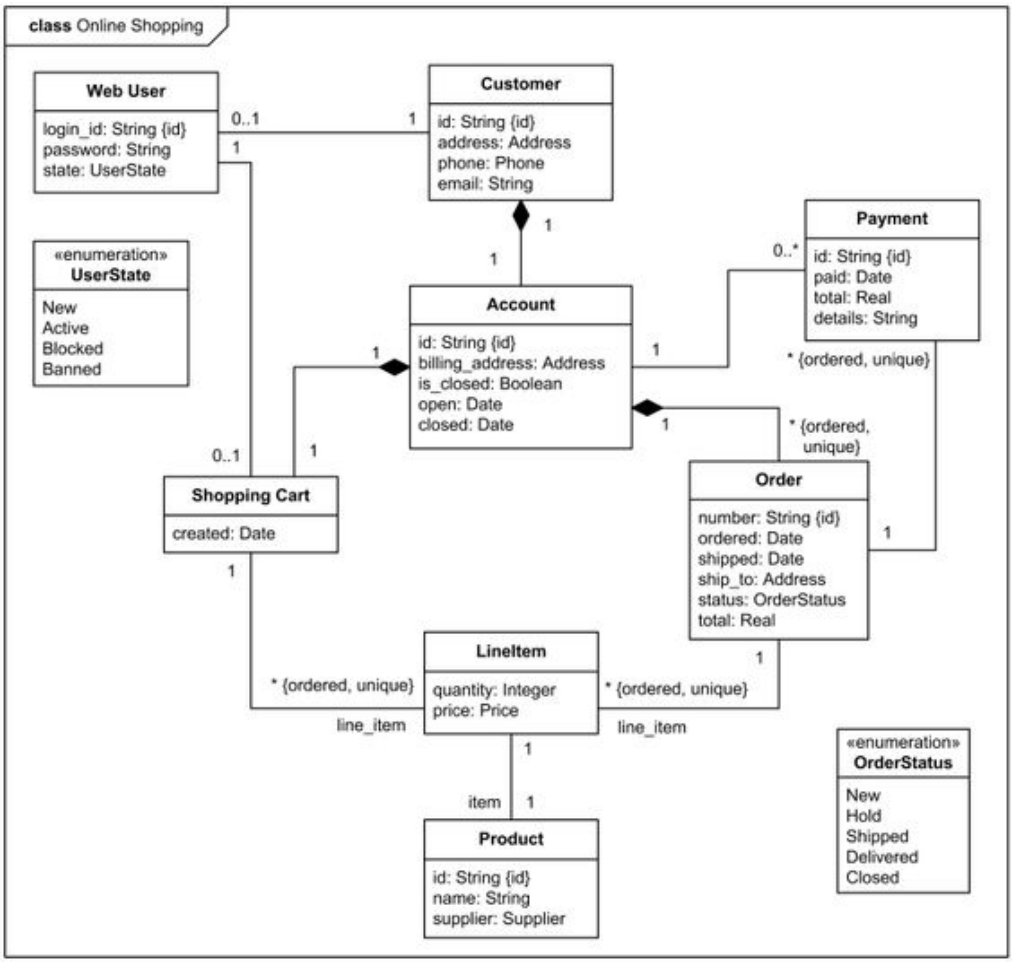


Figure 4: Class Diagram of online shopping for Online Mobile Store

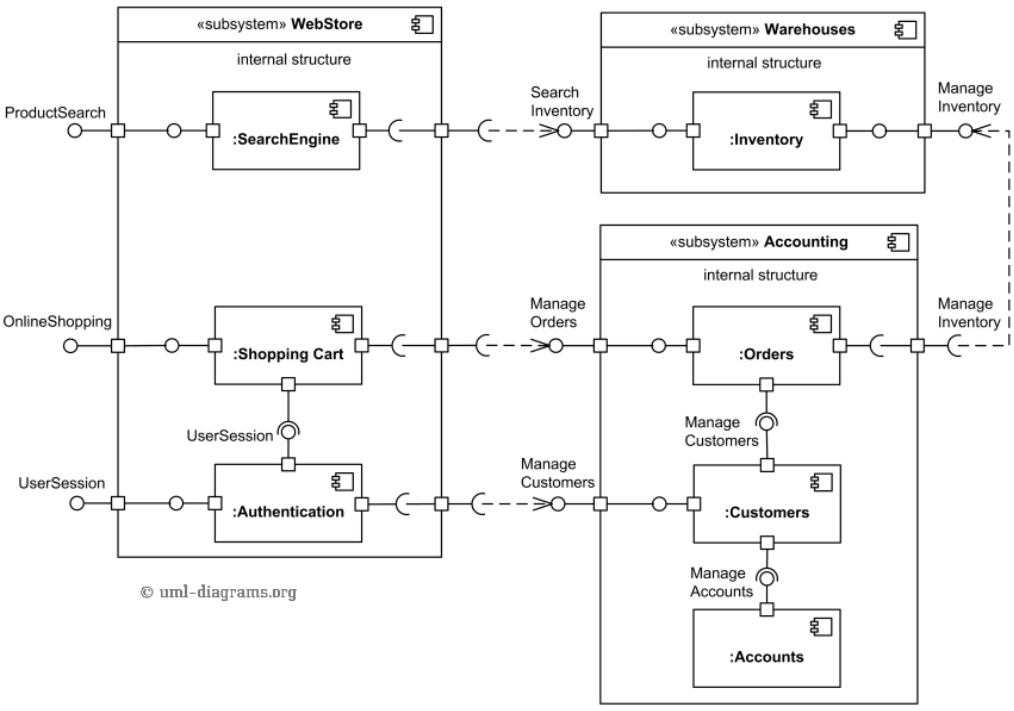


Figure 5: Component Diagram for Online Mobile Store

7 Structure

7.1 Module Details

Table 2: **Modules & Effort Estimate**

Sr. No.	Module	Effort Estimate
1.0	User Registration & Sign-On	1 Week
2.0	Manage Products	2 Weeks
3.0	Order Management	2 Weeks
4.0	Payment Gateway API Integration	2 Weeks
5.0	Reports	4 Weeks

7.2 Data Structures

Table 3: **Data Structure**

Sr. No.	Data Structure	Remark
1.0	Boolean	
2.0	Character	
3.0	Floating Point	
4.0	Double	
5.0	Integer	
6.0	Enumerated Type	
7.0	Array	
8.0	Linked List	
9.0	Stack	
10.0	Queue	
11.0	Binary Search tree	

12.0	Heap	

7.3 Process logic

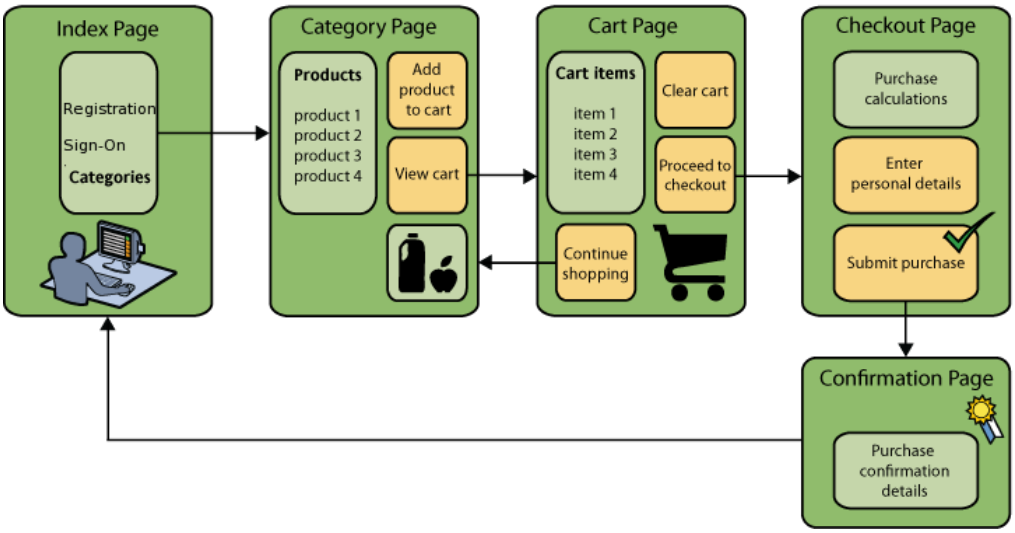


Figure 6: Process Diagram for Online Mobile Store

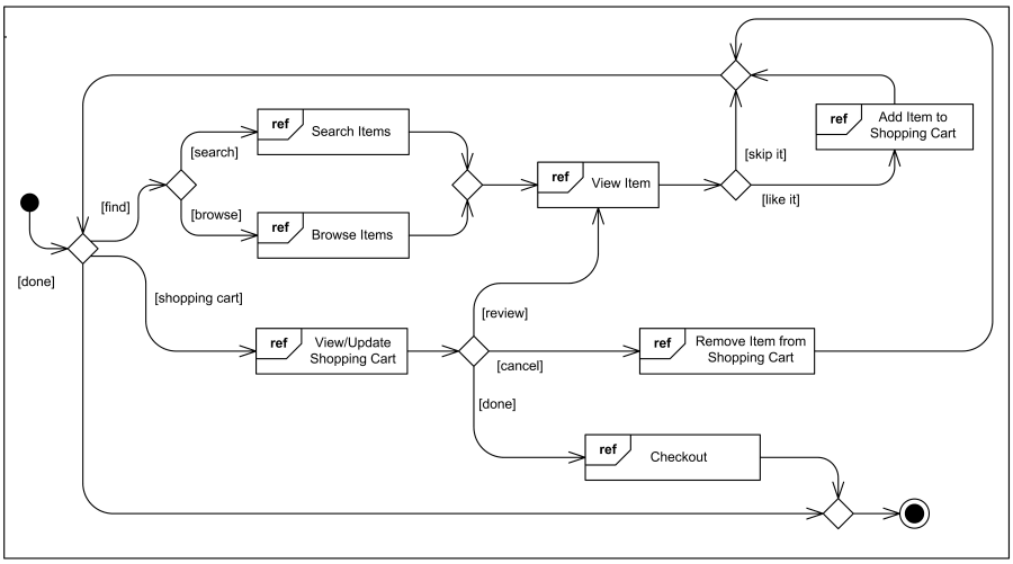


Figure 7: Process Diagram for Online Mobile Store

7.4 Implementation Methodology

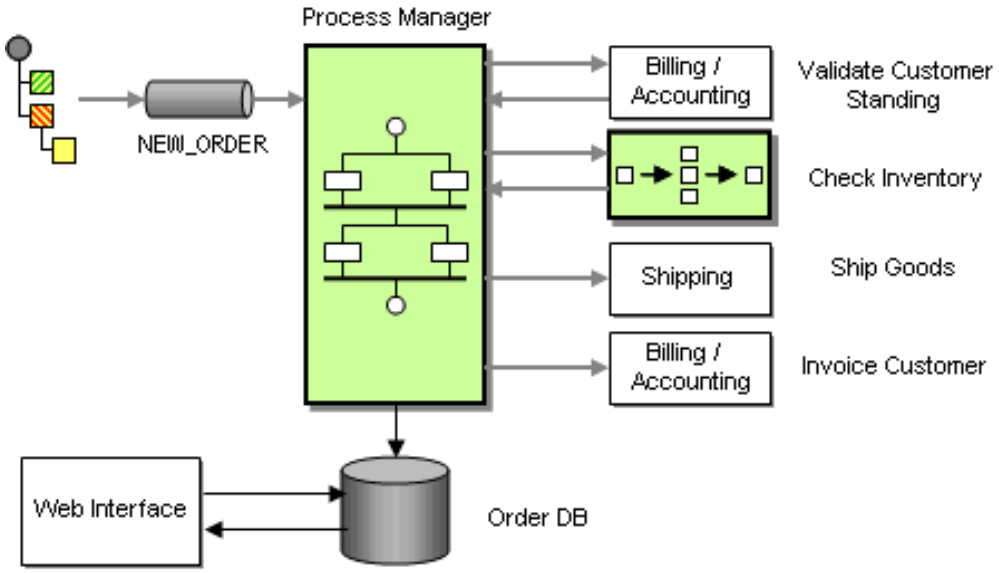


Figure 8: Architecture Diagram for Online Mobile Store

The website will be created using the Go programming language. The front-end user interface shall be designed in HTML5 and CSS. Versioning and Code-management shall be done using git. Code repository shall be in a Github account. PostgreSQL shall be used for the database. Stripe-go shall provide the API for the dummy payment gateway system.

7.5 List of Reports

Table 4: **List of Reports**

Sr. No.	List of Reports	Description
1.0	User Report	Registered users' details
2.0	Orders Report	Order details
3.0	Products Report	Product Details

8 Implementation of Security Mechanisms

Table 5: **Security Mechanisms**

Sr. No.	Security Mechanism	Description
1.0	Firewall	a technological barrier designed to prevent unauthorized or unwanted communications between computer networks or hosts
2.0	SSL Certificate	Digital certificate for Secure Sockets Layer (SSL) authentication
3.0	Secure Checkout	Using stripe.js or checkout.js over https. HTTPS is a protocol for secure communication over a computer network which is widely used on the Internet.

9 Future Scope and further enhancement of Project

The project can be worked upon to add more functionality to offer a better buying experience such as recommender engines and in the creation of an e-commerce website that can be deployed in the real world.

10 Bibliography

[1] https://en.wikipedia.org/wiki/Michael_Aldrich