SOFTWARE REQUIREMENTS SPECIFICATION

For

E-Commerce Web Application

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1. Introduction

1.1 Purpose

The main objective of this document is to illustrate the requirements of the project E-commerce web application. The document gives the detailed description of the both functional and non-functional requirements proposed by the client. The purpose of this project is to provide a friendly environment to maintain the details of Customer and Owners. The main purpose of this project is to maintain easy circulation system using computers and to provide different reports. This project describes the hardware and software interface requirements using ERdiagrams and UML diagrams.

1.2 Document Conventions

- Entire document should be justified.
- Convention for Main title
  - Font face: Times New Roman
  - Font style: Bold
  - Font Size: 14
- Convention for Sub title
  - Font face: Times New Roman
  - Font style: Bold
  - Font Size: 12
- Convention for body
  - Font face: Times New Roman
  - Font Size: 12

1.3 Scope of Development Project

The scope of the E-commerce website development project encompasses a set of clear objectives and deliverables aimed at establishing a robust online shopping platform. The primary objective is to create a fully functional E-commerce website that allows users to browse, search for, and purchase products online. Several secondary objectives support this primary goal, including the implementation of a user-friendly and responsive design, secure payment processing, user account management, product reviews, and compliance with data protection regulations such as GDPR.

The front-end component of the project will focus on creating an intuitive and visually appealing user interface. It will include user registration and login functionality, a comprehensive product catalog with detailed listings, robust search and filtering capabilities, a flexible shopping cart for adding and managing selected items, and a secure checkout process with multiple payment options.

On the back-end, the project will involve building essential systems for product management, order processing, user account management, and inventory tracking. Seamless integration with third-party payment gateways will ensure secure transactions. An administrative dashboard will provide the necessary tools for managing users, products, and orders effectively. Robust data storage and database management systems will underpin the website's functionality.

1.4 Definitions, Acronyms and Abbreviations

JAVA -> platform independence
SQL-> Structured query Language
ER-> Entity Relationship
UML -> Unified Modeling Language
IDE-> Integrated Development Environment
SRS-> Software Requirement Specification
ISBN -> International Standard Product Number
IEEE ->Institute of Electrical and Electronics Engineers

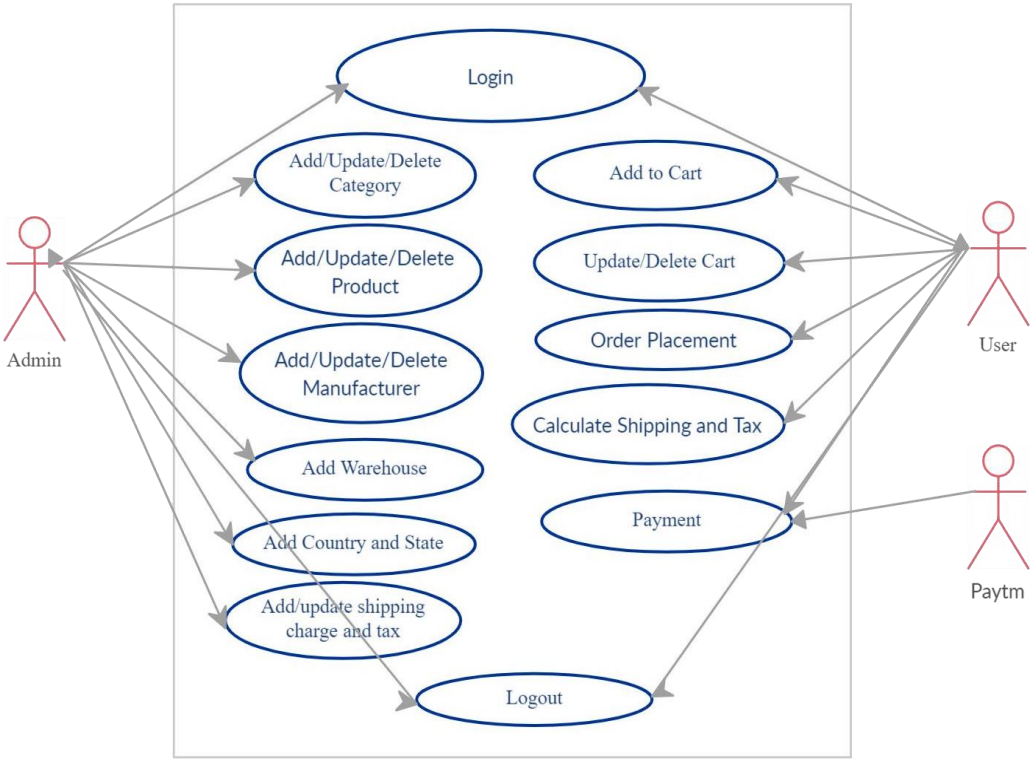
1.5 References

- Products
  - Software Requirements and Specifications: A Lexicon of Practice, Principles and Prejudices (ACM Press) by Michael Jackson
  - Software Requirements (Microsoft) Second EditionBy Karl E. Wiegers
  - Software Engineering: A Practitioner's Approach Fifth Edition By Roger S. Pressman
- Websites
  - **http://www.slideshare.net/**
  - **http://eproductily.net/**

2. Overall Descriptions

2.1 Product Perspective

Use Case Diagram of E-commerce Web Application

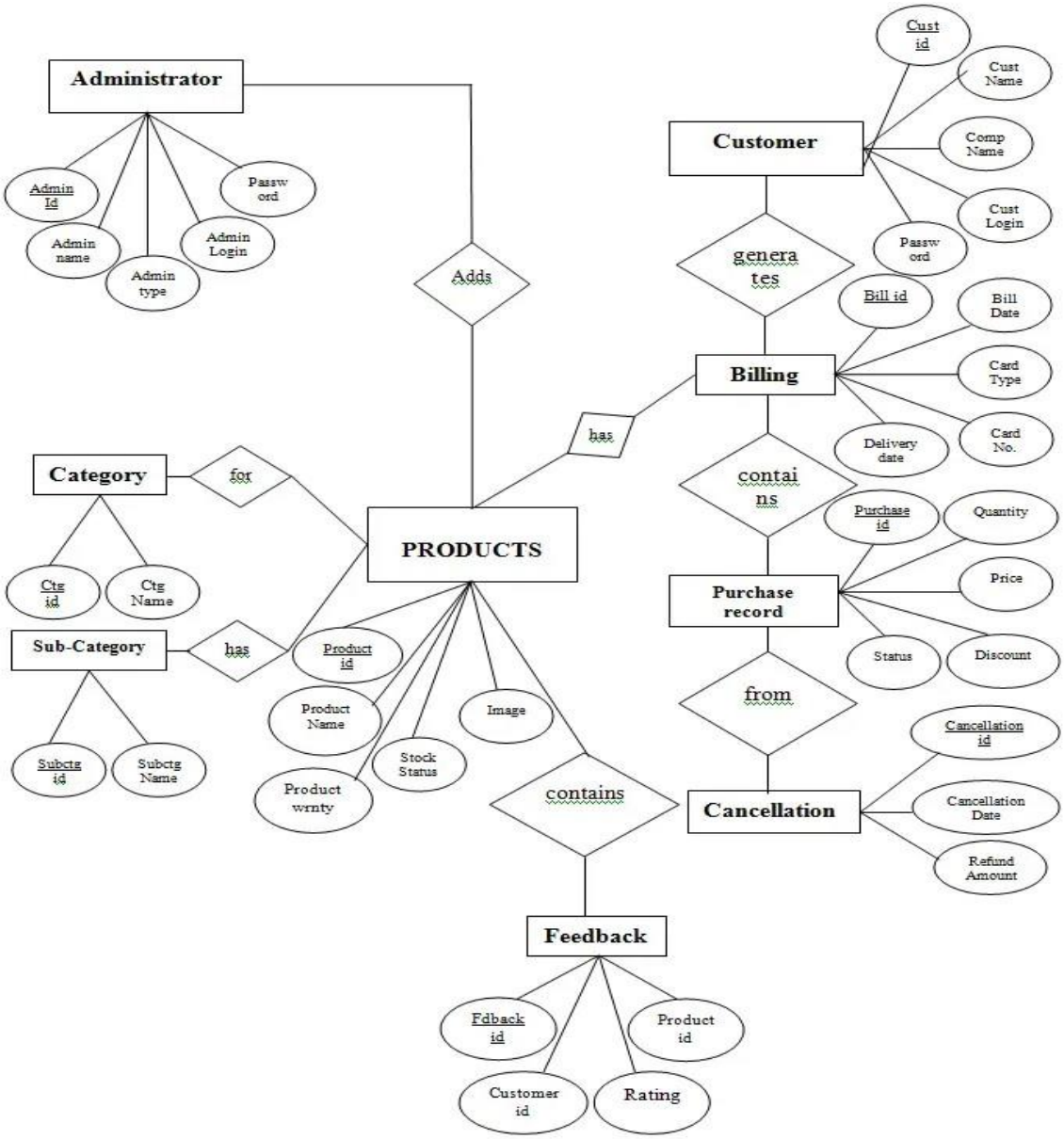


This is a broad level diagram of the project showing a basic overview. The users can be Customer or Retailers. This System will provide a search functionality to facilitate the search of resources. This search will be based on various categories viz. the product name or its type Further the add/update the resources and the resource users from the system can be done automatically.

The users of the system can request issue/return of Products for which they would have to follow certain criteria.

2.2 Product Function

Entity Relationship Diagram of E-commerce Website



The E-Commerce Web Application provides online real time information about the products should be available in the market. The main purpose of this project is to reduce the manual work. This software is capable of managing product Issues, Returns, Calculating/Managing Exchange price, Generating various Reports for Record-Keeping according to end user requirements. The Seller will act as the administrator to control Customer and manage their own products. The Customer's status of issue/return is maintained in the database. The Customer's details can be fetched by the Admin from the database as and when required.

2.3 User Classes and Characteristics

The system provides different types of services based on the type of users [Sellers /Customer].In this Seller can be act as an admin for their own products who can add or update the products .The Customer can be either a Buyer or Retailer who will be accessing the application.

The features that are available to the Sellers are:-

- A Seller can issue a product to the customer.
- Can view the different categories of prodcuts available in the website
- Can view the List of products available in each category
- Can take the product returned from students
- Edit the information of existing products
- Can check the report of the existing products
- Can check the report of the issued products

The features that are available to the Customers are:-

- Can view the different categories of products available in the website
- Can view the List of products available in each category
- Can own an account in the application.
- Can view the products sell to him
- Can view the history of products sold to him previously
- Can search for a particular products

2.4 Operating Environment

The product will be operating in windows environment. The E-commerce Web application is a website and shall operate in all famous browsers, for a model we are taking Microsoft Internet Explorer, Google Chrome, and Mozilla Firefox. Also it will be compatible with the IE 6.0. Most of the features will be compatible with the Mozilla Firefox & Opera 7.0 or higher version. The only requirement to use this online product would be the internet connection.

The hardware configuration include Hard Disk: 40 GB, Monitor: 15" Color monitor, Keyboard: 122 keys. The basic input devices required are keyboard, mouse and output devices are monitor, printer etc.

2.5 Assumptions and Dependencies

The assumptions are:-

- The coding should be error free
- The system should be user-friendly so that it is easy to use for the users
- The information of all users, products and sellers must be stored in a database that is accessible by the website
- The system should have more storage capacity and provide fast access to the database
- The system should provide search facility and support quick transactions
- The System is running 24 hours a day
- Users may access from any computer that has Internet browsing capabilities and in Internet Connection.
- Users must have their correct usernames and passwords to enter into their online accounts and do actions

The dependencies are:-

- The specific hardware and software due to which the product will be run
- On the basis of listing requirements and specification the project will be developed and run
- The end users (admin) should have proper understanding of the product
- The system should have the general report stored
- Any update regarding the product from the sellers is to be recorded to the database and the data entered should be correct

2.6 Requirement

Software Configuration:-

This software package is developed using java as front end which is supported by sun micro system. Microsoft SQL Server as the back end to store the database.

Operating System: Windows NT, windows 98, Windows XP

Language: Java Runtime Environment, Net beans 7.0.1 (front end)

Database: MS SQL Server (back end)

Hardware Configuration:-

Processor: Pentium(R)Dual-core CPU

Hard Disk: 40GB

RAM: 256 MB or more

2.7 Data Requirement

The inputs consist of the query to the database and the output consists of the solutions for the query. The output also includes the user receiving the details of their accounts. In this project the inputs will be the queries as fired by the users like create an account, selecting products and putting into account. Now the output will be visible when the user requests the server to get details of their account in the form of time, date and which products are currently in the account.

3. External Interface Requirement

3.1 GUI

The software provides good graphical interface for the user and the administrator can operate on the system, performing the required task such as create, update, viewing the details of the product.

- It allows user to view quick reports like Product Issued/Returned in between particular time.
- It provides stock verification and search facility based on different criteria.
- The user interface must be customizable by the administrator
- All the modules provided with the software must fit into this graphical user interface and accomplish to the standard defined
- The design should be simple and all the different interfaces should follow a standard template.
- The user interface should be able to interact with the user management module and a part of the interface must be dedicated to the login/logout module

Login Interface:-

In case the user is not yet registered, he can enter the details and register to create his account. Once his account is created he can 'Login' which asks the user to type his username and password. If the user entered either his username or password incorrectly then an error message appears.

Search:-

The Customer or Seller can enter the type of product he is looking for and the title he is interested in, then he can search for the required product by entering the product name.

Categories View:-

Categories view shows the categories of products available and provides ability to the Seller to add/edit or delete category from the list.

Seller's Control Panel:-

This control panel will allow Seller to add/remove users; add, edit, or remove a resource. And manage lending options.

4. System Features

The users of the system should be provided the surety that their account is secure. This is possible by providing:-

- User authentication and validation of members using their unique member ID
- Proper monitoring by the administrator which includes updating account status, showing a popup if the member attempts to issue number of products that exceed the limit provided by the Customer policy for if any issues on the products.
- Proper accountability which includes not allowing a member to see other member's account.

5. Other Non-functional Requirements

5.1 Performance Requirement

- The website should load quickly and provide a seamless user experience. Ensure high security standards, including data encryption and protection.
- Support scalability to accommodate increased user traffic.
- Maintain high availability with minimal downtime.
- Adhere to accessibility and usability guidelines.

5.2 Safety Requirement

The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup so that the database is not lost. Proper UPS/inverter facility should be there in case of power supply failure.

5.3 Security Requirement

- System will use secured database
- Normal users can just read information but they cannot edit or modify anything except their personal and some other information.
- System will have different types of users and every user has access constraints
- Proper user authentication should be provided
- No one should be able to hack users' password
- There should be separate accounts for admin and members such that no member can access the database and only admin has the rights to update the database.

5.4 Requirement attributes

- There may be multiple admins creating the project, all of them will have the right to create changes to the system. But the members or other users cannot do changes
- The project should be open source
- The Quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database
- The user be able to easily download and install the system

5.5 Business Rules

A business rule is anything that captures and implements business policies and practices. A rule can enforce business policy, make a decision, or infer new data from existing data.This includes the rules and regulations that the System users should abide by. This includes the cost of the project and the discount offers provided. The users should avoid illegal rules and protocols. Neither admin nor member should cross the rules and regulations.

5.6 User Requirement

The users of the system are members and Seller who act as administrator to maintain the system. The members are assumed to have basic knowledge of the computers and internet browsing. The administrators of the system should have same knowledge of the system and is able to rectify the small problems that may arise due to disk crashes, power failures and other catastrophes to maintain the system. The proper user interface, user manual, online help and the guide to install and maintain the system must be sufficient to educate the users on how to use the system without

any problems.
The admin provides certain facilities to the users in the form of:-

- Backup and Recovery
- Forgot Password
- Data migration i.e. whenever user registers for the first time then the data is stored in the server
- Data replication i.e. if the data is lost in one branch, it is still stored with the server
- Auto Recovery i.e. frequently auto saving the information
- Maintaining files i.e. File Organization
- The server must be maintained regularly and it has to be updated from time to time.

6. Other Requirements

6.1 Data and Category Requirement

There are different categories of users namely Seller, Admin, Customer etc. Depending upon the category of user the access rights are decided.It means if the user is an administrator then he can be able to modify the data, delete, append etc. Similarly there will be different categories of products available. According to the categories of products their relevant data should be displayed. The categories and the data related to each category should be coded in the particular format.

6.2 Appendix

A: Admin, Abbreviation, Acronym, Assumptions; B: Business rules; C: Class, Client, Conventions; D: Data requirement, Dependencies; G: GUI; K: Key; M: Member; N: Non-functional Requirement; O: Operating environment; P: Performance, Perspective, Purpose Products,; R: Requirement, Requirement attributes; S: Safety, Scope, Security, Seller, System features; U: User, User class and characteristics, User requirement;

6.3 Glossary

The following are the list of conventions and acronyms used in this document and the project as well:

- Administrator: A login id representing a user with user administration privileges to the software
- User: A general login id assigned to most users
- Client: Intended users for the software
- SQL: Structured Query Language; used to retrieve information from a database
- SQL Server: A server used to store data in an organized format
- Layer: Represents a section of the project
- User Interface Layer: The section of the assignment referring to what the user interacts with directly
- Application Logic Layer: The section of the assignment referring to the Web Server. This is where all computations are completed
- Data Storage Layer: The section of the assignment referring to where all data is recorded
- Use Case: A broad level diagram of the project showing a basic overview
- Class diagram: It is a type of static structure diagram that describes the structure of a system by showing the system's cases, their attributes, and the relationships between the classes
- Interface: Something used to communicate across different mediums
- Unique Key: Used to differentiate entries in a database

6.4 Class Diagram

A class is an abstract, user-defined description of a type of data. It identifies the attributes of the data and the operations that can be performed on instances (i.e. objects) of the data. A class of data has a name, a set of attributes that describes its characteristics, and a set of operations that can be performed on the objects of that class. The classes' structure and their relationships to each other frozen in time represent the static model. In this project there are certain main classes which are related to other classes required for their working. There are different kinds of relationships between the classes as shown in the diagram like normal association, aggregation, and generalization. The relationships are depicted using a role name and multiplicities. Here 'Seller', 'Member' and 'Products' are the most important classes which are related to other classes.