Software Design

Online Shopping System

# 

# TABLE OF CONTENTS

|  |  |  |
| --- | --- | --- |
| **S.No** | **TOPIC** | **PAGE NUMBER** |
| **1** | **Architecture Design** | **2-3** |
| **2** | **Use-Case Scenarios** | **3-5** |
| **3** | **Sequence Diagram** | **6** |
| **4** | **Class Diagram** | **7** |
| **5** | **Collaboration Diagram** | **7** |
| **6** | **User Interface Design** | **8** |
| **7** | **Design Validation** | **9-13** |

# 

# ARCHITECTURE DESIGN

Diagram

Description automatically generated

**UI for the USER:**

It acts as an interface between the user and the system. The UI allows users to enter an image, run it across the model, and provide the results to the user. The UI will also send a notification if the image is not entered correctly and cannot be processed by the system. The UI interfaces with the controller or system to send and process user-captured images to the system. The system responds to the UI to let you know if the image is within the required guidelines.

**Web Server:**

Hardware – machine running the Web server software.

Software – an application program that generates and / or delivers hypermedia document to the web clients. Always connected to Internet (HTTPd, HTTPs).

All the Html, JavaScript, PHP files, databases, media files that make up the entire website are stored on this server. The web server runs on Windows or Linux operating systems.

# 

# USE-CASE SCENARIOS

**Scenario 1**

**Purpose:** Scenario that describes the use of **Online Web** application by the user, providing input available from the device.

**Individual:** The user could be any person who is in need to know about the products.

**Equipment:** User only needs internet connection only while browsing the web application, being offline application there is no more access to the search products.

**Scenario:**

1. The user will require a computer or smartphone to browse the web application or any other communication channel.
2. The motive of this Online Shopping Web Application is to allow the user to play with the search tool and create different combinatorial search criterion to perform exhaustive search.
3. Provide Interactive interface through which a user can interact with different areas of application easily.
4. A search engine that provides an easy and convenient way to search for products specific to their needs.
5. The search engine would list a set of products based on the search term and the user can further filter the list based on various parameters.
6. Provide Drag and Drop feature thereby allowing the user to add products to or remove products from the shopping cart by dragging the products in to or out of the shopping cart.
7. The current system can be extended to allow the users to create accounts and save products into wish list.
8. The users could subscribe for price alerts which would enable them to receive messages when price for products fall below a particular level.
9. The current system is confined only to the shopping cart process. It can be extended to have an easy to use check out process.
10. Users can have multiple shipping and billing information saved. During checkout they can use the drag and drop feature to select shipping and billing information.
11. Users can be classified into two types based on their knowledge of the products that suit their needs.
12. Users who know about the product should be able to find the product easily with the click of a button.
13. Users who must figure out the product that would satisfy their needs could use a search term to find a list of products and then should be able to filter the results based on various parameters like product type, manufacturer, price range, platform supported etc.

**Scenario 2**

**Purpose:** Scenario that describes the use of **Online Web** application by the user, providing input available from the device.

**Individual:** The user could be any person who is in need to know about the product search results.

**Equipment:** User only needs internet connection only while browsing the web application, being offline application there is no more access to the search products.

**Scenario:**

1. The users should be able to view the complete specification of the product and various images at different Zoom levels.
2. The user should be able to read the customer reviews for the product and the ratings provided.

3. The user should be able to add a product to the shopping cart by dragging a product and dropping it in the shopping cart.

4. A user should be able to edit the contents of a shopping cart.

5. They should be able to update the quantities of the products added to the cart and remove the products from the cart.

6. The user should be able to remove the product from the shopping cart by dragging the product and dropping it outside the cart.

7. The user can be notified if the cursor enters a drop area and the object that could be dropped.

8. A user can edit the quantity of each product or remove the product from the shopping cart.

9. A user can also view the manufacturer information and information about rebates, exchange policies etc.

10. The user can see the list of products that are available.

11. The user can search for products by entering the search term into the search textbox provided on the top.

12. The user can filter the products by using the dropdown lists.

13. A user can view the complete description of the product by clicking on the product link.

14. The user can move the cursor on to the small images to view the same image in the enlarged position.

15. The products can be filtered based on various parameters like Manufacturer, Product Type, Operating System supported etc.

16. A product could be added to a shopping cart by dragging it and dropping it in the cart area and the items in the cart could be removed by clicking a button.

# SEQUENCE DIAGRAM

Diagram

Description automatically generated

A sequence diagram captures messaging between objects in a system and indicates which object is active at any point in the process of carrying out operations. This is an example of UML sequence diagram for online shopping process. From this diagram, people should search and select the item they want, then checkout. A sequence diagram is a form of interaction diagram because it illustrates how (and in what order) a collection of items interact with one another. Software engineers and business experts use these diagrams to understand the requirements for a new system or to describe an existing process. Event diagrams and event scenarios are other names for sequence diagrams.

# CLASS DIAGRAM

Diagram

Description automatically generated

Each customer has unique id and is linked to exactly one **account**. Account owns shopping cart and orders. Customer could register as a web user to be able to buy items online. Customer is not required to be a web user because purchases could also be made by phone or by ordering from catalogues. Web user has login name which also serves as unique id. Web user could be in several states - new, active, temporary blocked, or banned, and be linked to a **shopping cart**. Shopping cart belongs to account.

# COLLABORATION DIAGRAM

Diagram

Description automatically generated

UML Collaboration Diagram depicts the interactions between objects or parts in terms of sequenced messages and describes both the static structure and dynamic behaviour of a system.

# USER INTERFACE DESIGN

User Interface design in our application covers all the use cases that are mentioned above. It can be divided into three steps: Browsing interface, purchase interface, checkout and payment interface. Browsing interface includes displaying the items from different categories in the home page and a search bar on the top. Once the user begins to search a product, he can either select the product from the auto fill suggestions that we provide them, or he can hit on the search icon which will take him to the list of products page.

From here he can purchase the product by adding it into the cart. Based on the current logged in state of the user he is either redirected to the sign in screen or the item is added to the cart and the item count is visible on the top. One more way of searching for a product is by going into the product category in the home screen.

The second user interface comes into picture when the user proceeds to checkout the cart after all the items of his choice are added to the cart. In the checkout screen he can review all the items In the cart and if he wishes to proceed he is taken to the confirmation page where all the details of the order such as products, quantity, address to be delivered and then he can go to the payment screen by selecting the type of payment. Here we are using a third-party payment gateway.

Once the payment has been made the user is redirected to the orders screen where he can check the status of his order by product. This screen can be accessed from the menu bar in the home screen so that user can check the status time to time.

# DESIGN VALIDATION

1.User can open our application by entering the URL that is provided by us in the browser. User will need good internet connection for accessing our website. Once he hits on enter, he is redirected to the home screen as below. It contains list of categories that we are currently serving in the top bar and a search bar. The products which are of interest to the user based on his previous searches are displayed below the search bar

Graphical user interface, website

Description automatically generated

2.The user shopping cart has list of products that the user has added along with its quantity, and which is the product of individual price and the quantity. The total cost along with the shipping and taxes are displayed to the user and an option to proceed to the payment is given.

Graphical user interface, application

Description automatically generated

3.Once the user clicks on proceed to Pay, we take to him to the payment screen where his details such as mailing address, credit/debit card number, expiry date and CVV code are requested. Once the user enters all the required information the payment gateway authenticates the transaction and based on the status code, we receive we display if the order is placed or not.

Graphical user interface, application

Description automatically generated

4.If the order is placed successfully, we redirect the user to the orders screen where he can check the status of each product.

Graphical user interface, application, email

Description automatically generated