PRIZEST

(UCS503) Software Engineering Project

Report End-Semester Evaluation

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1. Introduction

1.1. Purpose

This Software Requirements Specifications (SRS) document aims at giving a complete overview regarding functionality and the performance of our software project “Product Search Engine”. The document will include the project description, functional requirements of system and different functionalities possessed by the engine .

1.2. Document Conventions

As the development team is responsible for the SRS document, no ambiguity arises from its usage.

- Entire document should be justified
- Convention for the main title:
  - Font Face: Times New Roman
  - Font Style: Bold
  - Font Size: 16
- Convention for subtitle:
  - Font Face: Times New Roman
  - Font Style: Bold
  - Font Size: 13
- Convention for body:
  - Font Face: Times New Roman
  - Font Style: Normal
  - Font Size: 11

1.3. Intended Audience and Reading Suggestions

The SRS document serves four sections, namely

- Customer
- Authority
- Developers
- All users

The SRS document constitutes of all the Functional and Non-Functional system requirements that would be required by the developers to understand the conceptuality behind the software. At the very same time it also helps the customers to visualise the face of the product after its formation.

1.4. Project Goal

“The Site Name” is a product search engine which compares the product that you search across three different major e-commerce websites i.e. Amazon, Flipkart, Snapdeal. The website will also feature some additional functionality such as sorting according to best prices, redirecting to the product host website etc.

2. Overall Description

2.1. Product Perspective

The website is a product search engine which is implemented through various languages

- HTML
- CSS
- BEAUTIFUL SOUP
- SQL ALCHEMY
- PYTHON
- FLASK

2.2. Product Features

The following is a summary of the major features implemented in the product search engine. They are separated into categories based on those that are necessary for the engine.

2.2.1. Functional Features

- **Login:** The previously signed up user will be allowed to login to the website through this feature.
- **Sign-Up:** New users are given the facility to register themselves with our website through this feature.
- **Search bar:** This allows the user to search for different commodities that they require.
- **Redirect:** This functionality allows user to get redirected to the host website where they can find their commodity ready for purchase.

2.3. User Classes and Characteristics

The user has to be familiar with the basic terminologies used while having any purchases at a shopping interface i.e., cart, transactions etc. The user should also be aware of the two-factor authentication system. They are also requested to remember their credentials at the time of logging into the website. In case if they forget they can use the forgot password functionality and use the reset password link sent on the registered email.

3. System Features

3.1. Login :

3.1.1 Input:

- The user is asked to enter the email id .
- The user is asked to enter the password.

3.1.2 Processing Function:

- Email id and password would be verified from the data in the database.

3.1.3 Output:

- The credentials would be checked and if they are matched the user is logged in successfully.
- Else if the credentials are not matched it throws an error.

3.2. Sign up:

3.2.1 Input:

- The user is asked to enter the username.
- The user is asked to enter the email id .
- The user is asked to set the password according to the standards.
- The user has to re-enter the password for confirmation.

3.2.2 Processing Function:

- Email id and password would be checked if it already exists in the database. If no such record is found it will be safely added to the database.

3.2.3 Output:

- The user would be successfully signed up.

3.3. Search:

3.3.1 Input:

- The user enters the item that they want to search for.

3.3.2 Processing Function:

- The related commodities to the search will be retrieved.

3.3.3 Output:

- The commodities would be shown with the relevant picture , price and link for proceeding to redirection.

3.4. Filter:

3.4.1 Input:

- The type of filter is selected.

3.4.2 Processing Function:

- The related commodities will be filtered in the way the filter is selected.

3.4.3 Output:

- The filtered commodities will be displayed .

3.5. Redirect:

3.5.1 Input:

- The user will click on the link of the commodity.

3.5.2 Processing Function:

- This will redirect the user to the page where the commodity is ready for purchase at the best price.

3.5.3 Output:

- The user would be redirected to the host website where they can purchase the product.

4. External Interface Requirements

4.1. User interface

- The user interface (UI), in the industrial design field of human-computer interaction, is the space where interactions between humans and machines occur.
- The goal of user interface design is to produce a user interface which makes it easy, efficient, and enjoyable (user-friendly) to operate a machine in the way which produces the desired result.
- Typical human–machine interface design consists of the following stages: interaction specification, interface software specification and prototyping.
- The interface avoids ambiguity by making everything clear through language, flow, hierarchy and metaphors for visual elements.
- the interface should provide good feedback to the user about what's happening and whether the user's input is being successfully processed.
- Time is money, and a great interface should make the user more productive through shortcuts and good design.

4.2. Hardware Interfaces

- A hardware interface is described by the mechanical, electrical and logical signals at the interface.
- The hardware requirement at the user end is really simple and the website can also run on the hardware that can run a basic simple browser.
- Hardware interfaces exist in many of the components, such as the various buses, storage devices, other I/O devices, etc.

4.3. Software Interfaces

- The application supports all major web browsers that will make it convenient for the user to access our system with ease, the back end i.e. the database services will be used to a great extent and hence it will be quiet efficient designed.
- The exchange can be between software, computer hardware, peripheral devices, humans, and combinations of these

4.4. Communication Interfaces

The Customer must connect to the internet to access the website:

- Dialup Modem of 52+ Kbps
- Broadband Internet
- Dialup or Broadband Connection with an Internet Provider.

5. Other Non-Functional Requirements

5.1. Safety Requirements

The database may get crushed or lost due to some virus attack so it must be saved in a backup and you must have the power backup (UPS/Inverter) in case of power loss.

5.2. Security Requirements

The normal users would only be able to search and see the results for the required product but they would be required to login when they click to enter the host website or click on the pay now option.

5.3. Performance Requirements

There is no performance requirement in this system because server request and response depend on the end user internet connection.

5.4. Software Quality Attributes

- Software Quality Attributes are: Correctness, Reliability, Adequacy, Learnability, Robustness, Maintainability, Readability, Extensibility, Testability, Efficiency, Portability.
- **Correctness:**The correctness of a program becomes especially critical when it is embedded in a complex software system.
- **Reliability:**Reliability of a software system derives from
  - Correctness
  - Availability

  Reliability of a software system is defined as the probability that this system fulfils a function (determined by the specifications) for a specified number of

input trials under specified input conditions in a specified time interval (assuming that hardware and input are free of errors).

- **Adequacy:**The input required of the user should be limited to only what is necessary.
- **Learnability:**It depends on the design of user interface and clarity.
- **Robustness:**Robustness reduces the impact of operational mistakes, erroneous input data, and hardware errors.
- **Maintainability:** Maintainability = suitability for debugging (localization and correction of errors) and for modification and extension of functionality.
- **Readability:**Readability of a software system depends on its form of representation
- **Extensibility:**Extensibility allows required modifications at the appropriate locations to be made without undesirable side effects.
- **Testability:**suitability for allowing the programmer to follow program execution(runtime behaviour under given conditions) and for debugging.
- **Efficiency:**ability of a software system to fulfil its purpose with the best possible utilization of all necessary resources (time, storage, transmission channels, and peripherals).

Appendix A.1: Use Case Diagram (Use Case Templates)

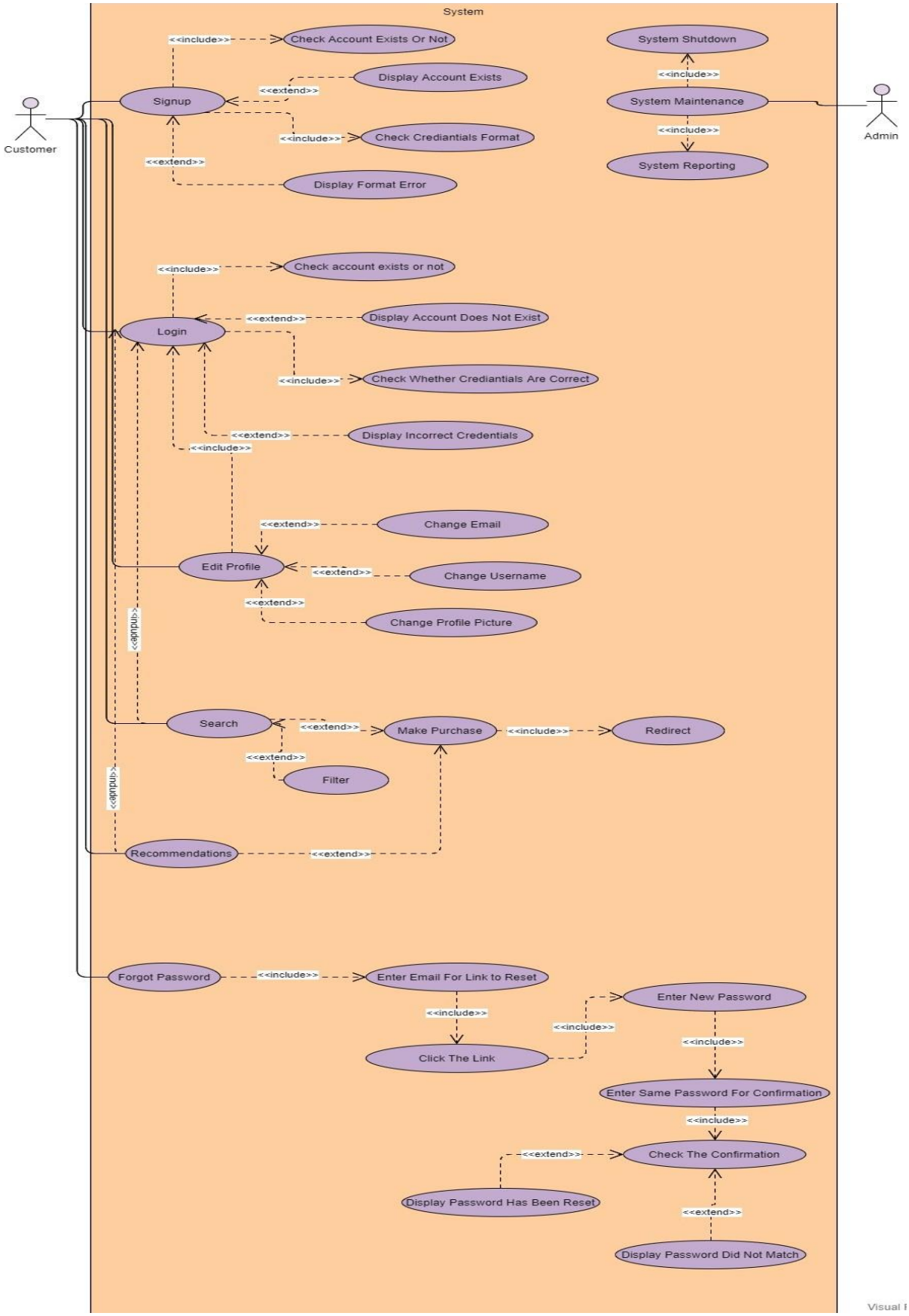
1. Use Case Templates

Name: Login
Description: The use case describes how a customer logs into the site.
Primary Actors: Customer
Preconditions: 1. The customer should be registered.
Main Flow: 1. The actor types his/her email and password in the login form. 2. The system validates the user`s password and logs him/her into the system.
Post conditions: 1. If the use case was successful, the user is now logged into the system. If not, the system state is unchanged.
Alternative Flows: 1. Invalid Email/ Password: If the customer enters invalid name/password, an error message displays. The customer can type a new name or password or to choose to cancel the operation or to register as new user.

Name: Search
Description: The customer can search a specific product in this user case.
Primary Actors: Customer
Preconditions: 1. The user should be logged in.
Main Flow: 1. The customer types a product name either with filter or without filter.
Post conditions: 1. The relevant results with or without filter are shown.
Alternative Flows: 1. If there is no relevant result nothing is shown.

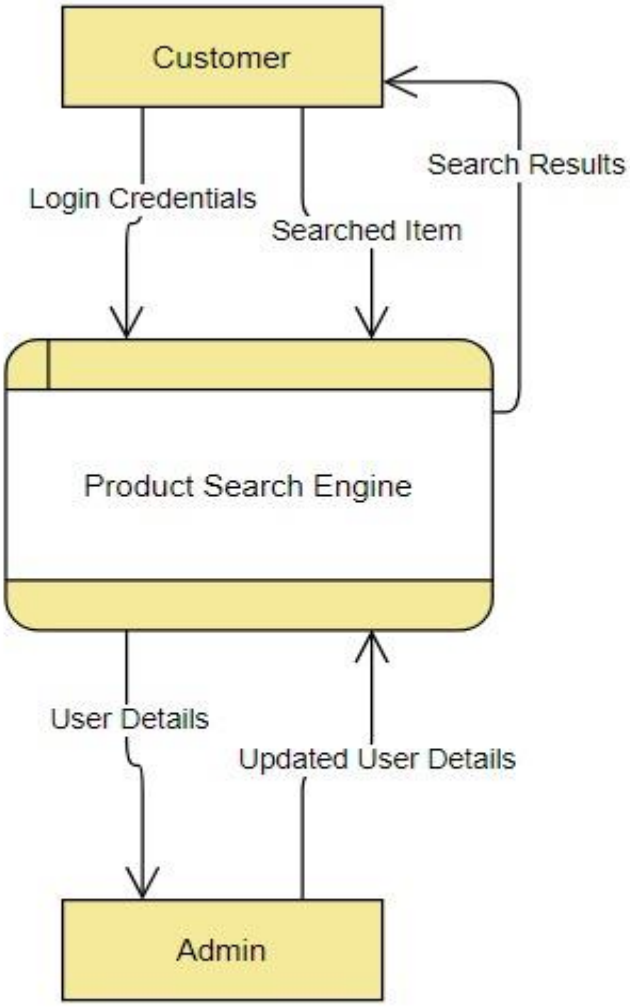
Name: Maintenance
Description: Maintaining the system
Primary Actors: Admin
Preconditions: 1. **Should have admin rights.**
Main Flow: 1. **Maintains the uptime of the site.** 2. **Regular security checks**
Post conditions: 1. **Website should run without any error.**
Alternative Flows: 1. **Admin can undo the changes if he wishes to change his plan.**

2. Use Case Diagram

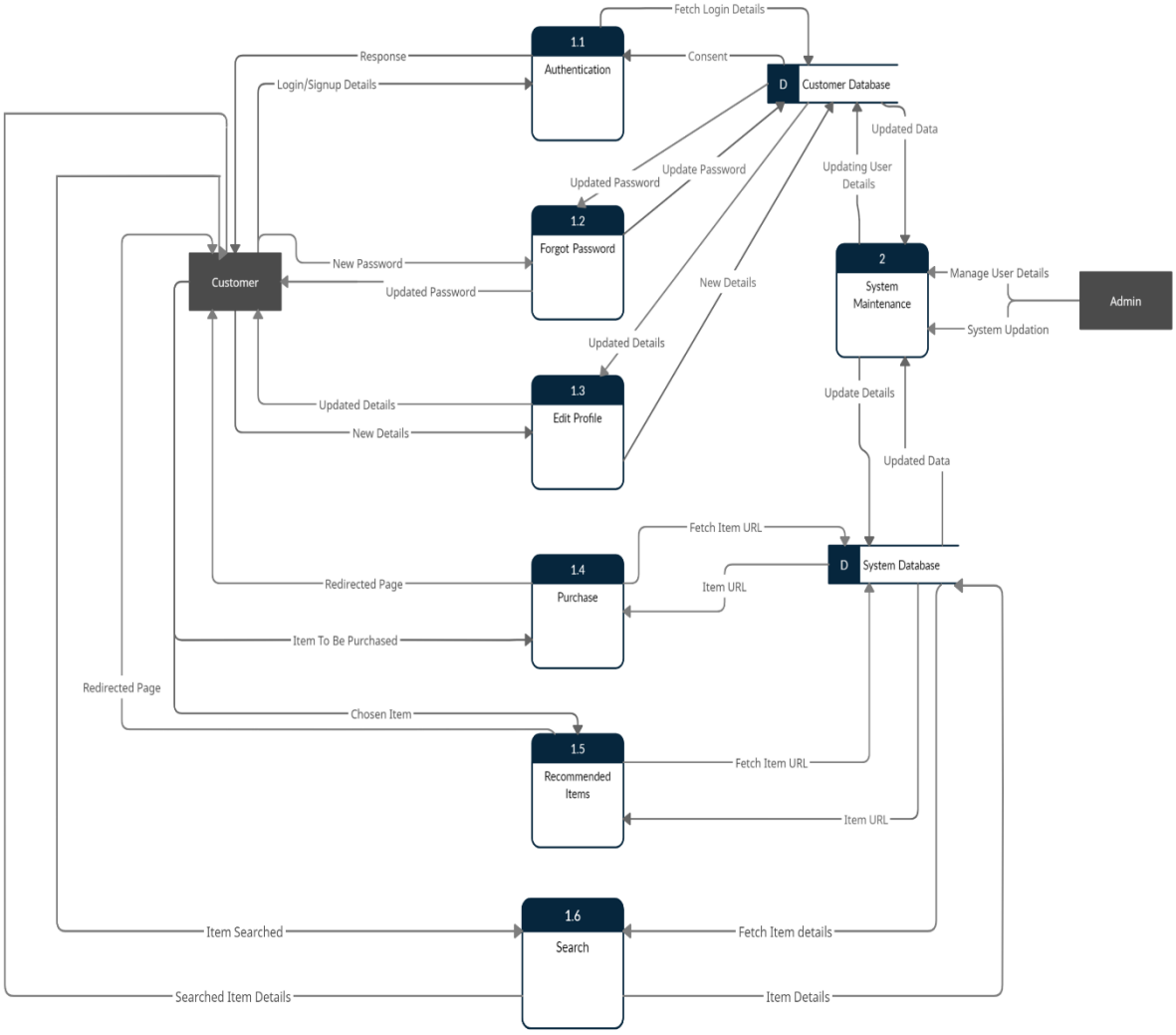


Appendix A.2: Data Flow Diagram

1. Level 0 Data Flow Diagram

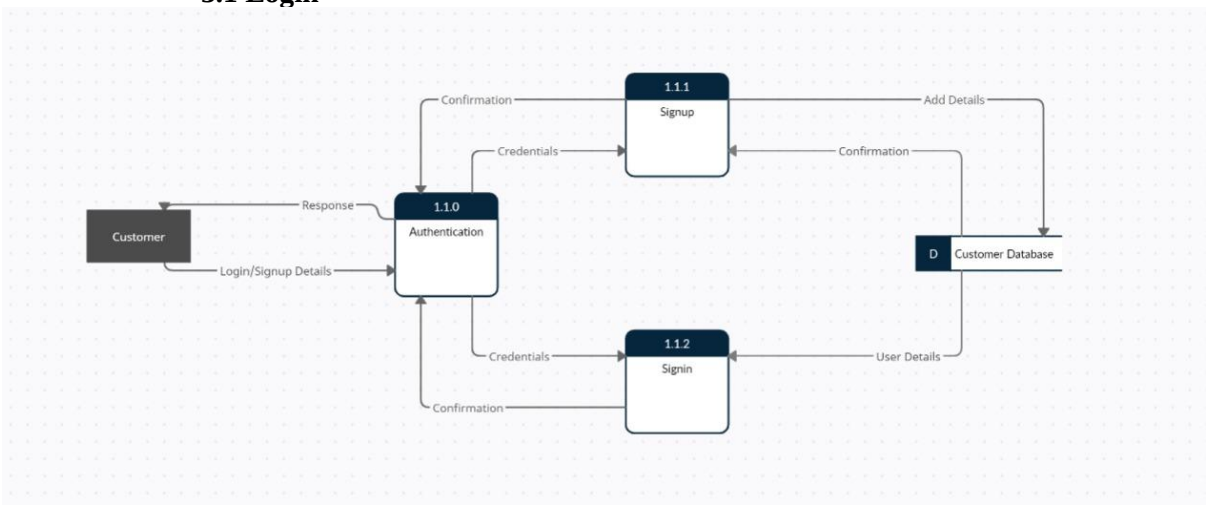


2. Level 1 Data Flow Diagram

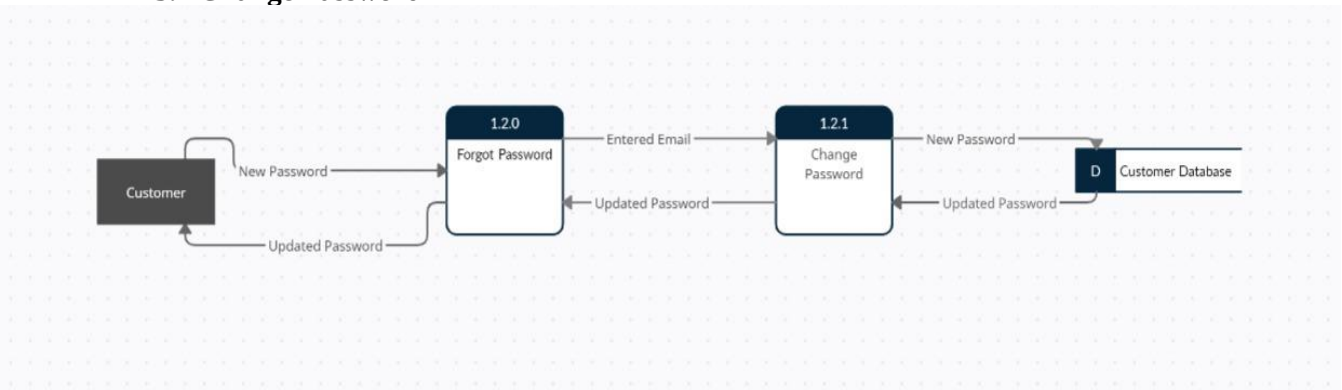


3. Level 2 Data Flow Diagram

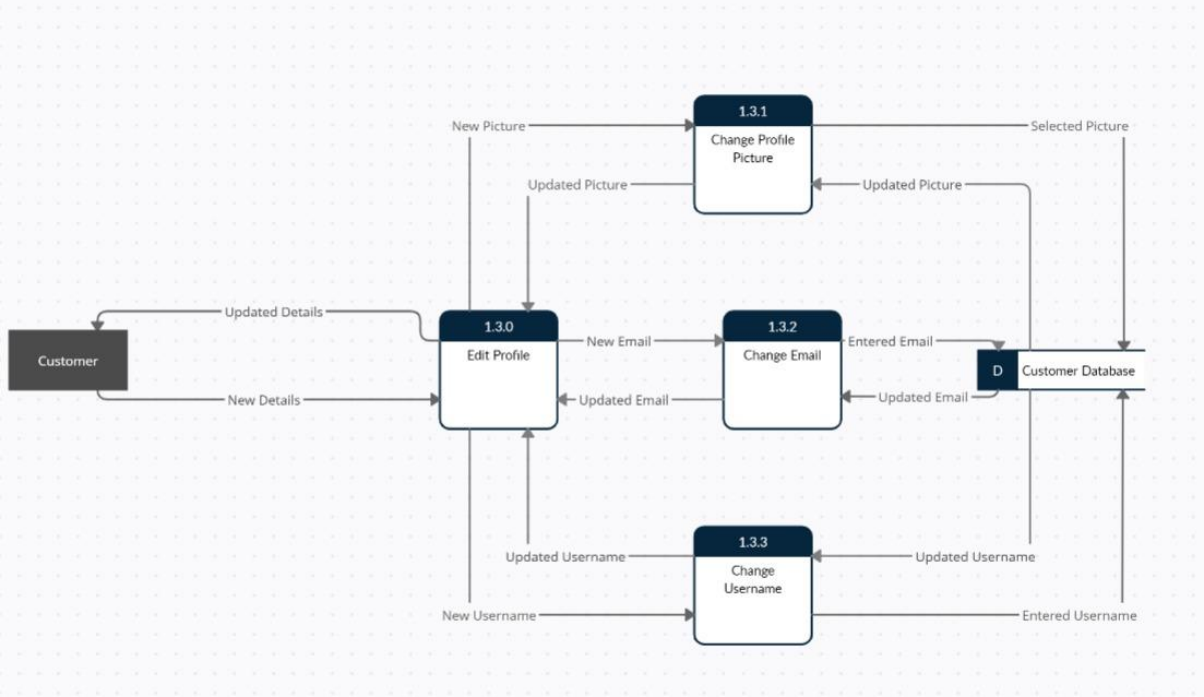
3.1 Login



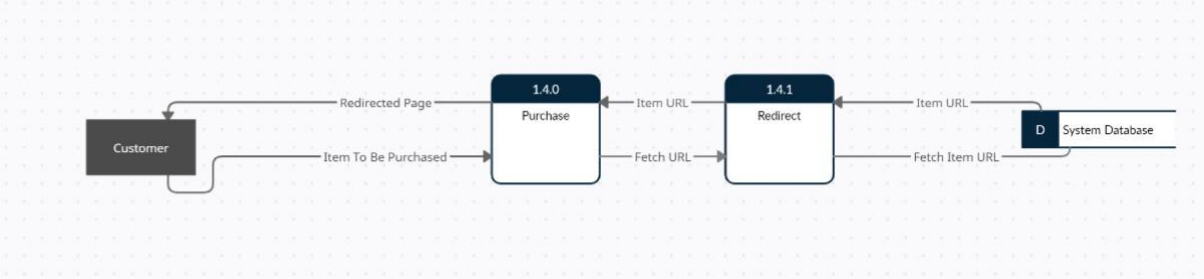
3.2 Change Password



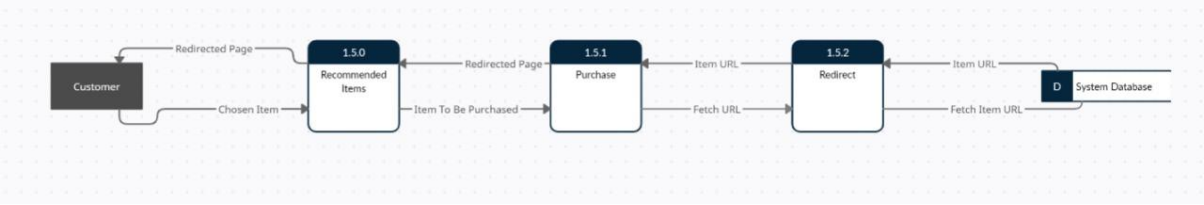
3.3 Edit Profile



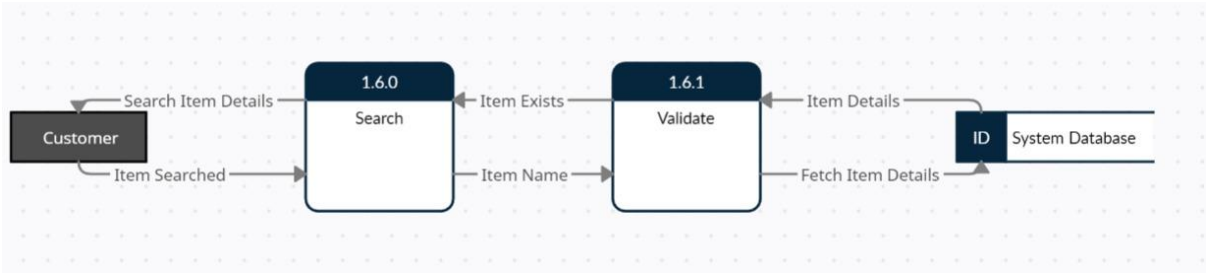
3.4 Purchase



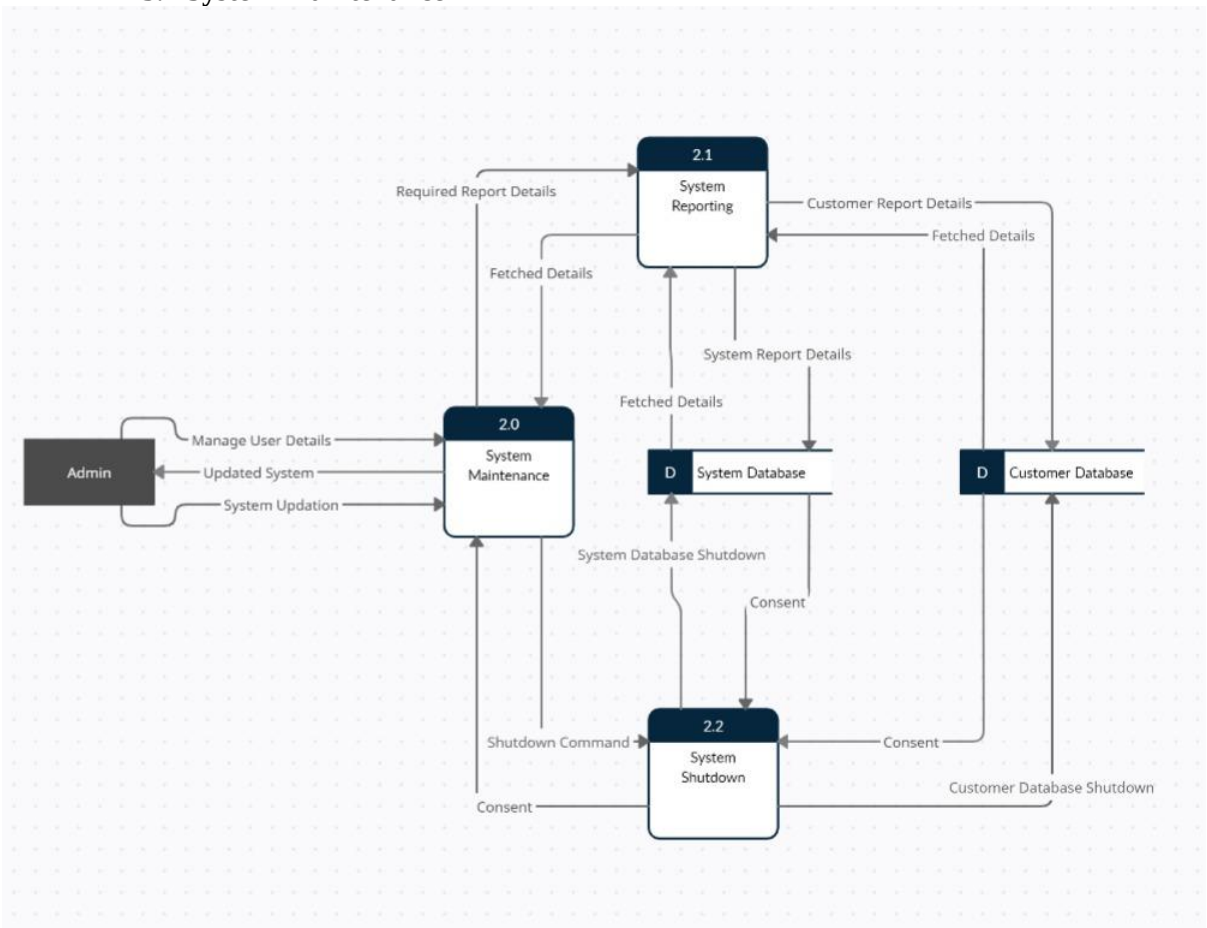
3.5 Recommended Product



3.6 Search



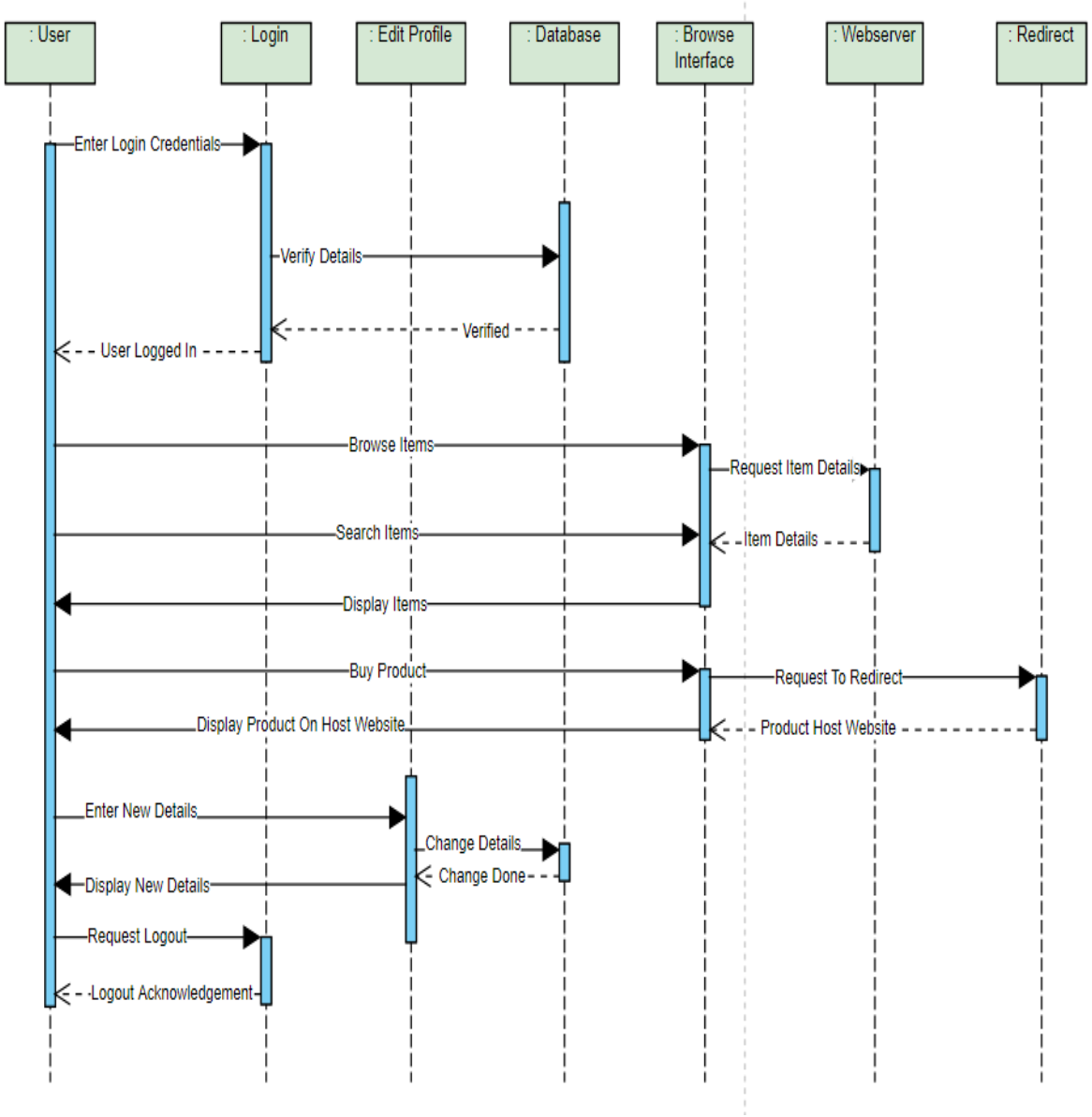
3.7 System Maintenance



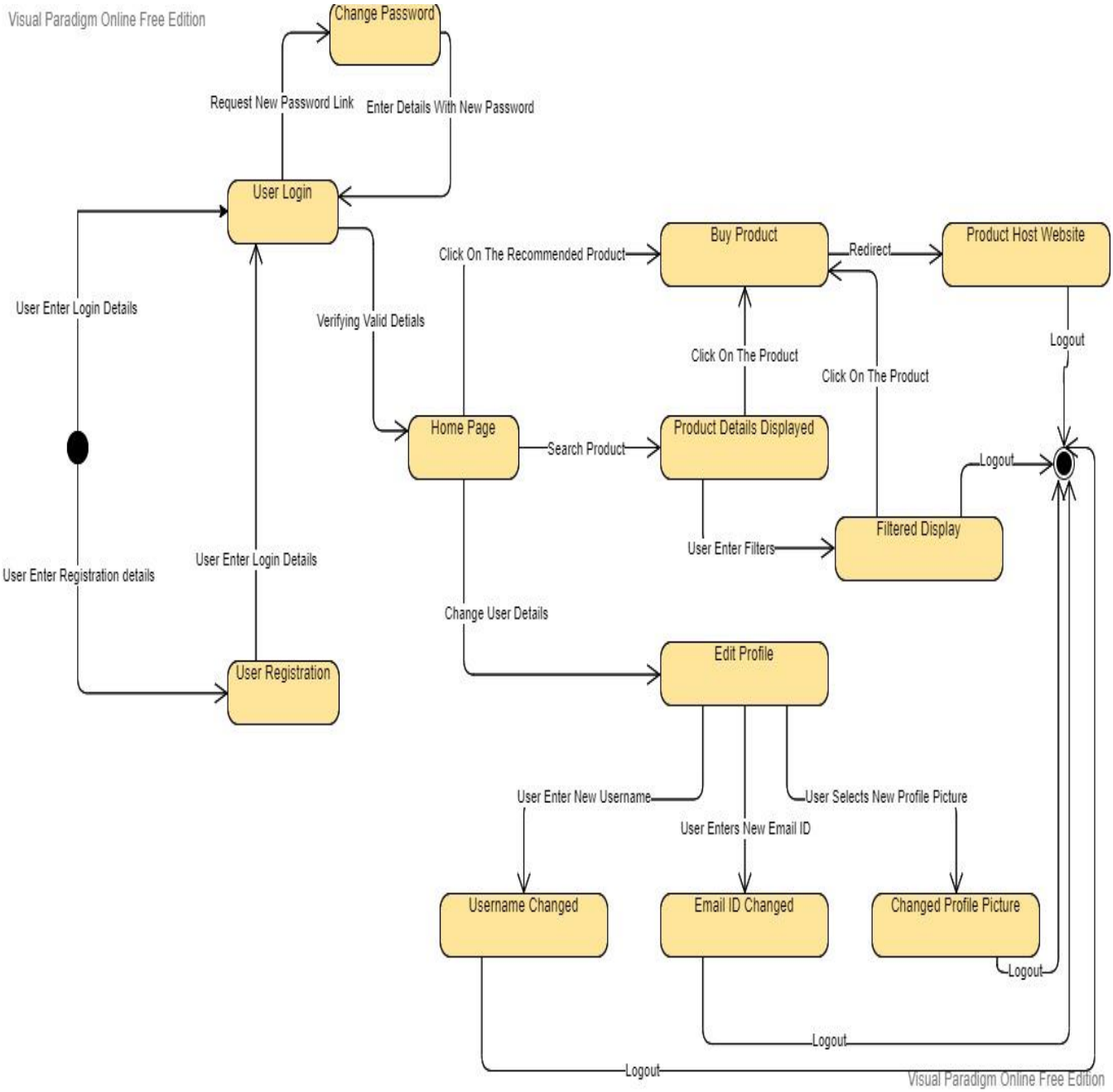
Appendix A.3: Data Dictionary

S.No.	Field Name	Data Type	Description
1.	id	Integer	Primary key of the table.
2.	username	String(25)	Unique and not null username entered by the user.
3.	email	String(120)	Unique email of the user which cannot be null.
4.	image_file	String(64)	Profile image of user with not null property as default image is set if one does not select an image.
5.	password	String(60)	Password for the website which should not be null and should satisfy minimum and secure password constraints.

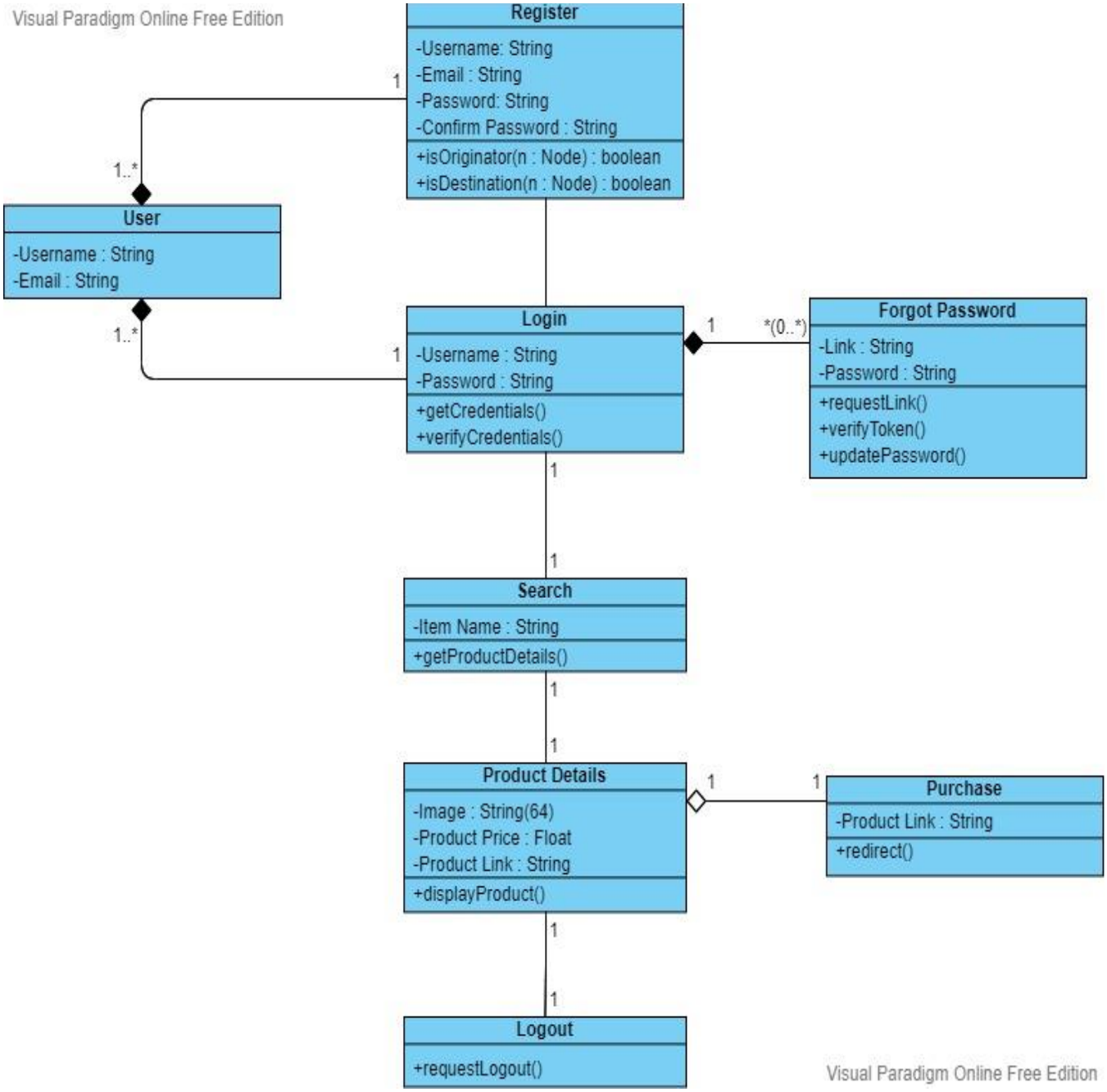
Appendix A.4: Sequence Diagram



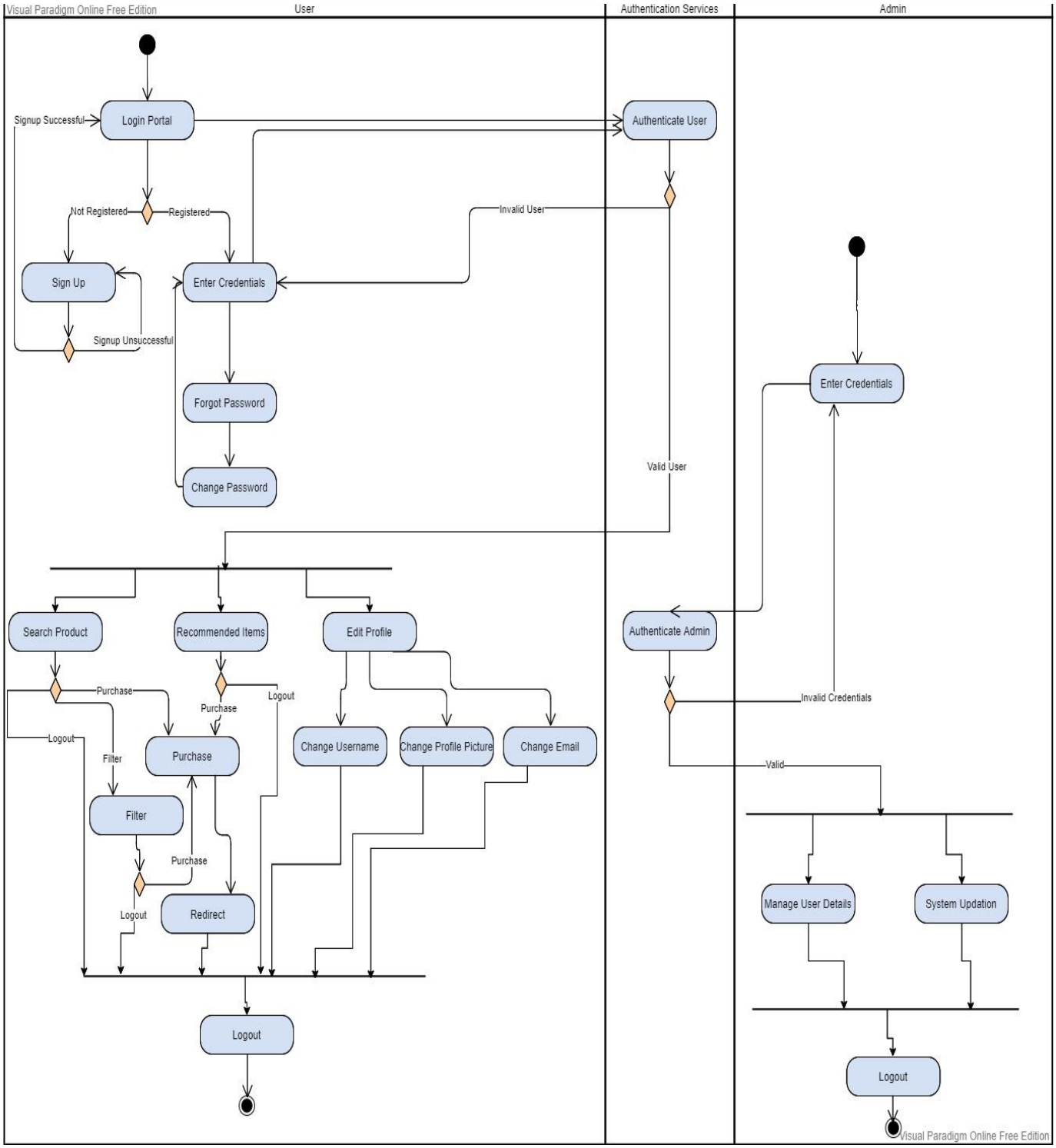
Appendix A.5: State Diagram



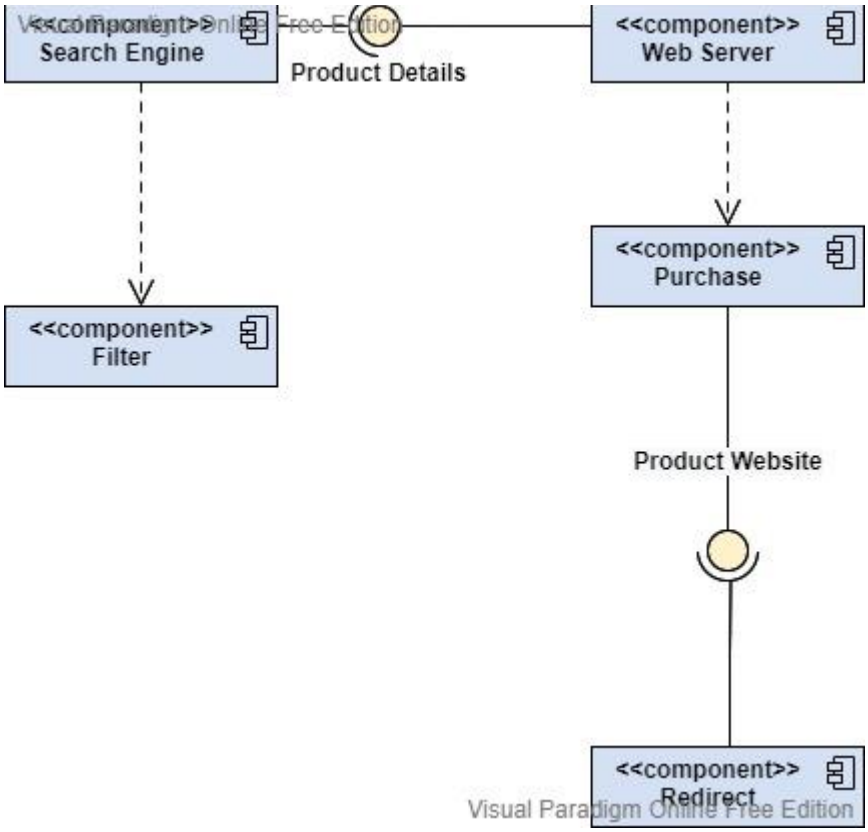
Appendix A.6: Class Diagram



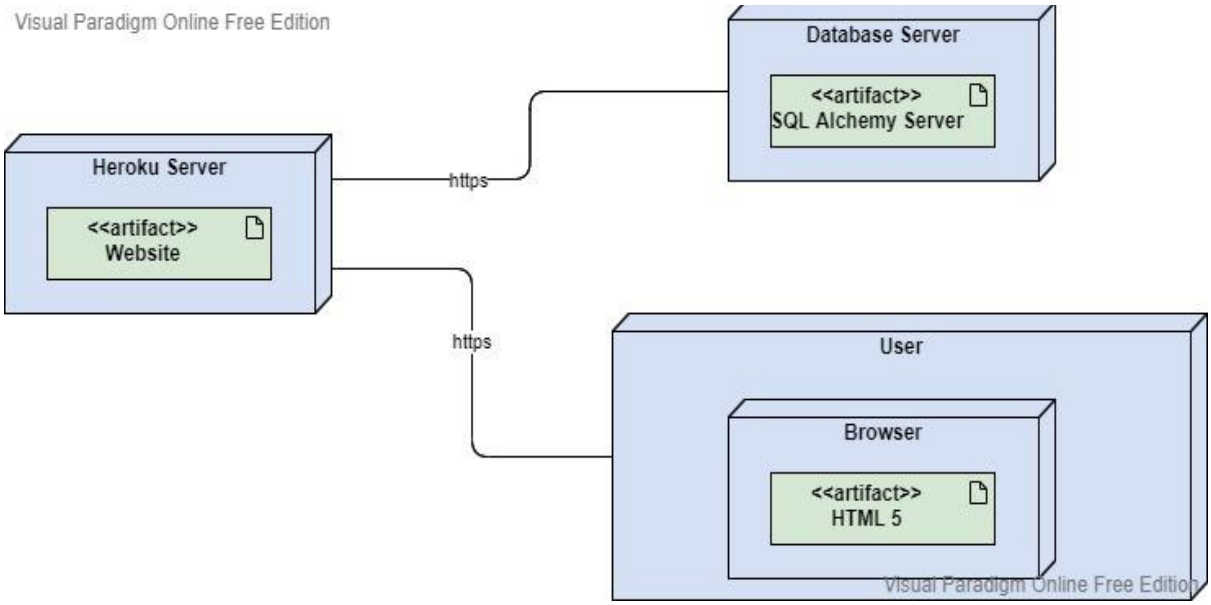
Appendix A.7: Activity Diagram



Appendix A.8: Component Diagram

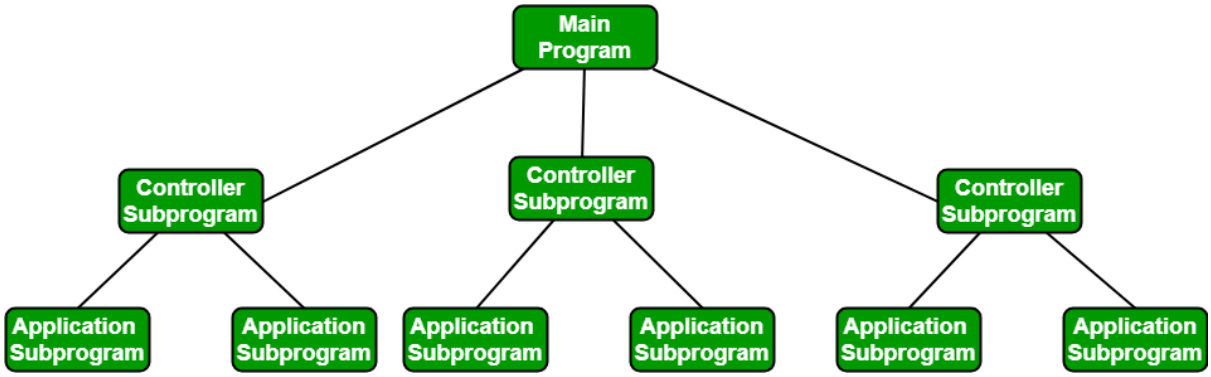


Appendix A.9: Deployment Diagram



Appendix A.10: Architectural Style

Our project depicts the **CALL AND RETURN** Architectural Style:



- This is the simplest as well as the most efficient style used these days. It is used to create a program that is easy to scale and modify.

- **Remote procedure call architecture:**
  Main program architecture distributed among multiple computers on a network depicting live web scrapping. It is done to increase the performance.
  Live scrapping compares real time prices of different websites for the commodities which you searched.

- **Main program or Subprogram architectures:**
  The main program structure decomposes into number of subprograms or function into a control hierarchy. Main program contains number of subprograms that can invoke other components such as login/signup pages or visit site option which redirects the user to the chosen site.

- **Layered architecture:**
  The main UI represents the user interface layer and the inner layer consisting of all the functional requirements.

Appendix B.1: System Testing

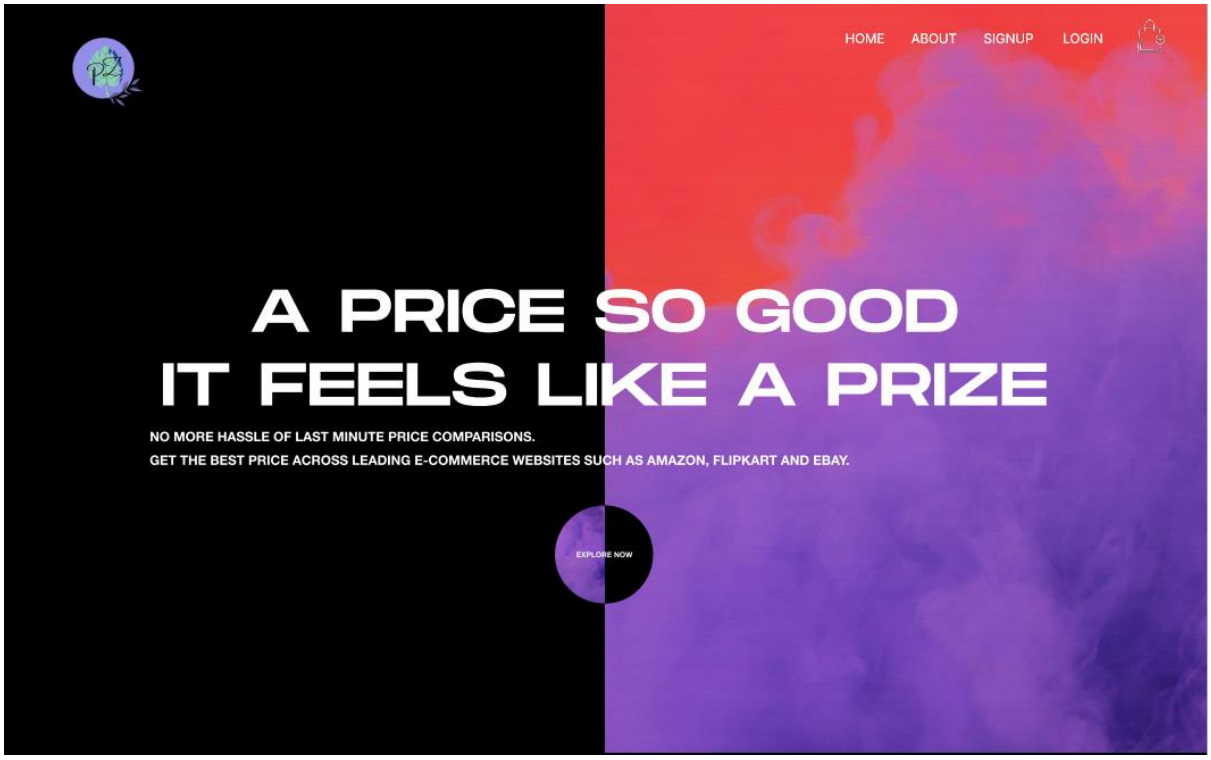
1. Test Case Report

S.NO.	Checkpoint	Status
1.	Open Home Page	Passed
2.	Check Featured Products	Passed
3.	Go To About Us	Passed
4.	Login	Passed
5.	Register	Passed
6.	Price Comparison #1	Passed
7.	Price Comparison #2	Passed
8.	Redirect #1	Passed
9.	Redirect #2	Passed
10.	Edit Profile	Passed

2. Screenshots

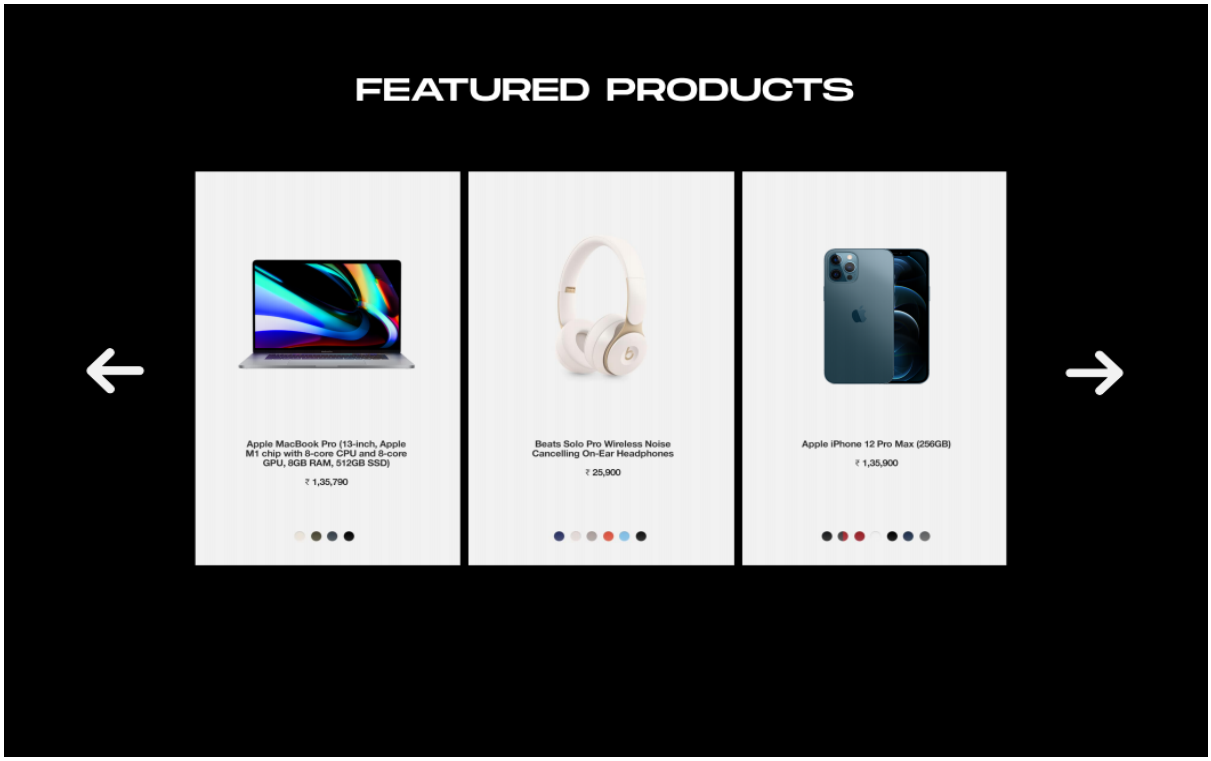
2.1 Home Page

The Home page gives a total glimpse of the website and its purpose. As it states “A price so good it feels like a prize”, it saves you from the last-minute hassle of finding a commodity on different leading e-commerce websites and finds the best price for you.



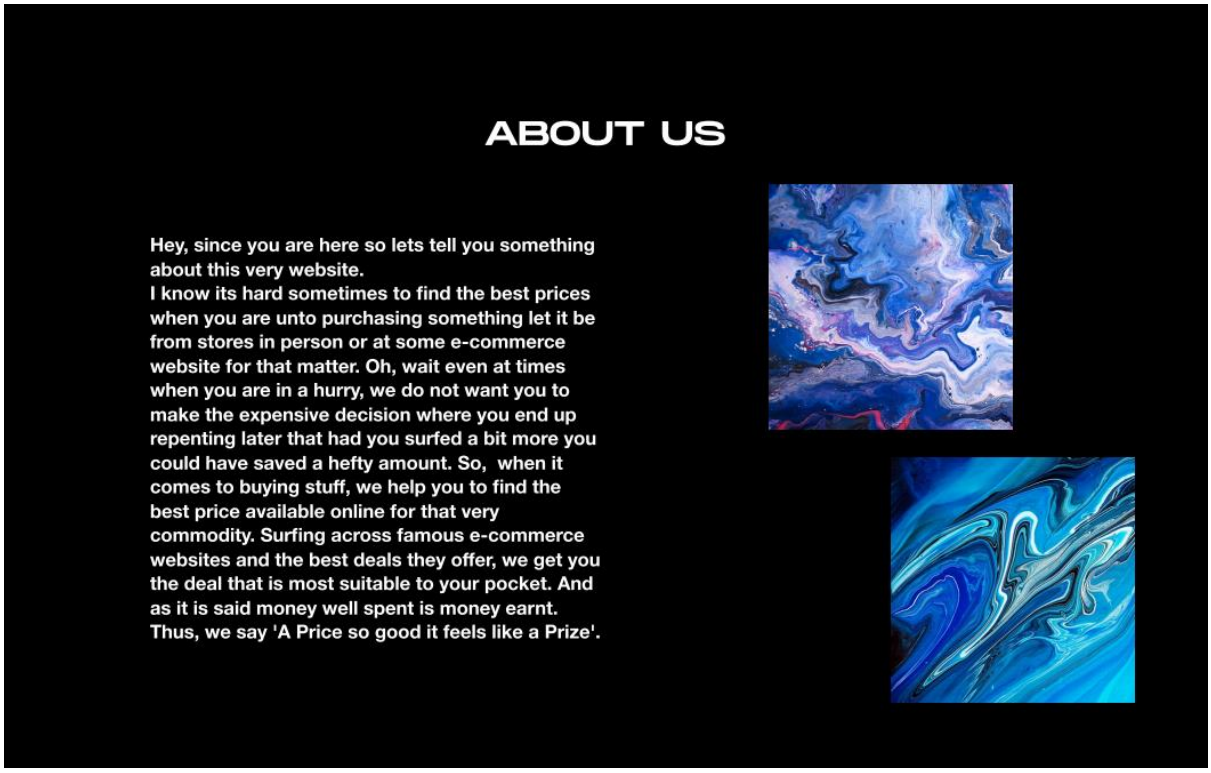
2.2 Featured Product

Featured Product section displays the most selling items on the leading e-commerce websites , as per the viewer's previous search. It also displays the price and redirects you to the site where you can grab the product just within a click. You can also get some products with high ratings and reviews here thus making your shopping reliable.



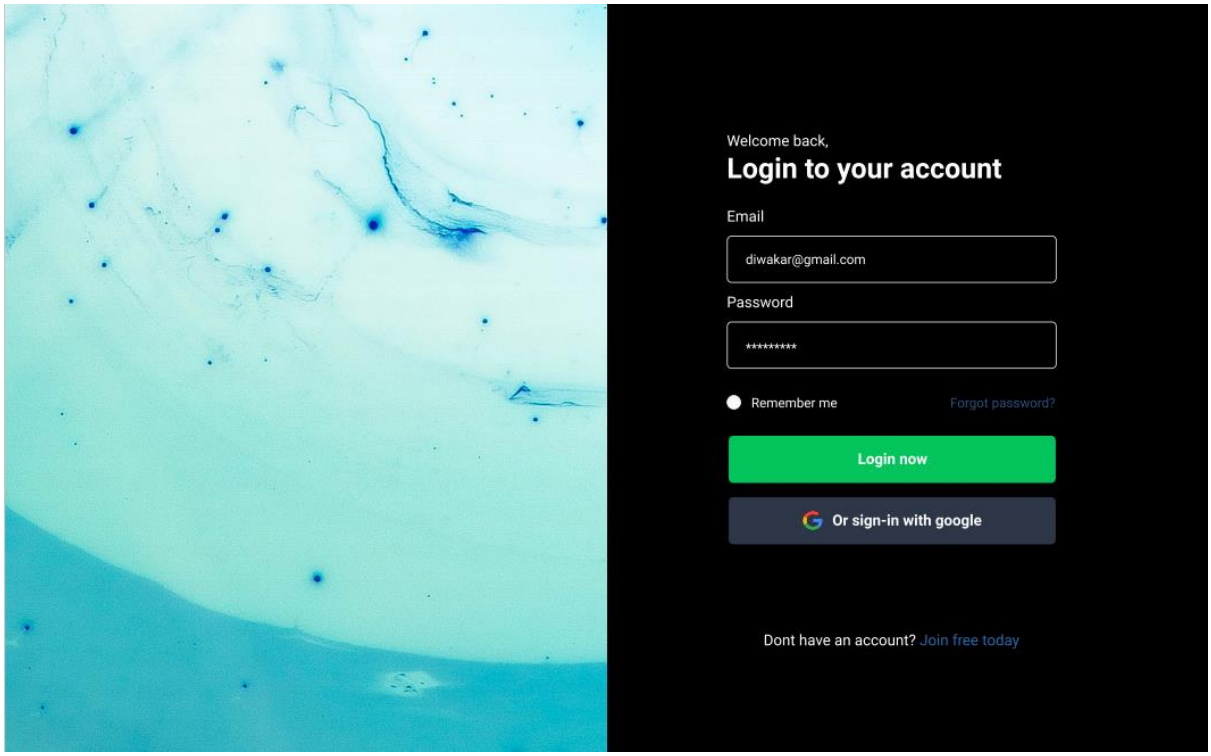
2.3 About Us

This is a brief section where we have introduced to the customers the objective of the website and what all it can do for you. It also throws some light on the ways in which you can navigate through this website and use the price Comparator to get the best price.



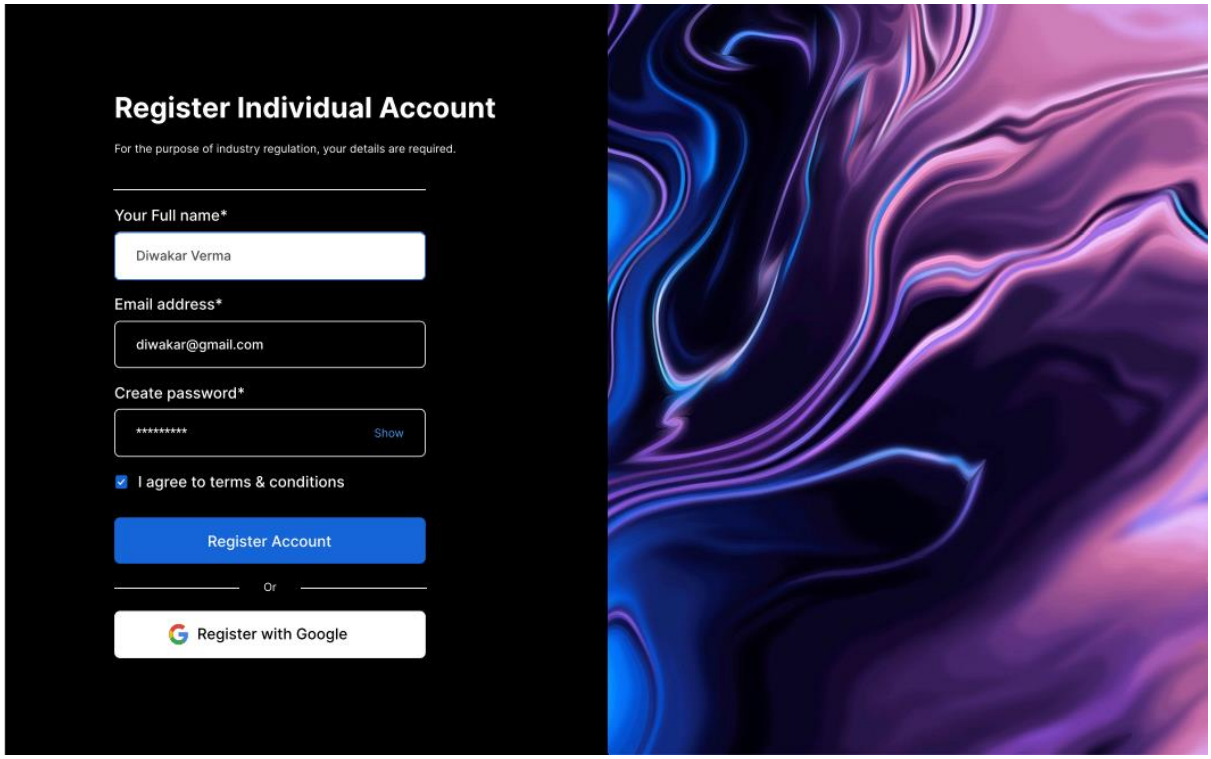
2.4 Login

This is the user authentication system which asks for your basic credentials that you have set earlier on the website i.e. email and Password. For remembering your password on the website, you can click on Remember me . In case you forget the password, you can always click on the forgot password link and reset your password. If you are a new user, you can join and register yourself by clicking on join free today.



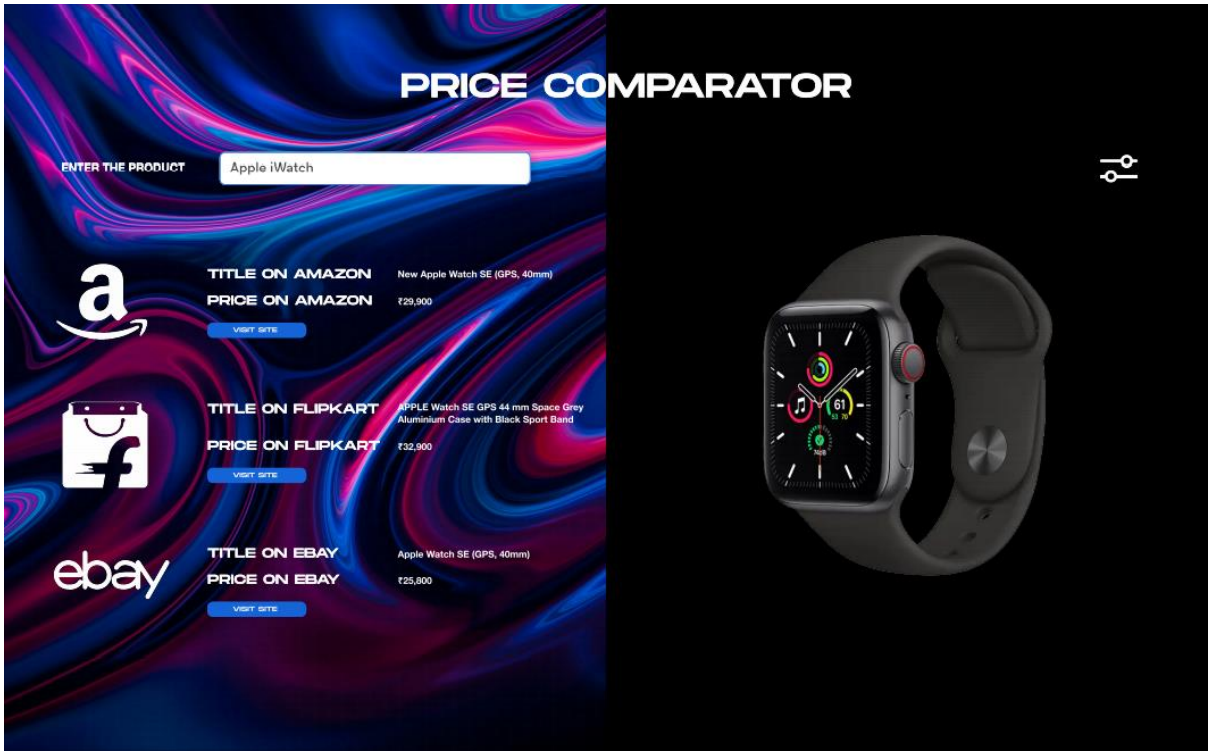
2.5 Register

This is the interface where you can register yourself by entering your Name, Email address, password. After entering the details, you can click on the agree terms and conditions check box and successfully register your account. You can also register even more easily by using your google account.



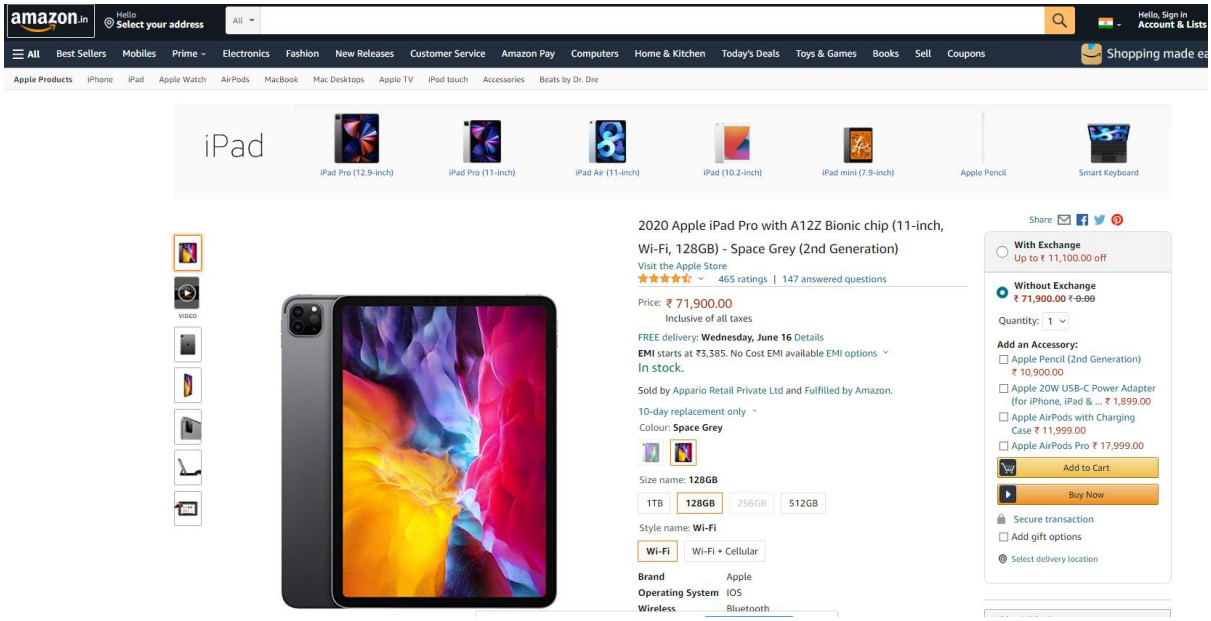
2.6 Price Comparison

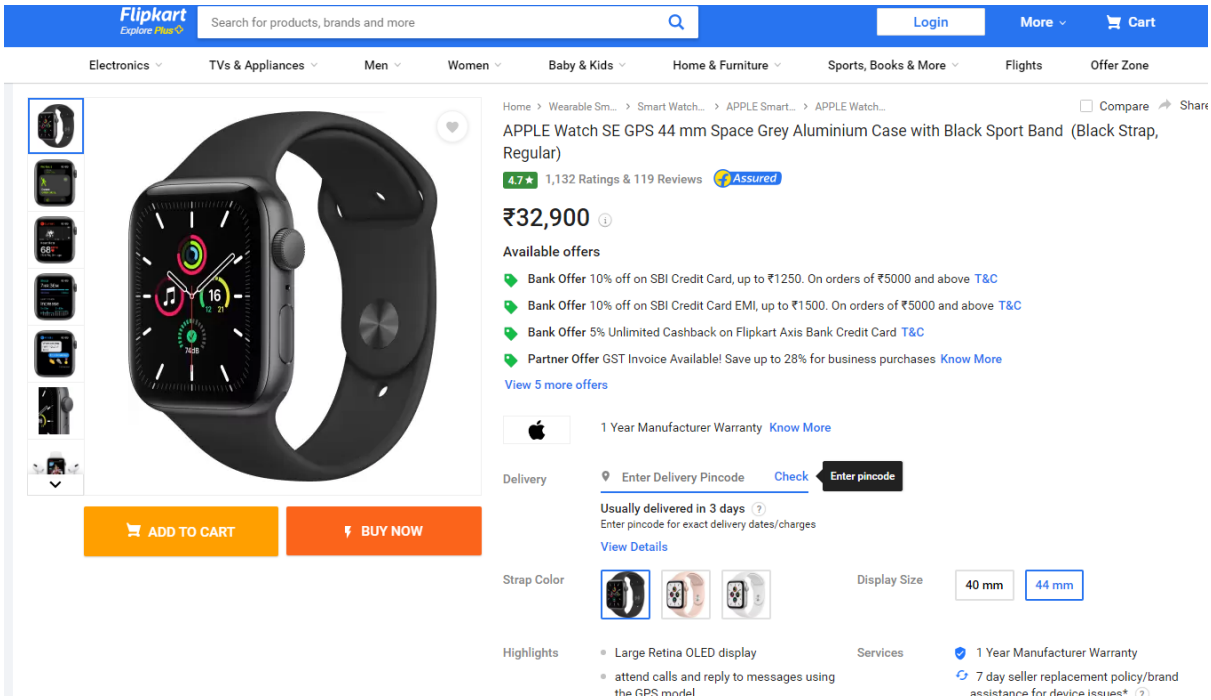
This is the main search area which helps you find the best price for your commodity across three leading e-commerce sites mainly Amazon, Flipkart and eBay. It's very easy to use. You just need to enter the commodity name that you want to search for and it will return the title ,price, images of the product and also will allow you to visit the site by clicking on the visit site link**.**



2.7 Redirect

This helps you to move to the website from which you want to buy the product after comparing on our website. you just need to press the visit site option and go to the desired product's website.





2.8 Edit Profile

This is a functionality available for the users where they can edit their profiles such as their name, password, email, city and their profile picture. This helps in keeping the user's data up to date. The user cannot edit and enter the same email again while all other fields allow that.