

# **Product Review and Recommendation System**

## **Final Project Part 3 - Web App Design**

**Team Name: ADT\_Team\_AAP**

### **Team Members:**

1. Priya Kumari (kumarip@iu.edu)
2. Ayesha Tajammul Ahmed Mulla (amulla@iu.edu)
3. Aazin Asif Shaikh (aazshaik@iu.edu)

### **Summary:**

In the previous phase, we used the amazon.csv file containing our data to create two tables - products and reviews in SQLite using sqlite3 connection in python. In this phase, we are designing our web app. This includes creating a web app architecture, front-end, back-end and server connections. We will be using HTML, CSS and JavaScript for our front-end development and Flask in python to form connections with our backend SQLite database. We intend to allow secure access to our application making use of Flask in-built libraries and functionalities. In conclusion, we will create a web-app allowing basic CRUD operations using HTML, CSS, JavaScript, Flask, Python and SQLite and we intend to use PythonAnywhere to deploy it.

### **Section 1: Web App Architecture:**

#### **Overview:**

Model: For our web application, we are using SQLite as our database for storing data.

View: For our web application, we are using HTML, CSS and Javascript (JS) for creating out front-end view.

Controller: For our web application, we are using Flask for the back-end development and connections. We will also be using Flask for performing the CRUD database operations.

#### **Data Storage:**

For storing our data, we are making use of the SQLite database consisting of two tables – 1. Products and 2. Reviews, which we created in the previous phase of our project making use of the sqlite3 from Python.

#### **Back-end Languages:**

For our back-end, we are making use of Flask which is a popular Python web framework for building web applications and APIs. Flask provides many features and extensions that make it easy to build more complex web applications, including support for templates, database integration, and authentication.

#### **Database Access, Connections and Security:**

Our web application makes use of Flask for handling retrieval, processing, and analysis of data stored in our SQLite database. Any user attempting to access the web app has to first sign up and can subsequently log in to view the data and perform operations.

Based on the user type we will be implementing two views:

1. Admin view: An admin session will be created which will allow the user logged in as an admin to perform creation, deletion, update, search, sort and read the data from and to tables stored in our SQLite database. Admins will also be given the ability to generate visualizations of the data and its attributes and modify them.
2. User view: A user session will be created which will allow the user to perform search, sort and view some of the visualizations of the data.

We will be using Flask-Login which is a popular extension for Flask that provides user session management and authentication features. It allows developers to manage user authentication using various strategies such as local authentication.

### Front-end Languages:

To create the front-end layout of our web application, we will typically be using HTML, CSS, and JavaScript.

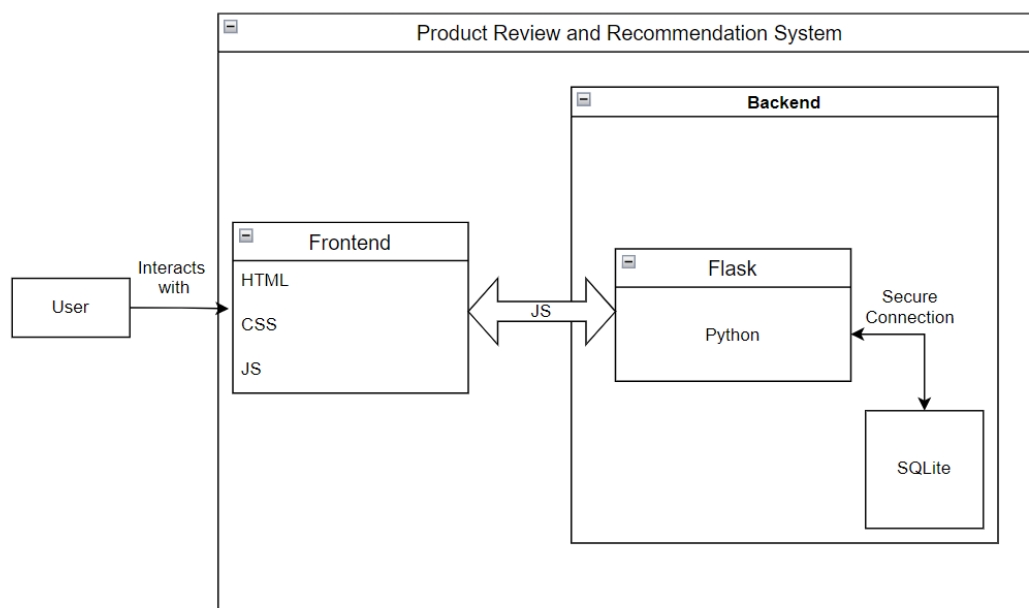
### Application Deployment:

We will be deploying our application using PythonAnywhere. PythonAnywhere is a popular cloud-based platform that allows a user to deploy, run, and manage Python applications and websites in the cloud. It provides a fully-managed environment hence we will be using it for hosting and running our web Python web applications.

### Application Interactivity:

A user has to initially sign up or log in to interact with our data. A user logged in as an admin can perform all CRUD operations and search, sort and filter through the data. A normal user can only perform sorting, filtering and perform comparisons on the data and will not be able to modify it. The visualizations will be available to every user after logging in. The web app will have buttons for all the above operations and interactions will be made via user click.

### Architecture Schema:



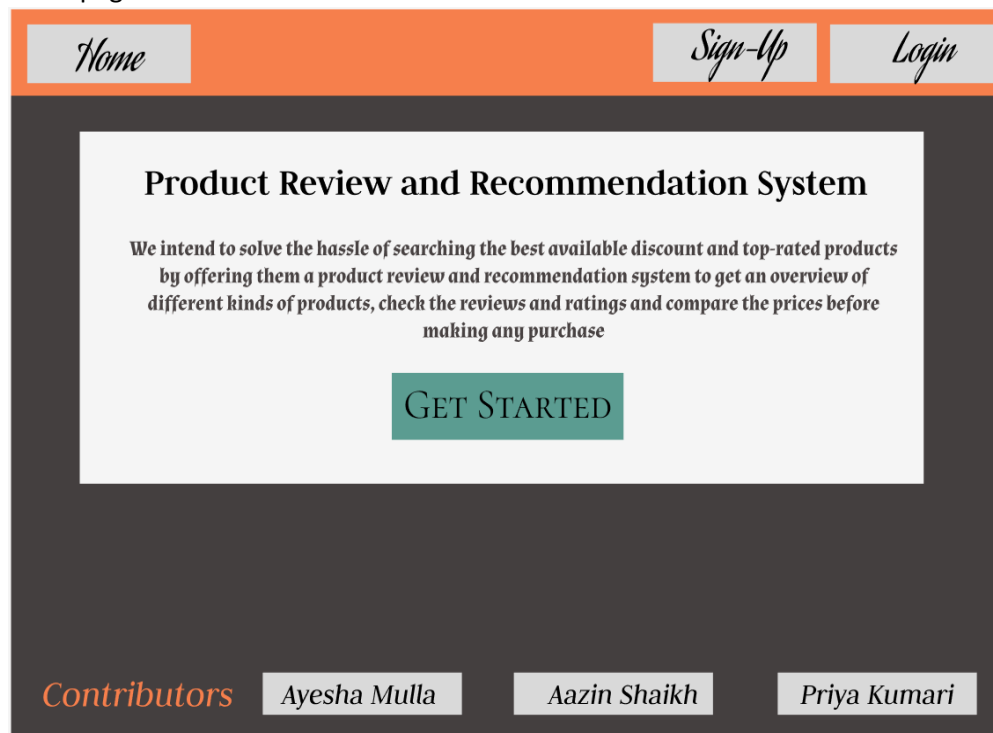
## Section 2. Web App Layout:

We have designed the initial layout of our Web App using Figma. We have created 3 pages with details as below:

1. Home Page: This page will show information about our application, basically talking in brief about what our application does. It will also include the members who developed this application. The top portion of the page will contain the menu bar having 3 buttons:
  - a. Home: User can click this button to return to the Homepage
  - b. Sign-up: First time users can get themselves registered using this button
  - c. Login: Returning users can log in using this button

There is a Get Started button which will allow user to move onto the next page which is our data tables page.

Homepage Screen:



2. Data Page: This page will display our data in the form of a table. This page contains the following buttons:
  - a. Add: This will be enabled only for Admin users to allow addition of new data rows.
  - b. Update: This will be enabled only for Admin users to allow modification in some or all of the attributes of the database.
  - c. Delete: This will be enabled only for Admin users to allow deletion of data from the database.
  - d. Search: This input space will be enabled for all users to allow search capabilities for our data.
  - e. View Plot: This will be enabled for all logged in users to allow some pre-loaded visualizations to be available.

Data page Screen:

## Product Review and Recommendation System

Data



Search

Add

product_id	product_name	discounted_price	actual_price	discount_percentage	rating	rating_count	about_product	category_1	category_2	rating_score	difference_price
B008FXQFU	TP-Link USB WiFi Adapter for PC(TL-WN725N), N1...	499.0	999.0	0.50	4.2	179691.0	USB WiFi Adapter — Speedy wireless transmissi...	Computers & Accessories	Networking Devices	Above Average	500.0
B0B6F7LXAC	MI 80 cm (32 inches) 5A Series HD Ready Smart ...	13999.0	24999.0	0.44	4.2	32840.0	Note : The brands, Mi and Xiaomi, are part of ...	Electronics	Home Theater, TV & Video	Above Average	11000.0
B0B1YVCJ2Y	Acer 80 cm (32 inches) I Series HD Ready Andro...	11499.0	19990.0	0.42	4.3	4703.0	Resolution : HD Ready (1366x768)   Refresh Rat...	Electronics	Home Theater, TV & Video	Above Average	8491.0
B08B42LWKN	OnePlus 80 cm (32 inches) Y Series HD Ready LE...	14999.0	19999.0	0.25	4.2	34899.0	Resolution: HD Ready (1366x768)   Refresh Rate...	Electronics	Home Theater, TV & Video	Above Average	5000.0
B0B3MMYHYW	OnePlus 126 cm (50 inches) Y Series 4K Ultra H...	32999.0	45999.0	0.28	4.2	7298.0	Resolution: 4K Ultra HD (3840x2160)   Bezel-le...	Electronics	Home Theater, TV & Video	Above Average	13000.0
...	...	...	...	...	...	...	...	...	...	...	...
B08L7J3T31	Noir Aqua - 5pcs PP Spun Filter + 1 Spanner   ...	379.0	919.0	0.59	4.0	1090.0	SUPREME QUALITY 90 GRAM 3 LAYER THIK PP SPUN F...	Home & Kitchen	Kitchen & Home Appliances	Above Average	540.0
B01464C334B	Prestige Delight 2000W Electric	3280.0	3045.0	0.75	4.1	6119.0	230 Volts, 400	Home & Kitchen	Kitchen & Home Appliances	Above	765.0

Update Delete

Update Delete

Update Delete

Update Delete

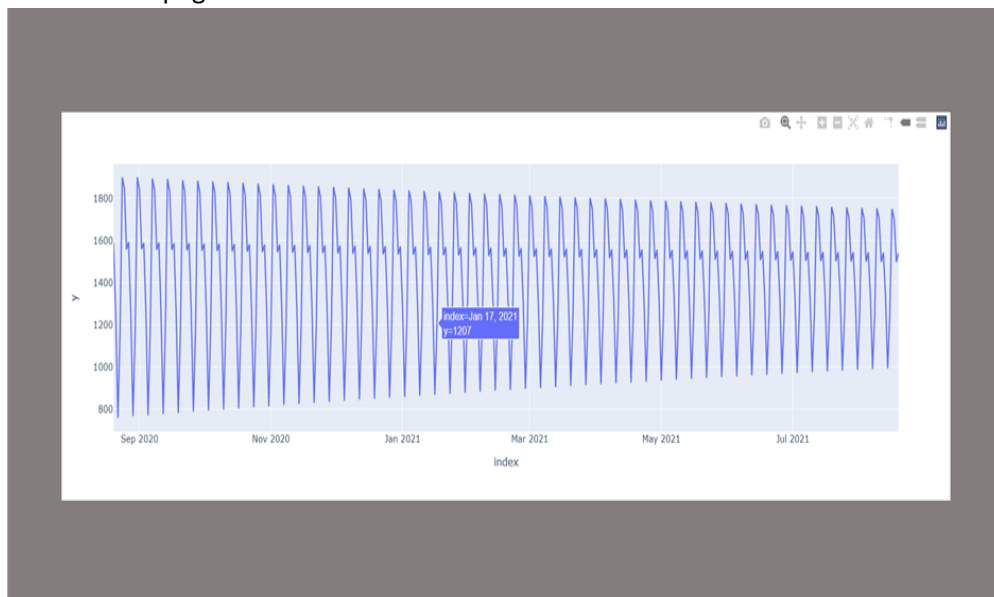
Update Delete

Update Delete

VIEW PLOT

- Visualization Page: This page will display the visualization plots as per our data and load the corresponding graphs. The View Plot button from the previous page lands to this page.

Visualization page screen:



Overall Description:

When the user access our web app, the homepage will be visible. The user will only be able to access the remaining pages post signing up or logging in. Depending on the type of user, whether admin or normal user, the Data page with the corresponding enabled buttons will be loaded. The visualization page will be loaded upon clicking the respective Get Plot button.

The color schema used is mainly black, orange and white as these are the colors of Amazon which is where our dataset entries have been taken from hence we will majorly be using this color scheme.

**References:**

1. <https://flask.palletsprojects.com/en/2.2.x/>
2. <https://www.figma.com/resources/learn-design/>
3. [https://www.youtube.com/watch?v=HZuk6Wkx\\_Eg](https://www.youtube.com/watch?v=HZuk6Wkx_Eg)

### Section 3. Individual and Team Work Assessment:

Name	Personal Assessment
<b>Ayesha Mulla</b>	As part of my assessment, I would like to say that I am very much satisfied with the task completion. I contributed in creating the initial web app layout and partially created the Figma mockups. I also contributed in writing this report. All these tasks were completed on time hence I would assign 9 on a scale of 1- 10 for my personal assessment. Coming to what could be done better, I would say that deciding the web app layout could have been based more on icons rather than text in buttons so that a compact and clear view could be given to users.
<b>Aazin Asif Shaikh</b>	For this phase, I was involved in creating part of the Figma mockups, initial structure of our web application and contributing to Part 1 and Part 2 of this report. I am satisfied with my level of work and number of hours put into this project. However, I feel this project could have been designed in a more advanced way as the layout presented in this document is very basic. It has a lot of future scope to be presented in a better way. On a scale of 1-10, I would assign the tasks and related time spent in this phase to a score of 9.
<b>Priya Kumari</b>	<p>1. Self-rating: I am very satisfied with my task and would rate myself 9 out of 10. Successfully implementing a database model (SQLite) and integrating it with Flask for the backend was a significant accomplishment for me as it required various technical skills and knowledge.</p> <p>2. Time commitment: The task required a significant time commitment. However, I recognized the importance of investing the necessary time to overcome challenges and errors and ensure the successful completion of the task.</p>

	<p>3. Resources and team work: The availability of resources and team members was a valuable aspect of the task. Proper distribution of the task was done and we had regular meetings to discuss and resolve issues. I believe that effective teamwork and collaboration were key factors in the successful completion of the task.</p> <p>4. Area for improvement: I identified an area for improvement in the user interface (UI) of the project. I recognize the potential for enhancements in making the UI more visually appealing and interactive by adding more fancy elements and integrating additional models with drop-down menus.</p>
--	---