Panda Mall

Functional Specifications and Methodology

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1. Introduction

During the COVID-19 pandemic online apparel shopping stores, in Pakistan, have grown exponentially in number. One major challenge for customers is that at any given time there are hundreds of stores to buy from, which makes shopping a tedious task. With advancement in machine learning and data science, an obvious solution is a recommendation system which assist the buyers in decision similar to how Netflix [2] provides a recommendation system for its subscribers to choose the best movies.

The goal of this project is to develop an automated system that can scrape and collect data on clothing products, then optimize and analyze it using Artificial Intelligence and Data Science to make recommendations based on user preferences and purchase history.

Our primary focus will be on gathering data by registration or automatic scraping, processing the data, and displaying the recommendations in a user-friendly online interface.

We will also keep track of each user's previous purchases in order to improve over time.

1.1 Purpose of this Document

This document's goal is to provide a comprehensive overview of the project. The paper will serve as a guide for the development team in terms of what should be executed. This would also clarify all of the project's functional and non-functional requirements. The document would contain a thorough description of the use cases as well as the system architecture. In addition, some insight into how the system would look in its final form. The database specifies what information must be stored in order to operate the system. This article also includes information on the hardware and software requirements.

1.2 Intended Audience

The intended audience of Panda Mall are the clothing brand owners and online shoppers of clothing products. The aim is to facilitate both shoppers and brands to get the experience of a shopping mall online.

1.3 Definitions, Acronyms, and Abbreviations

Panda Mall: Name of the product

Product: A fashion product for sale from a specific brand

Store: A seller registered on Panda Mall to sell products

Filters: A parameter to narrow down choices of products

2. General Description

2.1 User Characteristics

The End Users are classified into two groups namely the Administrator and Vendor/Store owners. The General Users will be publicly everyone. The Administrator will approve/reject products and can edit the products as well. The Store owner will register themselves to our website first. Then they will be able to add, update, view and remove products. The General Users can register themselves by creating a new account. They can buy products on the profile-based recommendations and also by using specific filters provided. They can also maintain their profile and manage brands in their favorites section.

2.2 Domain Overview

Panda Mall aims to ease the tedious task of web surfing and scrolling social media pages just to find the right product for purchase. Studies [1] show that this problem of "choice-overload" can be "detrimental" and lead to indecision, unsatisfactory experience.

Panda Mall website will be Artificially Intelligent (AI) based which uses a content-based Recommendation System (RS) model to filter out a manageable few best option to buy from, for a customer, based on their preferences, purchase history and feedback. Data about brands and products will be obtained from:

i. Websites of brands directly.
ii. Registration at Panda Mall.

The results obtained from the model will be presented in a simplified web interface along with all the necessary information for customers to make a buying decision with ease

3. Functionality

3.1 Functional Requirements

3.1.1 Functional requirements for Users

- System will allow user to login by authenticating user login credentials.
- System will allow user to create a new account by providing required information.
- System will allow user to reset password via email.
- System will allow user to logout.
- System will allow user to edit profile.
- System will display clothing products based on user's profile.
- System will allow user to filter out products based on Type.
- System will allow user to filter out products based on Sizes.
- System will allow user to filter out products based on Colors.
- System will allow user to filter out products based on Waists.
- System will allow user to filter out products based on Price Range.
- System will allow user to filter out products based on Discount factor.
- System will allow user to filter out products based on Brands.
- System will allow user to view selected product details.
- System will allow user to buy product by redirecting to respected page.
- System will allow user to add products to favorites.
- System will allow user to give feedback on the product bought.

3.1.2 Functional requirements for Administrators

- Administrators can approve/reject products.
- Administrators can update products.
- Administrators can view products.

3.1.3 Functional requirements for Stores

- Stores can add products.
- Stores can update products.

- Stores can view products.
- Stores can remove products.

3.2 Non-Functional Requirements

3.2.1 Availability

System will be available for the users for at-least 160 hours a week.

3.2.2 Usability

System will have an intuitive design.

- Our system interface will be easy to learn and user interactive. A rookie will require at-most 5 seconds to learn the interface.

3.2.3 Reliability

System will show the result of the desired filter within 3 seconds.

3.2.4 Scalability

System will ensure there will be no significant performance degrade for at-most 100 users.

3.2.5 Data Integrity

System will ensure user's personal data is not tempered by unauthorized source.

3.2.6 Performance

- All data views are paginated to allow limited and required information to prevent long load times.

3.3 Assumptions

- Users should have basic knowledge of using computer and web browsers.
- Reliable internet connection should be available for the user.

4. System Requirements

4.1 Hardware Requirements

- A IOT device that supports a browser.
- Internet connection should have at least 1Mbps.
- A web server to host our website.

4.2 Software Requirements

- Web browser in the system.

5. References

[1] Reutskaja, E., Lindner, A., Nagel, R. et al. “Choice overload reduces neural signatures of choice set value in dorsal striatum and anterior cingulate cortex.” *Nature Human Behavior*, vol 2, no. 925–935, Oct, 2018. [Online serial]. Available: https://doi.org/10.1038/s41562-018-0440-2 [Accessed Sept. 30, 2021]

[2] David Chong, “Deep Dive into Netflix’s Recommender System”, *towardsdatascience.com*, Apr. 30, 2020. [Online]. Available: https://towardsdatascience.com/deep-dive-into-netflixs-recommender-system-341806ae3b48 [Accessed Nov. 2, 2021].