

COMP3900 Project Proposal

UNSW



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Background

Online shopping on E-commerce platforms is changing the way consumers purchase products and became the most popular activity over the internet these years, which includes retail sales direct to consumers via web sites or mobile apps. It also increases the flexibility and accessibility of traditional marketing methods and also provides consumers a platform to select goods in their own time. With technology growth and ubiquitous internet connection, normal retailing method exposes some defects such as the need for physical stores and the fixed cost such as the store rent of retailing industry. Besides, e-commerce platforms allow businesses to expand their customer base and provide consumers with more optimal recommended products. Since online shopping is prevalent over the retailing market, it is crucial for retailers and developers to ensure consumers with their shopping experience. Moreover, as the drawbacks we found on existing e-commerce platform like Ebay and Amazon, the intuitive feeling of products cannot be received by consumers since most characteristics of goods could not been shown on one single picture and description, as well as the rough auto-respond support staff which is often disappointed, we need an e-commerce platform which includes better recommendation system, an intelligent chatbot which can help customers out with questions and suggestions, a sufficient and clear user interface so that the functionalities are easy enough to start with.

The existing issues of the user & some Improvement for our system

Through our discussion, we went through a lot of existing e-commerce websites (Amazon, TAOBAO, eBay, JINGDONG, etc.). We focus on the user experience of these websites in order to find the common part of them as well as the existing problem of these websites. We conclude 3 key improvements which may be helpful and we need to put them into our project (more detail is in the user story part), and we also have some limitations which are hard to achieve, we will also talk about in the scope later.

Multiple and accurate recommended products.

In the existing e-commerce website, the developer not only focuses on the product itself but also has some optimize function, and the main part is the recommendation system. It can be seen in all the websites, when you buy some product, the website will automatically recommend some similar product to you. But for these websites, they only recommend some similar product to your previous purchasing product, sometimes, when a user buys a lot of pens in a short time (he may have an exam this week), the website will always recommend the same thing to him, but this is not

accurate. And the user does not have power to stop the website recommending these products to him.

a good recommendation system can judge what kind of product is your favorite thing according to your purchase history. So in our website, we will focus more on a good recommendation system, and let the user have power to decide whether he/she wants this recommendation.

Stable and useful database.

When the user purchases some product on the website, they always want to review what they purchased before, sometimes they even want to check the purchase history for last year, or even last two year. For the current e-commerce website, most of them just store the history of the user for half a year, but this is not long enough. Some websites may only let the user review the product by item name.

This is not enough for the user, so for our system, we not only create a stable database for user to review, but also have some helpful function for the user, for example, user can calculate how much they pay for a time period, or they can directly search the name of the product to check whether they bought this product before

An intelligent chatbot

Sometimes when the user wants to ask some questions about a product, it will be great if the admin answers them quickly. The user goes through a lot of products on the e-commerce website per day, so if you cannot answer them quickly, they may go to another shop to buy. But no one can guarantee that the admin can answer them as soon as they ask, so it is very helpful if a chatbot replaces you to answer some easy questions. For the existing website, some of them may have this kind of chatbot, but the user experience shows that a lot of users never use this kind of thing since the chatbot is useless. So, for our website, we will make the chatbot more flexible, and answer the user accurately. we will let the chatbot answer the user more carefully, for example if the user asks a cloth, the chatbot will keep asking the user, what kind of cloth, the size of that, the color of the cloth etc. and this will make the chatbot more accurate.

Aim

For this project, we will create a website which is like the existing e-commerce website like Amazon, eBay etc. we will focus on completing some good features which are already in the existing website and improving some key functions like recommendation and chatbot to make our website better.

Our final deliverable is a recommendation system, and it will have following function:

- the essential function of all the e-commerce website:
 1. show the detail of each product to the users.
 2. the advertising part for the website to earn money.
 3. a platform for the users to chat to the admin.
 - 4 .Users can pay the product online on the website.
- we will also complete the three key function which we talk before
- the final system will work like a normal e-commerce website

Scope

There are several scopes for our project due to some time limits and technique limits. The project almost meets the basic requirements of the project specification. Here are those scopes followed.

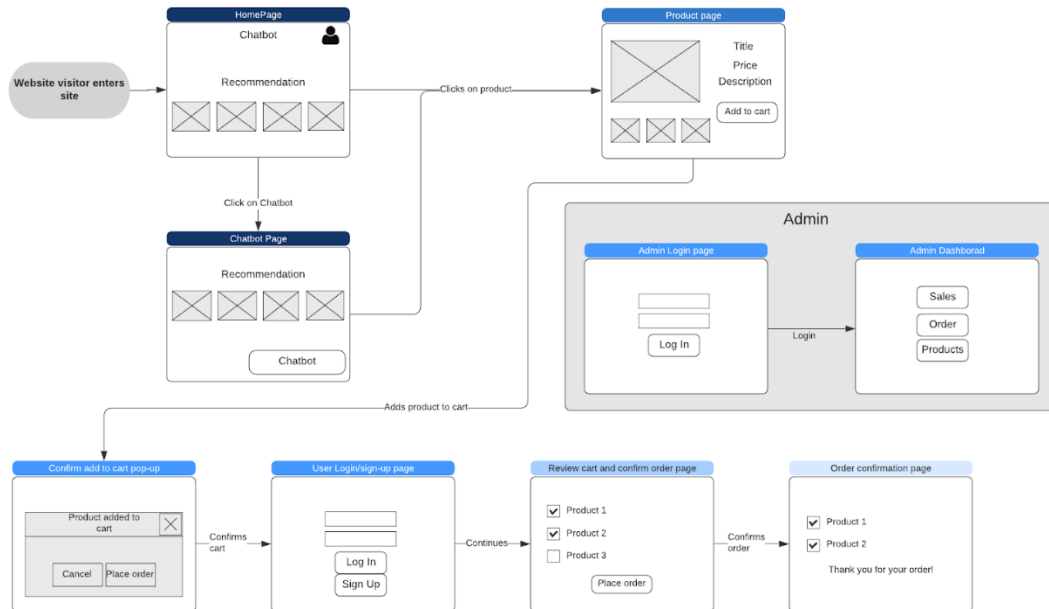
- According to the plan, this project should have internet functionality however due the technique limit we cannot achieve the connection between users.
- The real payment system is not available because we do not have the security technique.
- Due to the privacy legislation issues we might need some personal information to create an account and store that into our database.

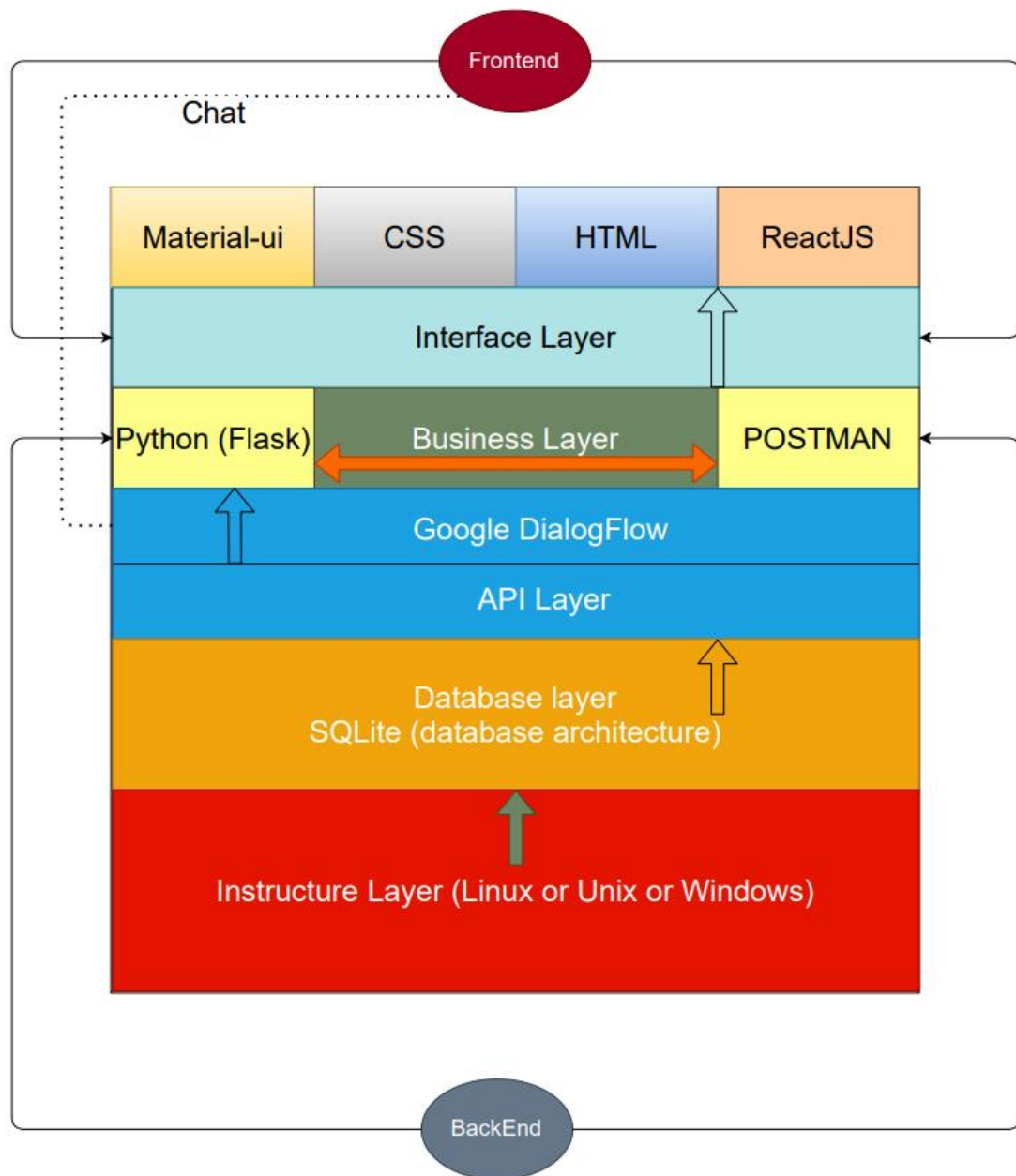
The improvement for the scopes, if we can extend time limits then there is some advanced functionality that can be modified to our project.

- The recommendation system can be more accurate and more effective since we will give the recommending part more training data to test it.
- The thread system could be added into the system so that the user can view the web page and contact with the chat bot.
- The chat bot only supports certain enquiries; we can add the voice input choice to the chat bot as well.
- Databases can change the old structure to a more effective infrastructure.

Technical Design

E-commerce website flow example





Epics & Functionality

Authentic

1. Account register

As a user, I want to be able to register an account in the shopping system so that I can buy products online at any time.

- The registration details should include username and password.
- Each user should be assigned with a user_id automatically with register sequence.
- U_id is unique and cannot be empty.
- Users can only register with one email once; duplicate email is not allowed.

2. User login/logout

As a user, I want to be able to log in and log out my account at any time so that I can see the recommended products I want and buy them.

- login to his account.
- If the username is invalid, the registration steps should be suggested for users.
- The passwordpasswords of the userusers can be changed and are stored in the database.
- After successfully login, users wouldshould see the dashboard which shows the recommended products generated by the system on the homepage.

3. Admin login/logout

As an admin, I want to be able to login/logout to my account so that I could view products, add products, edit products, and view sales.

- Admin needs username and password to login to his account.
- The admin login page is separated from the user login page.
- The usernames and passwords of admins are stored in the database.
- After successfully login, the website will be directed to the dashboard where admin can view products, add products, edit products, and view sales.
- If the admin clicks the logout button, the admin will exit the system.

4. anonymous user

As an anonymous user, I want to be able to view the products before login

- anonymous users can view the information of products
- If the anonymous user want to buy the product, he will be directed to the login page

Consumer purchase

1. Add product to Cart

As a user, I want to be able to add products to cart, so that I can purchase goods with more convenience.

- Users can add the same product to the cart.
- Users can see the details of all the products in the cart at any time.
- if a product is sold out, users cannot add the product into cart.
- Users can delete any product in the cart if he/she no longer wants that product.
- the product in the cart is ordered by the adding time.
- Users can add/reduce the quantity of products in cart.

Chatbot

As a user, I want to contact chatbot when I have some basic questions, so that I could shop online efficiently.

- The Contact process does not need to be connected to the internet.
- Depending on questions, the chatbot should not provide users more than three choices.

Basic Recommendation

As a user, I want to view the recommended products of what I am interested in, so that I can compare them and have more optional products.

- Recommendation cannot be empty in-home screen.
- Recommendation only includes the product in this system.
- Recommendation is based on the user's preference and browser history.
- Recommendation cannot be edited or changed by manually.
- If the detail of one recommended product has been seen by the user or added to cart, there should be more recommended similar products for this user.

Sales

1. Add product

As an admin, I want to be able to add products so that I could show and sell the latest product to the customers.

- Every product has a unique id.
- The name of the product cannot be empty.
- The price of product cannot be empty
- The price of the product should not be negative.
- The cost price of the product should not be negative.
- The discount price can show up if the discount price has the value.
- The picture of the product cannot be empty.

- when the inventory equals 0, the product's price should automatically change into "sold out" and cannot be sold at this time.
- Product tag can be added/removed onto products optionally.
- When I add the product successfully, I can see the inventory, picture, price and description.
- The Product only has two status (active and hide)

2. Delete Product

As the admin, I want to delete my product so that I could remove unavailable products in the system.

- The deleted product should not appear on the admin list.
- After deletion all attributes of the deleted product should be erased.
- If the product is deleted, the information cannot be recovered.
- If the product is deleted, it is unable to show up for consumers.
- If the product is deleted, its id is unable to be re-used.

Edit Product

As an admin, I want to be able to edit products and view its details so that I could update the latest information of the product to customers.

- The name of the product cannot be empty.
- The price of the product cannot be empty.
- The cost price of the product should not be negative.
- The discount price can show up if the discount price has the value.
- The price of the product should not be negative.
- The picture of the product cannot be empty.
- when the inventory equals 0, the product's price should automatically change into "sold out" and cannot be sold at this time.
- Product tag can be added/removed onto products optionally.
- The Product only has two status (active and hide)

Order information

1. Order detail

As a user, I want to be able to see the product details such as the materials, size, the product's purposes, and applications so that I can choose products with my requirements.

- Users can see the detailed information of the particular products on the recommender site.
- information of the products should include date of production, size, materials, purposes, utility, warranty, and other features.
- Users should also be able to see the comments from other customers so that they can get a more straightforward feedback.

2. Transport time

As a user, I want to select the method of delivery, so that I can receive the product earlier.

- The user can only choose one of the delivery methods for the product.
- Different methods of delivery should have different prices.
- Transporting methods should only have three options: Extra fast, fast and normal.

3. Check Order

As a user, I want to be able to see the details of the order so that I can see what I bought before and check the purchase method and price.

- the system must store all the payment details of the user.
- the user can see all the details of the order (consumer name, consumer address, telephone of consumer and product details).
- the user can delete the record of the order.
- the user can calculate the total income or loss during a time period of the order.
- the user can see the status (ship, not ship, shipment progress, received, already paid) of every order

Review

1. View Sales

As an admin, I want to see sales data of the products so that I can manage orders of my shop and know the profit of my shop.

- The sales data should store the data permanently into the database.
- The sales data should include consumer name, consumer address, telephone of consumer and product details in every order.
- the sales data can calculate the total income or loss during a time period.
- Transaction fee should be notified to the customer and admin as well the admin can see the status (paid, refunded, fulfilled and unfulfilled) of every order.

2. Payment detail

As a user, I want to be able to see the payment details so that I can check the details of each previous order, and also calculate my outcome.

- the system must store all the payment details of the user.
- Users can see all the details of each payment (date, price, product, mode of payment, etc.)
- Users can choose to order the payment by time or by the amount of money.
- users have power to delete the record of the payment.
- If something is wrong with the payment, the user can use the related link to contact the seller.

3. Recover Cart

As a user, I want to see the product in cart, so that the cart will recover if I come back the website

- If the consumer does not add any products, the cart is empty
- If the consumer add to cart, the cart will storage into cache

Processing

Meeting

Since the whole course is delivered online, we cannot make meetings in person, so that we do online stand-up meetings at any time available.

- Wechat online meeting on Monday and Thursday from 6pm to 8 pm.
- Daily online communication Scrum for 15-minutes every day.

Sprints

The Scrum agile methodology will be followed when developing the project, we will set up a Sprint Backlog to organize the tasks and define the work.

Since we should finish the project in 7 weeks from Monday, 8th March to Thursday, 22nd April.

- Sprint 1: 8 March 2021- 18 March 2021(week 5 Thursday)
- Sprint 2: 19 March 2021 – 2 April 2021(week 8 Thursday)
- Sprint 3: 3 April 2021 – 22 April 2021(week 10 Thursday)

Timetable

Sprint 1 Authentication, Admin functionalities.

Sprint 2 Recommendation system algorithm. Consumer Shopping functionalities.

Sprint 3 Chatbot and final report.

Tool

Languages: Python(for backend), javascript, ReactJS(for frontend), html, css.

Strengths: communication, design, organization, demonstration, project management and retrospection

Experience: user interface design, Big-Data recommendation system, web development.