CmpE 352/451 Project Description

E-Commerce Platform

Spring/Fall 2020

This project aims to create an e-commerce platform for people who wish to buy or sell products online.

The platform will support various interactions, including but not limited to: searching for products, filtering/sorting searched products, commenting on products, rating the products, discovering categories (e.g., electronic, home), direct messaging with the vendors, adding products to their lists or carts. Note that the same product can be sold by different vendors. If that is the case, product data (e.g., product page, comments, and ratings) should be distinguished.

While some of the functionalities of the e-commerce platform should be available only for those who wish to sell their products, another set of functionalities should be available for the users wishing to buy products. Additionally, there should be a set of functionalities that is common for both parties.

In that sense, there will be two main types of users: vendor (i.e., seller) and customer (i.e., buyer). Both users must sign up via providing necessary information for their user type (using Google account to retrieve necessary information for signing up/in is a plus). Vendor users are additionally expected to specify the location of their store through Google Maps. To fulfill the registration process, e-mail address of the user should be verified. The platform also allows guests to search for products, view the price of products, and read user comments about products. In addition to the vendor, customer, and guest users, there will also be admins in the platform.

The platform will support searching for products and vendors. Searching process should consider all the information available in product pages and vendor profiles. The application should also allow semantic search, which is used for finding semantically similar products and vendors based on the context information. For example, semantic search can be used to retrieve vendors, who sell similar products. Moreover, the application should support filtering and sorting functionalities. As an example of filtering functionality, customers should be able to filter products based on several properties, including but not limited to: average customer review, brand, vendor, and price range. As an example of sorting functionality, customers should be able to sort products based on several properties, including but not limited to bestsellers, newest arrivals, price, average customer review, number of comments, and rating.

Customer users will be able to create, name, edit, and delete lists. Within each list, customers can add the products that they would like to keep an eye on. Lists should be private for each user.

Customers will also be able to follow their orders via the orders page. Within the order page, customers can see their active (currently not delivered) orders as well as the delivered (i.e., completed) ones with the sufficient information about the orders (e.g., order date, product price, cargo information, delivery date). Customers can also cancel their active orders and return the delivered ones in order page. Considering the canceled and returned orders, customers should be able to see the total amount of money they spent on the platform.

Vendor users should be able to follow all processes about their ordered products as the customers. Additionally, vendors can also communicate with the platform admins about a certain product or order. In case of a problem (such as stock issue), vendors can cancel an order during the order processing stage.

The platform should include a notification mechanism for both user types. For instance, customers will be able to choose to get notifications for price changes. As another example, customers can also set an alarm for a certain price, and choose to be notified if the price of the product goes below the chosen price.

The platform should include a recommendation system. It should recommend certain products to the users based on their interactions on the platform.

Last but not least, the platform should support the W3C Activity Streams protocol [1] so that the activities on the platform are expressed as a stream. The events on the platform may cover, but not limited to, the actions taken by vendors that discounted on certain products or added new products to sell.

The application is expected to have a native web and native mobile (Android) client. Hybrid applications are **NOT** allowed. The application should be deployable on a remote and manually configurable server. We strongly recommend you to use Amazon EC2 or Digital Ocean. Lastly, to ease the development and deployment processes, the application should be dockerized.

The implementation of this system should follow the standards introduced by the World Wide Web Consortium (W3C) [2]. In addition to the rules defined by the standards body of W3C, any related software standards should be followed. As always, ethical considerations are an important issue of this project. Most of the contents within this platform are personal. The personal information, contact information, copyrighted contents, license issues and everything related to these paradigms should be respected and considered. You must follow the rules defined by GDPR and KVKK while implementing the application. (Please read the ethical considerations in Piazza with respect to ethical concerns what is expected of all participants!)

Open-source software with appropriate use permissions may be used, as long as it is properly attributed and documented, and unless otherwise specified.

References

[1] *The World Wide Web Consortium – Activity Streams*, Accessed: February 2020.

[2] *The World Wide Web Consortium – Standards*, Accessed: February 2020.