StatMeal

Purpose

As a computer science student, I have taken a great interest in data science, specifically, statistical modeling. Restaurants have programs to log receipts in order to track sales and inventory. However, there could be more to gain from those receipts, such as the time, order type, etc. I want to create a program that allows a restaurant owner to upload their restaurant's sales data and output useful graphs and predictive models. This will allow the owners to make more informed business decisions by taking into account multiple types of sales data. The predictive models are not meant to be guarantees of good or bad business. They are merely there to inform the restaurateur in future restaurant decisions.

Operating Environment

The user will be prompted to input a file type containing their restaurant data. The StatMeal will accept spreadsheets, in the form of .csv files, containing logs of each order. The data should be organized by having the data type on the top with each row counting as a single order. After compiling the file, and sorting out any missing rows, the user can generate specific graphs and models based on the different data items, such as sales by hour or food type by price. The data types all depend on the column names originally used in the .csv file. After selecting up to two different columns, the user can choose to generate either a graph or a predictive model. The graph requires at least one column, while the predictive model requires at least two. The backend will utilize Python and statistics-oriented libraries, such as matplotlib. The database will most likely utilize MySQL.

The user will interface with StatMeal via a website that can be accessed on a desktop or laptop. The frontend will utilize React for its main code structure. The website is planned to be hosted on a WAMP server. The hosting service may change if certain needs are not met.

Programming Requirements

Functional Requirements

- As a user of Microsoft products, I want the program to accept data in the form of spreadsheets.
- I want to remove items from the data files that have missing info and will not be useful in the data analysis.
- I want to select which columns to use for the graphs and/or models
- As a restaurateur, I want to make graphs of the receipt data.
- As a restaurateur, I want to make predictive models based off of the receipt data.
- As a business analyst, I want to be able to download graphs and models that will be useful for future business decisions
- I want to be able to save and update the .csv file when more receipts are logged.

Design Requirements

- After logging receipt info, I want to access that info in the form of a .csv file.
- I want to access StatMeal via a simple and easy-to-navigate website.
- I want the website to hold up to 20 different columns of data types.
- I want the website to hold up to 1000 rows of data.
- I want the columns organized by input order, allowing me to visualize which columns to specifically use.

Currently, StatMeal is designated as a solo project. As a solo project, all of the functionalities and UI will be designed by me. This can change if more coders are brought onto the project, but it is expected to remain solo the full way through. By the first progress report, the program should be able to take a .csv file and output multiple different types of graphs, such as bar graphs, line graphs, and pie charts.