Structure of project

Aim:

Our aim of this project is to provide the company with insights that will help them with their business, like (1) which products to promote, (2) which products to place near other products, (3) which products to stock, (4) which product to recommend to specific customers. Based on the
A-time series modelling of sales
B-location analysis
We have the data set(retail sales data of 3 months).

Objective of project:

- **Data preparation:**

First, we have to clean data and add some necessary dimensions to the dataset. Which will help in increasing the accuracy and visualizing the data.

- **Time series analysis :**

In this analysis we will analyze the product line based on Time. We will find the patterns and recommend accordingly.

- **Location analysis :**

Here we will analyze the sales based on the location considering the dimensions like Gross Income, Time, Ratings and Location.

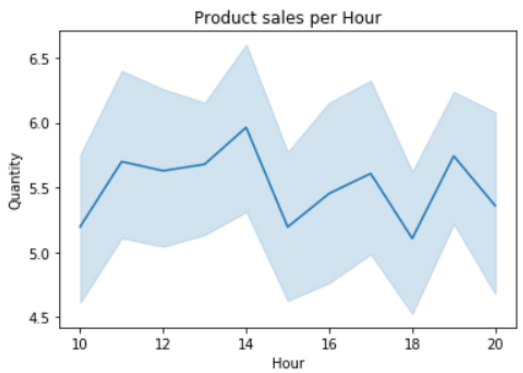
- **Modelling**

By considering both time and location analysis we will find the best fitting algorithm which has better accuracy and is least prone to error.

Objectives achieved:

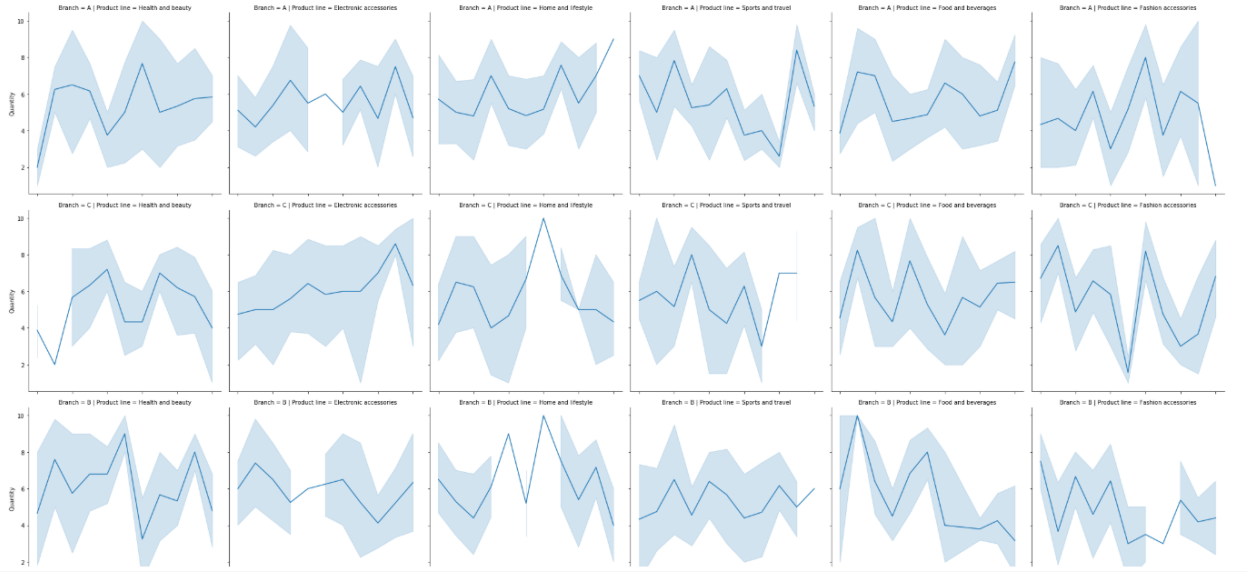
- There is no need to clean the data as data set is absolute and crisp. For easy manipulation and analysis we have created the new columns like day month year and hour.
- In time analysis we have noted from graph that Sales by the hour in the company Most of the item were sold around 14:00 hrs local time

```
1 Product_Count  = sns.lineplot(x='Hour',  y = 'Quantity',data =retail_data).set_title('Product sales per Hour')
```



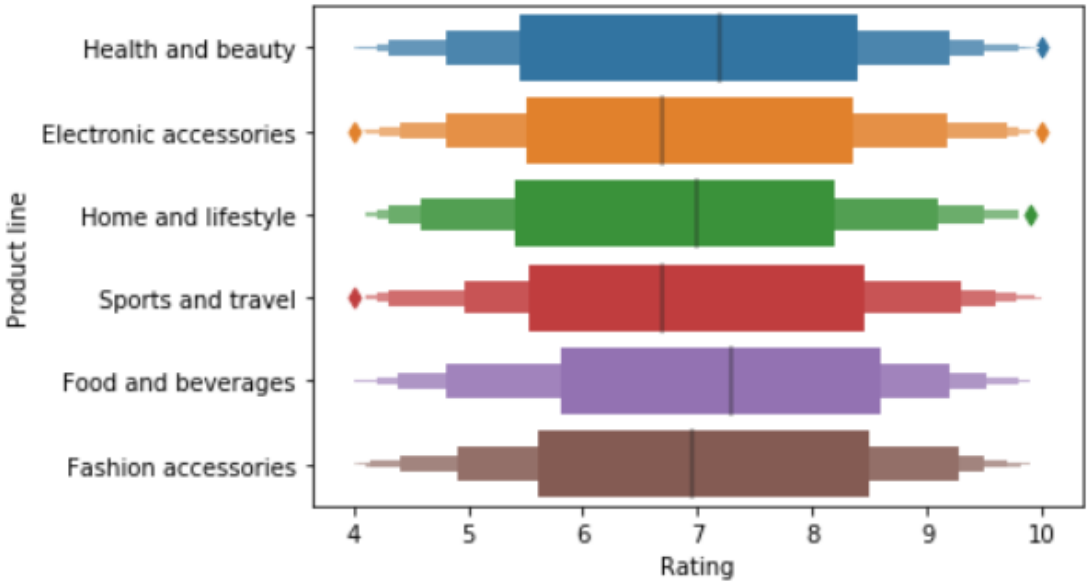
- In location analysis we found that location B has lowest rating

- we can see that food and beverages sales usually high in all three branches at evening especially around 19:00



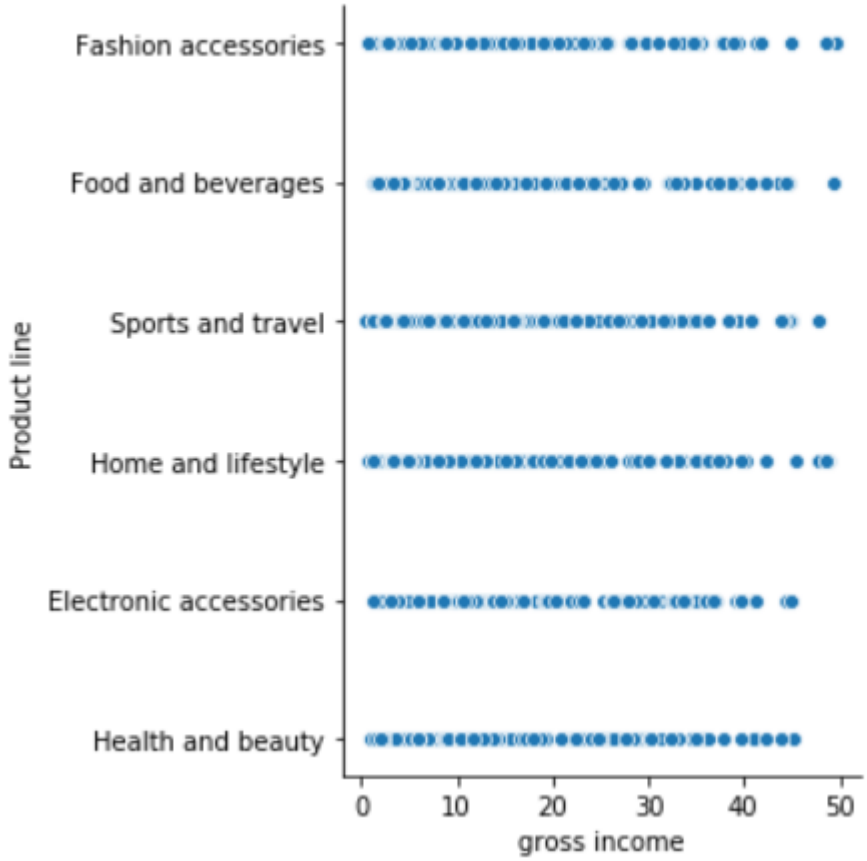
- Food and Beverages have the highest average rating while sports and travel the lowest

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fae16421e10>
```



- The top product line item type sold in the given dataset is Fashion Accessories is the highest while Health and beauty is the lowest

```
<seaborn.axisgrid.FacetGrid at 0x7fae181ace48>
```



- We have found many relations and patterns combining the both the time series and location analysis

Objectives to be achieved:

- We have to take the both time series and location analysis. Find the best fitting model for suggesting the company which product to recommend and which product to stock up
- We might also consider other directions like holidays and weather.

Here is our code we have performed the analysis.

https://colab.research.google.com/drive/1Blauy4X5uMbfLiwbkQ82XJ9V1t5qAG48#scrollTo=I562OBCj1-Ad