Exploratory Data Analysis Project:

Fitness Watch by Francis Antic

EDA Project File link

1. Project Overview

- **Project Title**: Fitness Watch EDA
- **Goal of the project**: Perform an EDA and to give insights on product promotion
- **Dataset(s) used**: Final_DailyAct.csv, Final_HourAct.csv, Final_MinNar.csv, Final_MinSleep.csv, Final_MinSleep.csv, Final_SleepDay.csv, Final_HeartRate.csv, Final_MinWide.csv

2.Data Cleaning and Preparation

- This includes Cleaning and Transforming the files as per analysis need, cleaning the null values and correcting the data types of some columns(Date and Time)
- Links To data cleaning files: File Import And Cleaning.ipynb

https://colab.research.google.com/drive/1VEmBoX4VvPavHUxhrOKSKpC3xyEhaloy?usp=sharing

- File Import and Cleaning 2.ipynb: https://colab.research.google.com/drive/1CA2CPSHmCZwh1hq4rynmbyn8KsJcEKyi?usp=sharing
- Data Transformation:

https://colab.research.google.com/drive/17VPzhoYTIJWa-k515vq230FymZSA_mZu?usp=sharing

3.Exploratory Data Analysis 

- **Univariate Analysis**:

1. Most steps are taken on Saturday and Tuesday

2. In Distance covered chart it is seen that on an average a user travels 5km

3. Trends Show Tuesday And Wednesday a user has shown more intensity on Tuesday and Wednesday followed by Thursday and Friday

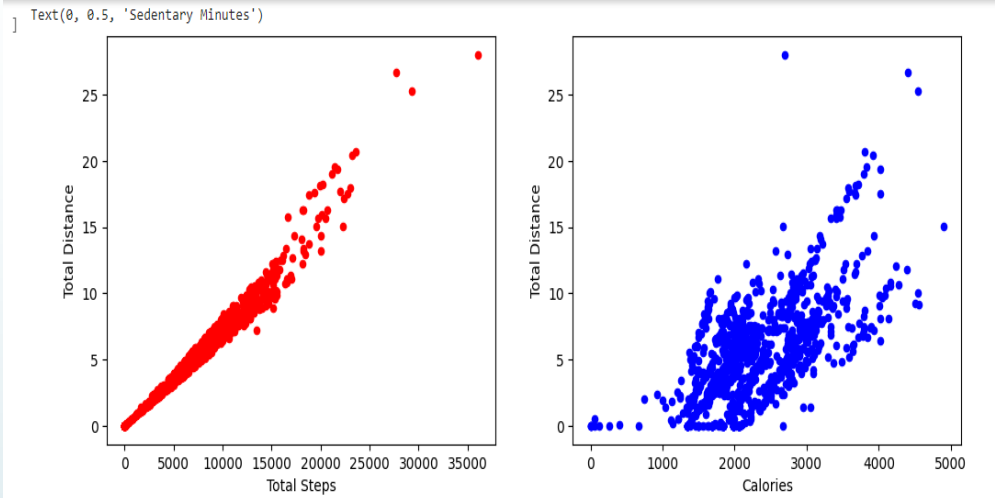
- **Bivariate Analysis**:

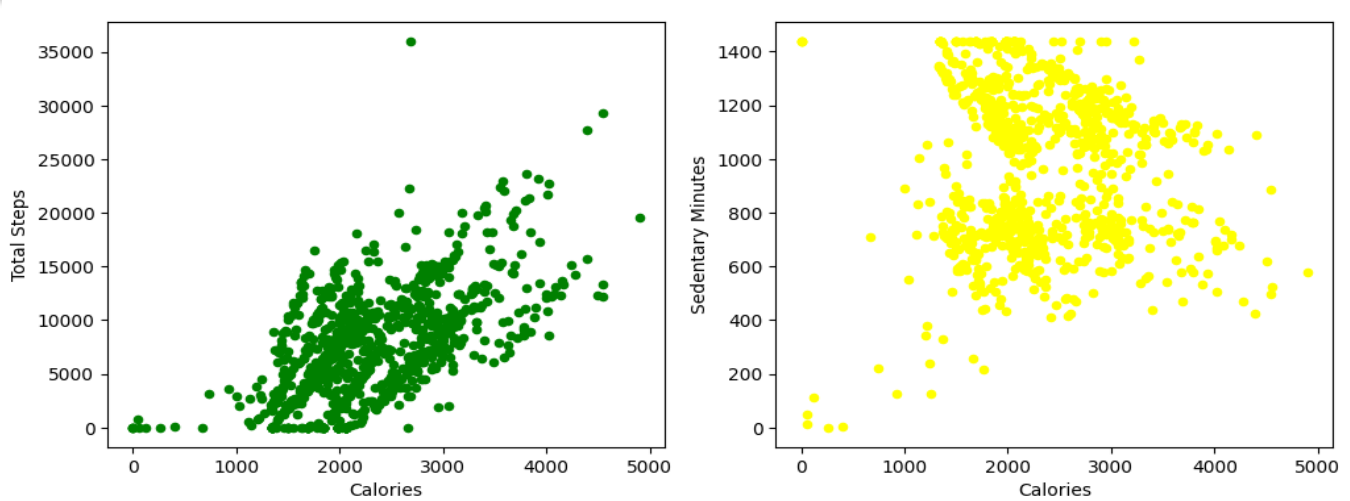
1. A user taking 3 naps per day is minimum, but we can see that **Wednesdays and Sundays** has maximum **sleep minutes**

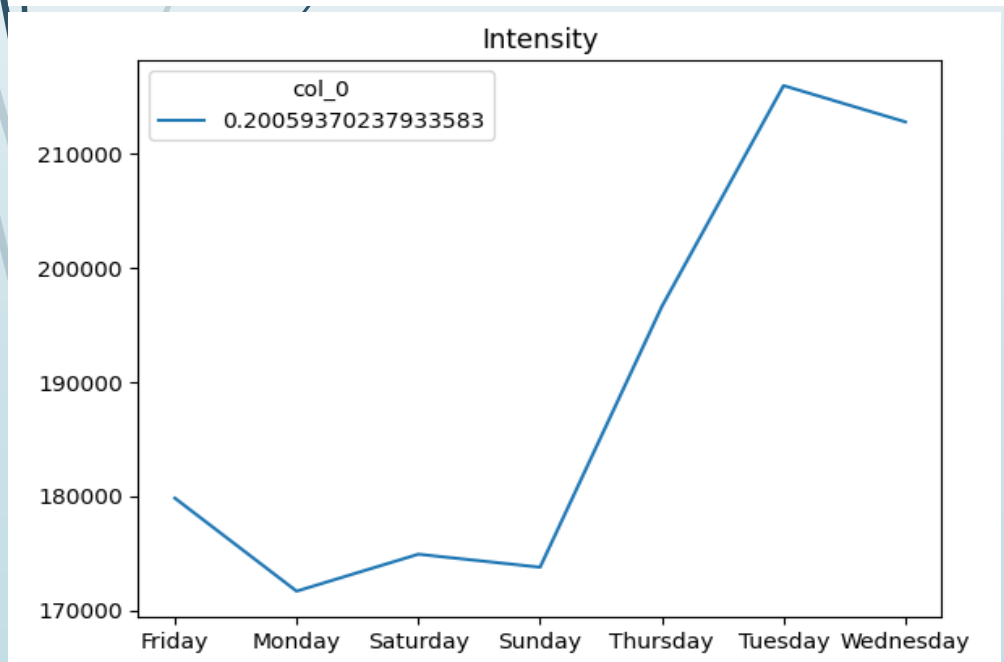
2. The trends shows that users have a good heart rate during the evening time and morning time their heart rate is less

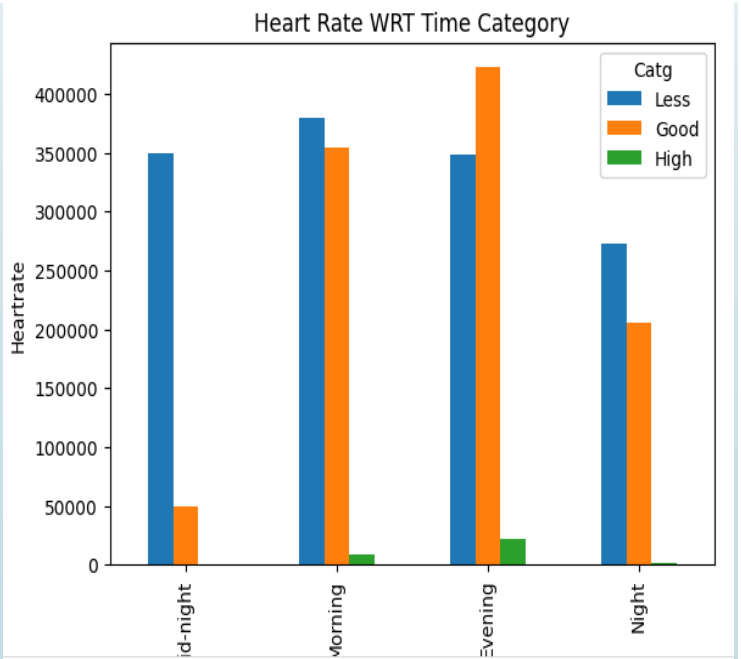
3. Trends shows That a user records more sleep on Thursdays, Tuesdays and Wednesdays

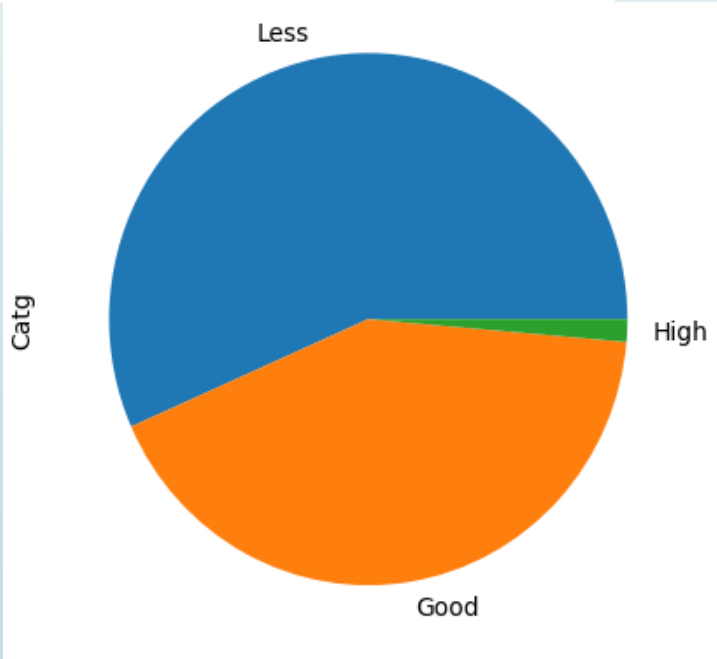
4.Visualization



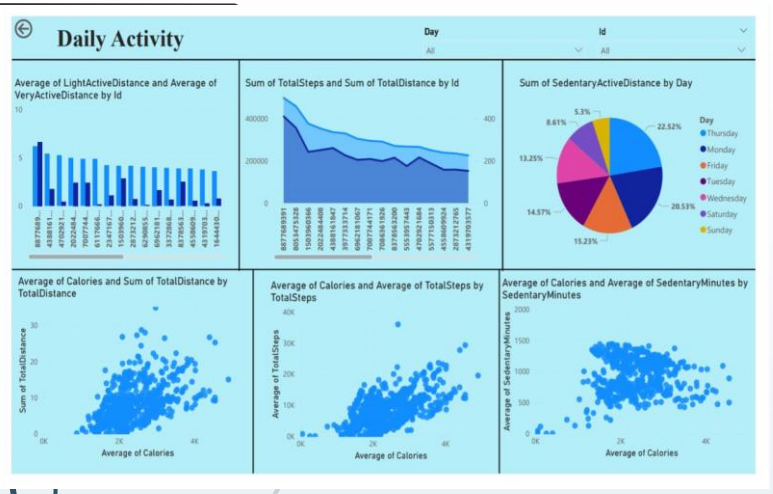


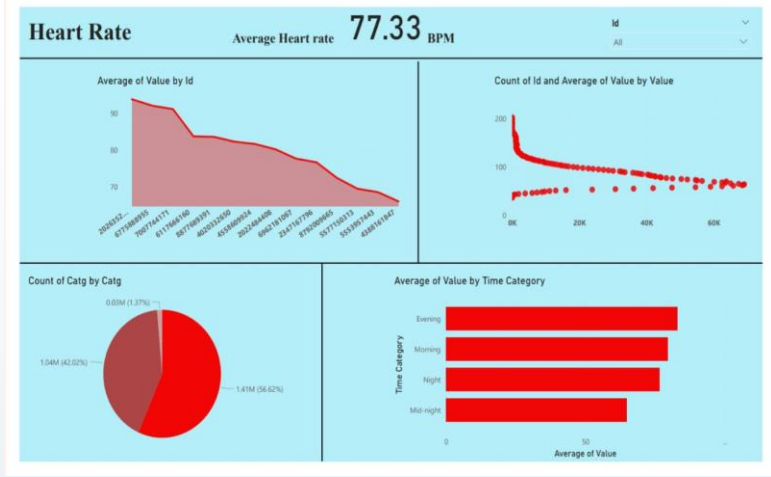


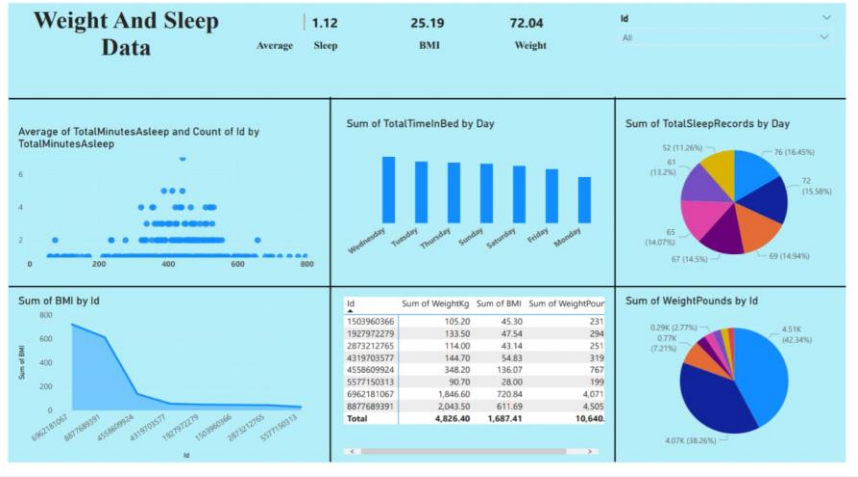


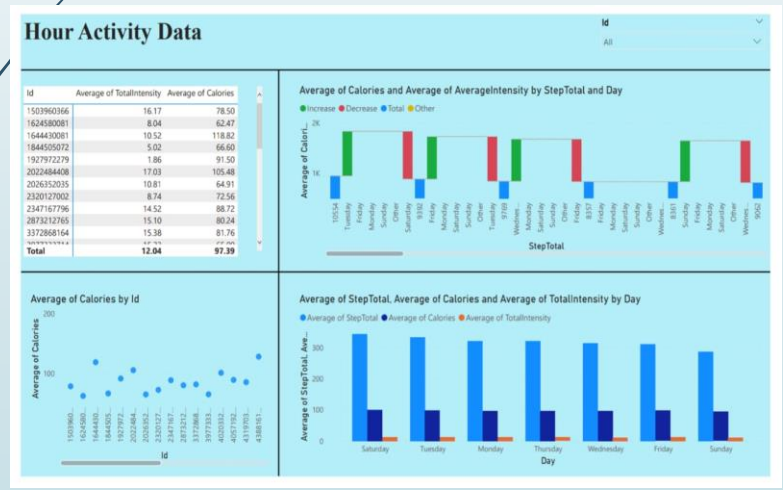


5.Visualization on Power BI Report View









6. Hypothesis Testing and Insights

- **Daily Data:** From above analysis we can see that Average Active Minutes for a user is 14 minutes. The fitness watch has good data of calories, steps heartrate. It means a user spends more time being in inactive. To overcome this Company can include come games that involves movement.
- **Minute Data:** While exploring through minute data it was found that in METs a user more idal in between the week i.e mostly on tuesday and thursday. And average Sleep is 1 nap.A small reminder can be set to overcome this.
- **Hourly Data:** Here in co-realation matrix we see that it is balenced. Just some motivated tasks to increase the intensity.
- **Heartrate Data:** Here it was seen that during morning hours heartrate of users were less than in evening or night. Here Company can give some useful **heart health** related information on their watches or mobile phones.
- **Sleep Data:** Sleep is most important for a human body . On an average an adult needs a sleep of **6-8 hours** .It was seen that a average sleep count is 1 and on Tuesdays and Thursdays avg. sleep record is good. Some users are even able to take 3 sleeps. It also has totalBed Time where user is not asleep but may be lying on the bed.
- **Weight Data:** We see that mean weight and BMI of a user is good. The watch can use the **BMI and Weight** to calculate calories required(for gaining or loosing weight),also tell user how much sleep and steps needs to be taken

7.Final Report and Presentation

- **For Company's promotion:** Company can display advertisements during active minutes of a user.Advertisements can be realated to Healthy Food(Weight related), Colabrating with a sleep matress making company to advertise good sleep. But there will be many user that wont prefer ads on their watch or phones . For that company can include Some affordable plans to remove ads.

- **For User's Promotion:** A sports mode can be included to track the sports activity of a user. For Dibetic people a blood sugar level moniter can be included and the watch/app can suggest the user what to eat and how much to eat to maintain the sugar level. Similarly SPO2 (Blood Oxygen Level) tracker can also be included. This can give the product a good sales.

8. Project Files 🗁

- **EDA Code Files**: https://colab.research.google.com/drive/1eHAkLdqt-410_t7_E2SX-cfQyeOFF6bh?usp=sharing
- **Data Cleaning 1:** https://colab.research.google.com/drive/1VEmBoX4VvPavHUxhrOKSKpC3xyEhaloy?usp=sharing
- **Data Cleaning 2:** https://colab.research.google.com/drive/1CA2CPSHmCZwh1hq4rynmbyn8KsJcEKyi?usp=sharing
- **Data Transformation:**https://colab.research.google.com/drive/17VPzhoYTIJWa-k515vq230FymZSA_mZu?usp=sharing