**Report**

This report includes;

1. Clear summary of the business task

2. A description of all data sources used

3. Documentation of any cleaning or manipulation of data

4. A summary of your analysis

5. Supporting visualizations and key findings

6. Your top high-level content recommendations based on your analysis

**Business task**

* Analyze smart device usage data in order to gain insight into how consumers use non-Bellabeat smart devices.
* Choose one Bellabeat product to apply these insights to in your presentation.

**Data sources**

This Kaggle data set (*https://www.kaggle.com/arashnic/fitbit*) contains personal fitness tracker from thirty fitbit users. Thirty eligible Fitbit users consented to the submission of personal tracker data, including minute-level output for physical activity, heart rate, and sleep monitoring. It includes information about daily activity, steps, and heart rate that can be used to explore users’ habits.

**Limitations**

* Data was collected in 2016, more than five years ago.
* There is a possibility that Users’ daily activity, fitness and sleeping habits, diet and food consumption may have changed since then.
* No proper description of each columns
* Data may not be relevant to form present hypothesis for BellaBeat Marketing strategy.

**Data cleaning**

This analysis is focused only on daily data provided (activity, intensity, calories, sleep). Two datasets were used in the analysis (activity and sleep) this was because intensity data and calories data is contained in activity datasets

* Each datasets formats were changed to the required format , as most of the fields in these datasets were in the wrong formats
* Null values was checked and found out there was none.
* I removed duplicates only in the sleep data which reduced the number of rows by 3 to 410, as there were none in activity data

**Summary of analysis**

After performing some analysis the following observations were made;

* The average total steps per day are 7638 which is lower than required.
* The average amount of minutes spent on sedentary activity (Total minutes spent in sedentary activity) is 991 , which is quite much
* The average lightly minutes (Total minutes spent in light activity) is much more than the active and fairly active minutes
* The average light active distance(KM travelled doing light activities) is more than the very active and moderately active
* Women spend an average of 39 minutes either restless or awake while
* The two datasets were aggregated for visualization

**Recommendation**

* Although the sedentary activity is not stated, spending 991 minutes(16.5 hours) on sedentary activity should be reduced and chanelled into other factors.
* Average total steps per day are 7638 which a little bit less for having health benefits for according to the CDC research.
* They found that taking 8,000 steps per day was associated with a 51% lower risk for all-cause mortality (or death from all causes). Taking 12,000 steps per day was associated with a 65% lower risk compared with taking 4,000 steps.
* Bellabeat can encourage people to take at least 8 000 explaining the benefits for their health.
* If users want to improve their sleep, Bellabeat should consider using app notifications to go to bed.
* If users want to improve their sleep, the Bellabeat app can recommend Zeroing down time spent due to restlessness and being awake while on bed.