Data Analytics

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- Introduction
- **Data Analytics** is the **process** of **collecting**, **cleaning**, **examining**, and **visualizing** data to find **useful information**, **patterns**, and **insights** for better **decision-making**.
- → Identify which devices are consuming the most energy and suggest ways to reduce energy costs.

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- Objective

- **Identify the most and least used appliances** in smart homes.
- **Measure energy consumption** across different devices (like Television, Oven, Refrigerator, etc.).

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- **Data description**
- There are 48972 rows and 13 columns.
- There are some count variable and some continuous.
- Gather raw data from databases, CSVs, websites, etc

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- **Data Preprocessing**

Clean Data   Fix missing values, wrong formats, remove duplicates

Visualize Data   Make graphs (bar charts, pie charts, heatmaps)
                          to understand better

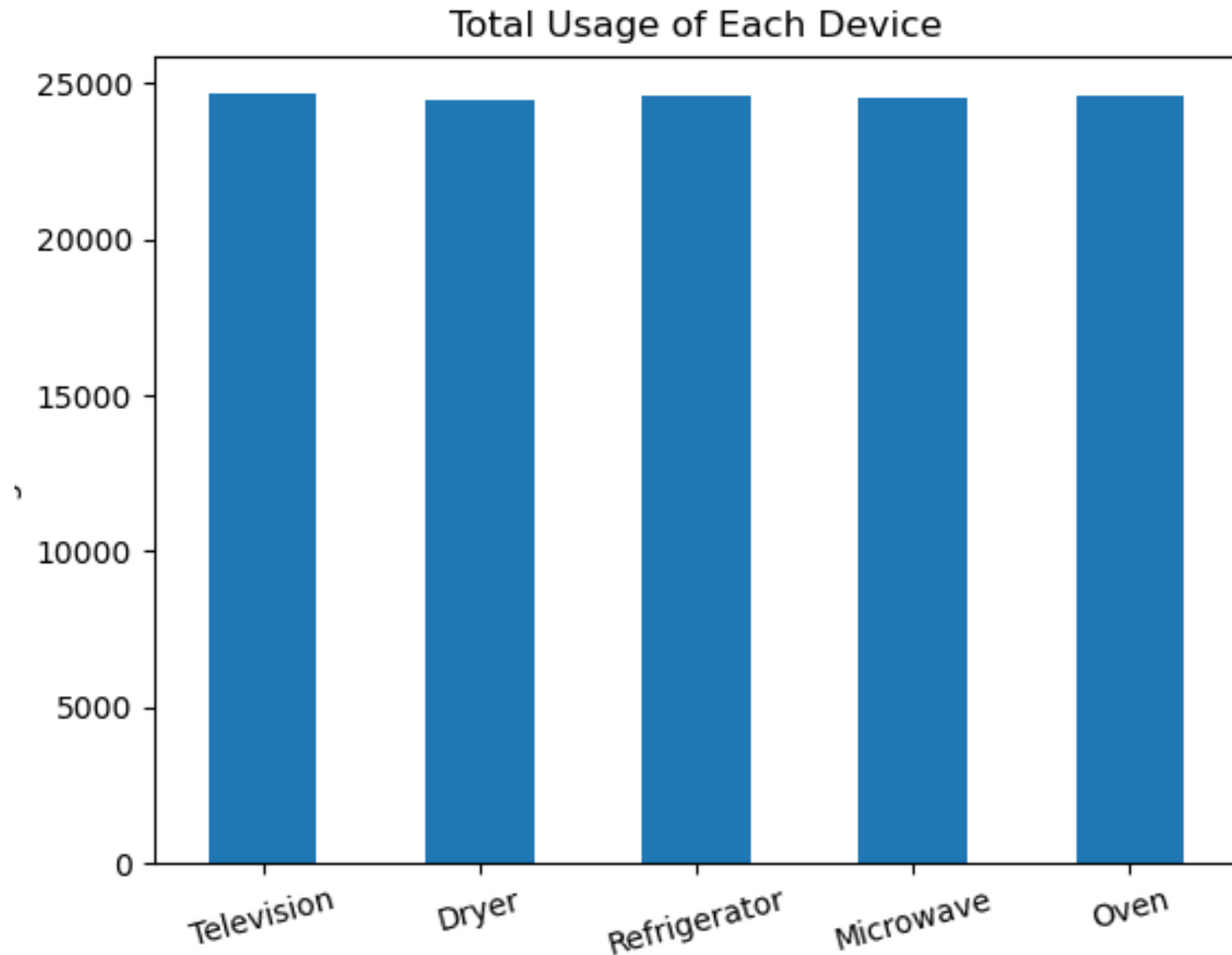**Get Insights**   Find answers to important business or research questions

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Exploratory Data Analysis (EDA)

visualizations: by using different plot.

Television is the device that are use more.

Dryer is the electronic device that is use less

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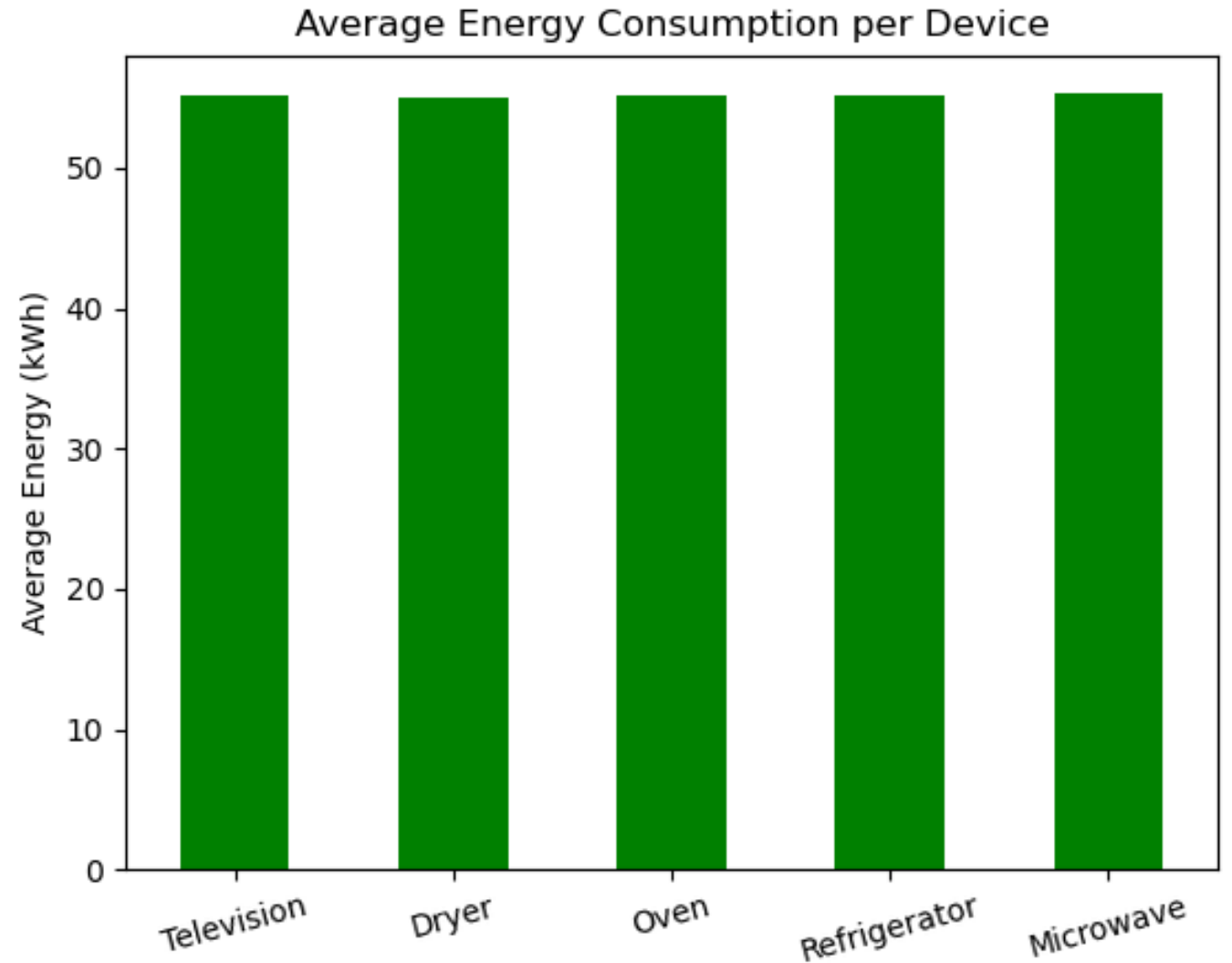Exploratory Data Analysis (EDA)

visualizations: by using different plot.

Microwave consume more energy

 So we can suggest peoples do not more
use   of Microwave
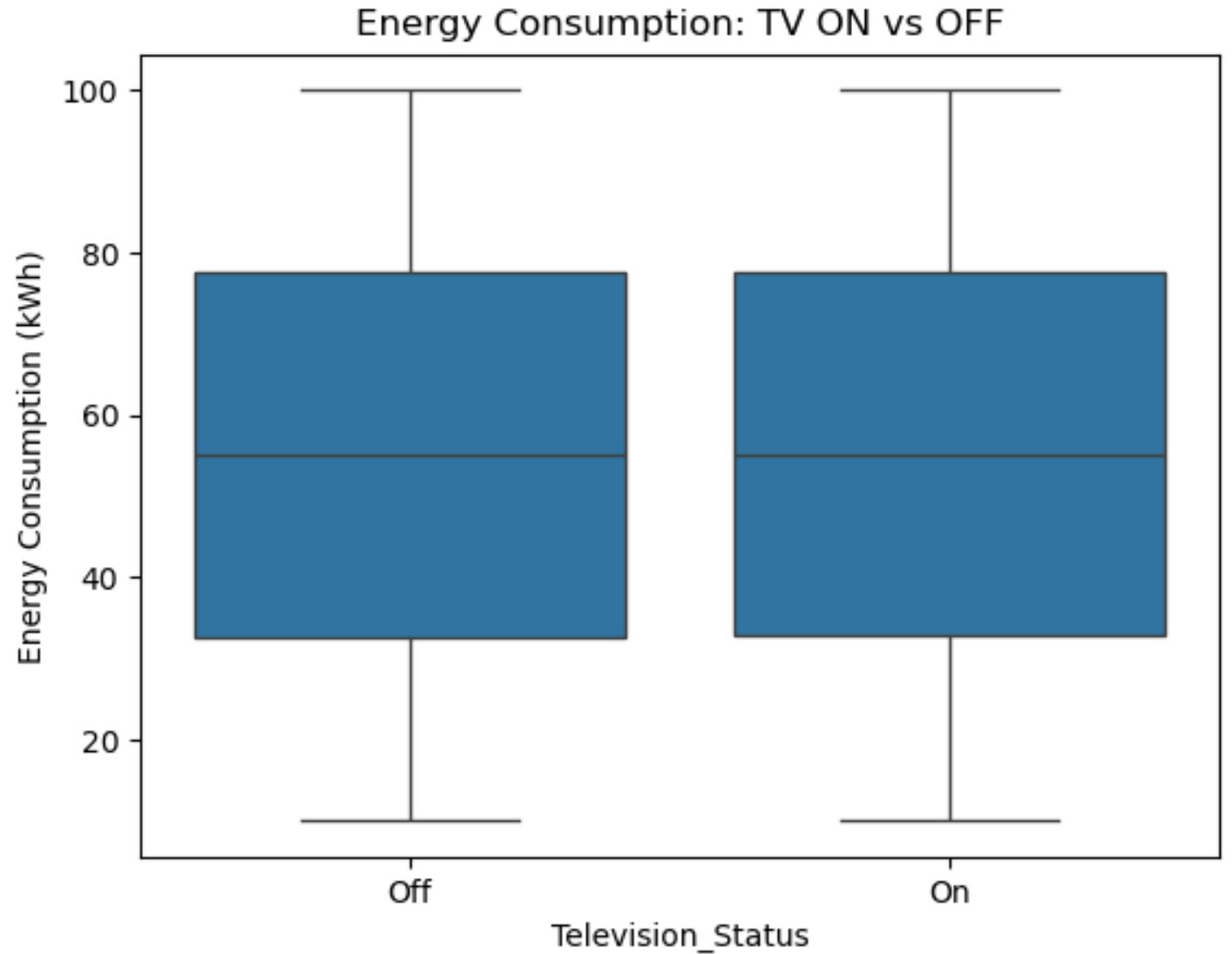
then his score is not more

   effected

Average Energy Consumption per Device

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Exploratory Data Analysis (EDA)

visualizations: by using different plot.

If Television is ON/OFF there is less

    difference of energy consumption

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Exploratory Data Analysis (EDA)

visualizations: by using different plot.

 Correlation heatmap

We can see the correlation between the

  devices.

Device Usage Correlation Heatmap