Lifestyle & Health Data Analysis Using Seaborn

This project performs **Exploratory Data Analysis (EDA)** on a synthetic health and lifestyle dataset using **Seaborn** and **Matplotlib**. The goal is to understand patterns in daily habits such as **steps, sleep duration, calories burned, and heart rate**, and how these vary by **age group** and **gender**.

Project Structure

```
├── health_lifestyle_data.csv
├── analysis.ipynb
├── README.md
```

Objectives

- Explore lifestyle patterns using Seaborn visualizations.
- Identify relationships between activity, sleep, calories, and heart rate.
- Compare habits across age groups and gender.
- Discover insights using EDA.

Dataset Description

Column	Description
`date`	Day of recording
`steps`	Number of steps taken
`sleep_hours`	Total sleep duration in hours
`calories`	Total calories burned
`heart_rate`	Average daily heart rate
`age_group`	Age category (18–25, 26–35, etc.)
`gender`	Male / Female
`day_of_week`	Day name (Monday–Sunday)

Visualizations Used

- Scatter Plot
- Line Plot
- Histogram
- KDE Plot
- Bar Plot
- Count Plot
- Box Plot
- Violin Plot

- Heatmap
- Joint Plot
- Pair Plot

Key Insights

- Higher step count relates to higher calories burned.
- Sleep duration varies across age groups.
- Heart rate changes during the week.
- Female participants show slightly higher average sleep.
- Steps and calories show positive correlation.

Technologies Used

- Python
- Pandas
- NumPy
- Seaborn
- Matplotlib
- Jupyter Notebook

How to Run

1. Clone the repository:

```
git clone https://github.com/yourusername/your-repo-name.git
```

2. Install dependencies:

```
pip install -r requirements.txt
```

3. Open the notebook:

```
jupyter notebook analysis.ipynb
```

4. Run all cells to generate visualizations.

Future Enhancements

- Add dashboards using Plotly or Streamlit.
- Add ML prediction models.
- Expand dataset with more health attributes.

Acknowledgements

This dataset is artificially generated for educational purposes and designed to demonstrate EDA using Seaborn.