PROJECT: STARVA FITNESS DATA ANALYSIS

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TOOL: PYTHON (GOOGLE COLAB)

DATASET: MERGED AND CLEANED DAILY DATA

IMPORT REQIURED LIBRARIES

```
Import pandas as pd
Import matplotlib.pyplot as plt
Import seaborn as sns
```

LOAD CLEANED MERGED DATASET

```
Df=pd.read_csv('merged _daily_data.csv')
Df.head()
```

DATA OVERVIEW

```
df.info()
df.describe()
```

CONVERT DATE COLUMN

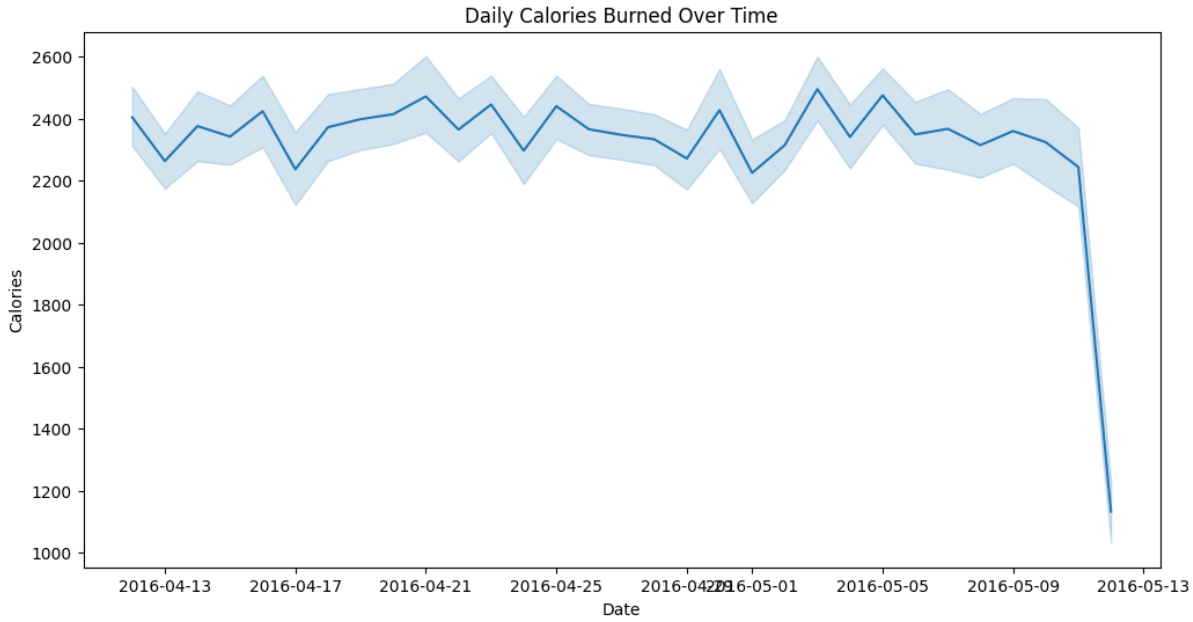
```
DF['Activity day'] = pd.to_datetime(df['Activityday'])
```

VISUALIZATION SECTION

Daily Calories Burned

```
plt.figure(figsize=(12, 5))
sns.lineplot(data=df, x='ActivityDay', y='calories')
plt.title(' Daily Calories Burned Over Time')
plt.xlabel('Date')
plt.ylabel('Calories')
plt.xticks(rotation=45)
plt.tight_layout()
plt.show()
```

VISUAL OF DAILY CALORIES BURNED

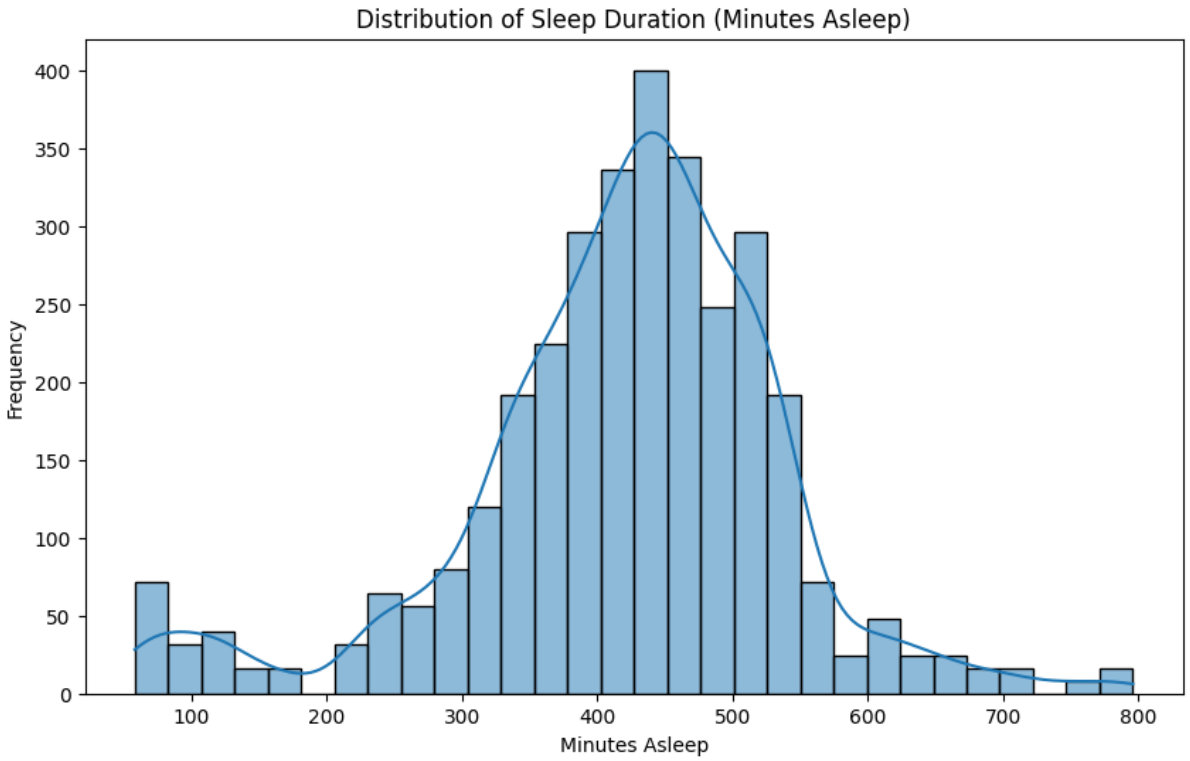


Insight: Higher calories were found on more active days, indicating good fitness engagement.

Sleep Duration Distribution

```
plt.figure(figsize=(10, 5))
sns.histplot(data=df, x='TotalMinutesAsleep', bins=20, kde=True)
plt.title(' Sleep Duration Distribution')
plt.xlabel('Total Minutes Asleep')
plt.ylabel('Frequency')
plt.tight_layout()
plt.show()
```

VISUAL OF SLEEP DURATION



Insight: Most users sleep for 6 to 7.5 hours, slightly below the recommended 8 hours.

Activity Intensity Breakdown

activity_cols = ['SedentaryMinutes', 'LightlyActiveMinutes', 'FairlyActiveMinutes', 'VeryActiveMinutes']

activity_sums = df[activity_cols].sum()

plt.figure(figsize=(10, 6))

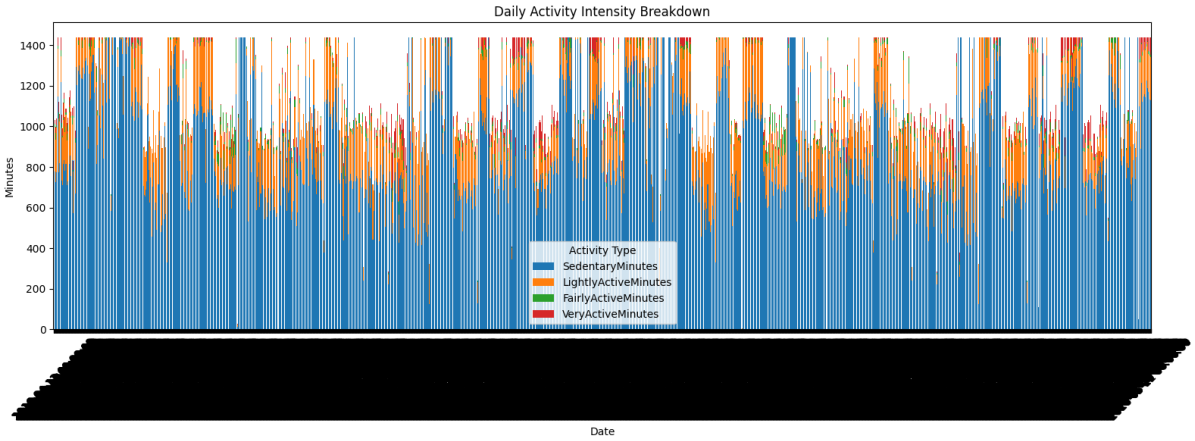
sns.barplot(x=activity_sums.index, y=activity_sums.values)

plt.title(' Activity Intensity Breakdown')

plt.ylabel('Total Minutes')

plt.tight_layout()

plt.show()



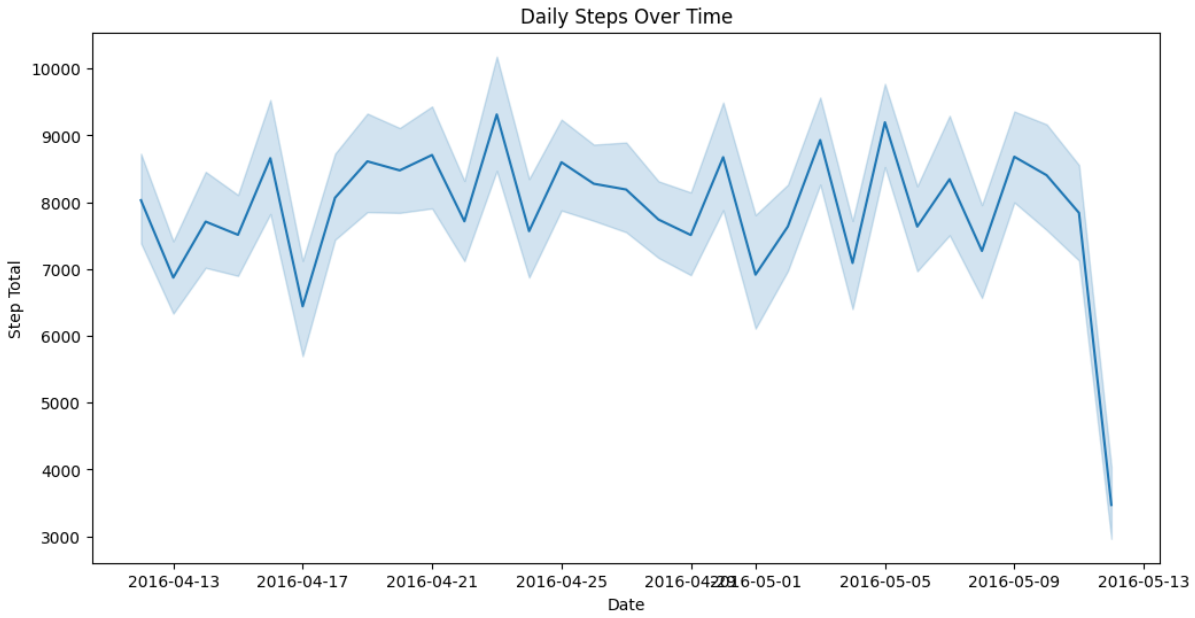
Insight: Users spend most time being sedentary . Need for more light and moderate activity.

STEPS OVER TIME

```
df['ActivityDay'] = pd.to_datetime(df['ActivityDay'])

plt.figure(figsize=(12, 6))
sns.lineplot(data=df, x='ActivityDay', y='StepTotal')
plt.title('Daily Steps Over Time')
plt.xlabel('Date')
plt.ylabel('Step Total')
plt.show()
```

VISUAL OF STEPS OVER TIME



Insight: Users showed more activity during weekdays compared to weekends.

CONCLUSION:

This analysis provided key insights into users ' fitness, sleep, and calorie patterns.

- Users are mostly sedentary , sleep slightly less than recommended , and vary in calorie burn.
- Bellabeat can use this data to personalize wellness programs for better engagement and outcomes.