

Strava Fitness Project – Python Report

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1. Overview

This Exploratory Data Analysis (EDA) was performed using Python libraries such as pandas, matplotlib, and seaborn. The dataset includes user activity logs, calories burned, sleep duration, and weight tracking data. The analysis helps uncover trends and patterns that Strava can use to optimize features, user engagement, and wellness strategies.

2. Visualizations & Insights

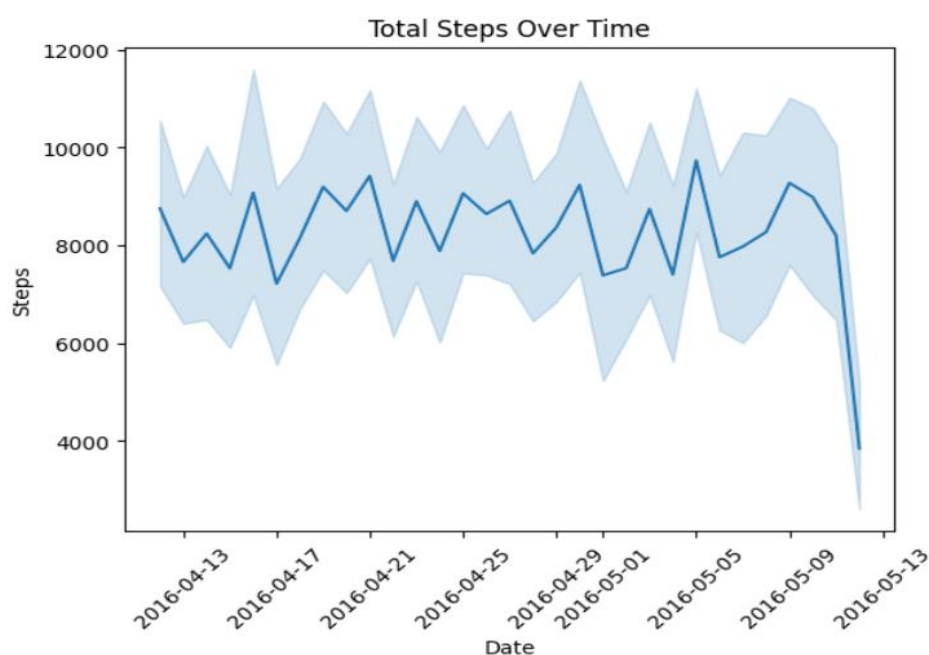
1. Line Chart – Total Steps Over Time

Insight:

- User activity levels vary over days.
- Some days show very low activity device possibly not worn or inactive lifestyle days.
- No consistent upward or downward trend.

Business Impact:

- Opportunity to introduce daily step goals + motivational reminders.
- Could promote gamification → “Streaks” or “Challenges” to boost regular activity.



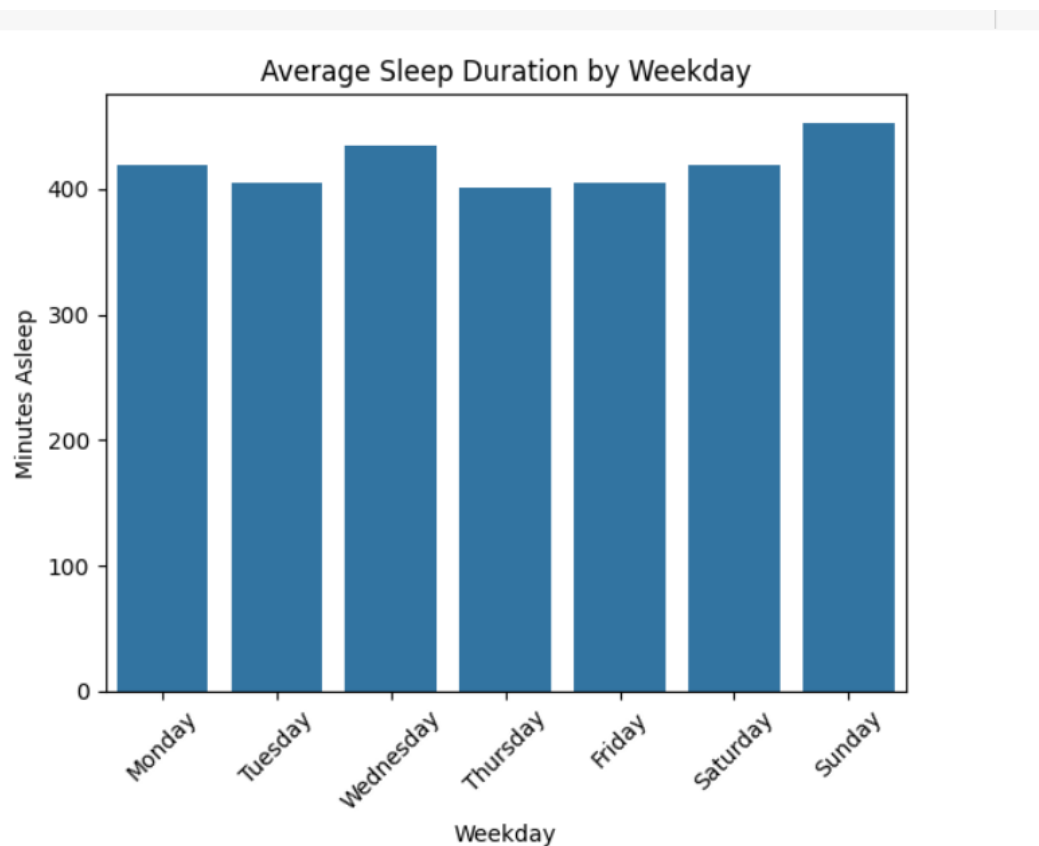
2. Bar Chart – Average Sleep Duration by Weekday

Insight:

- Users tend to sleep slightly more on weekends (Sat/Sun).
- Sleep duration drops during weekdays, possible work stress or routine factors.

Business Impact:

- Strava can promote sleep coaching content during weekdays.
- Can provide personalized weekday sleep tips to improve sleep quality on workdays.



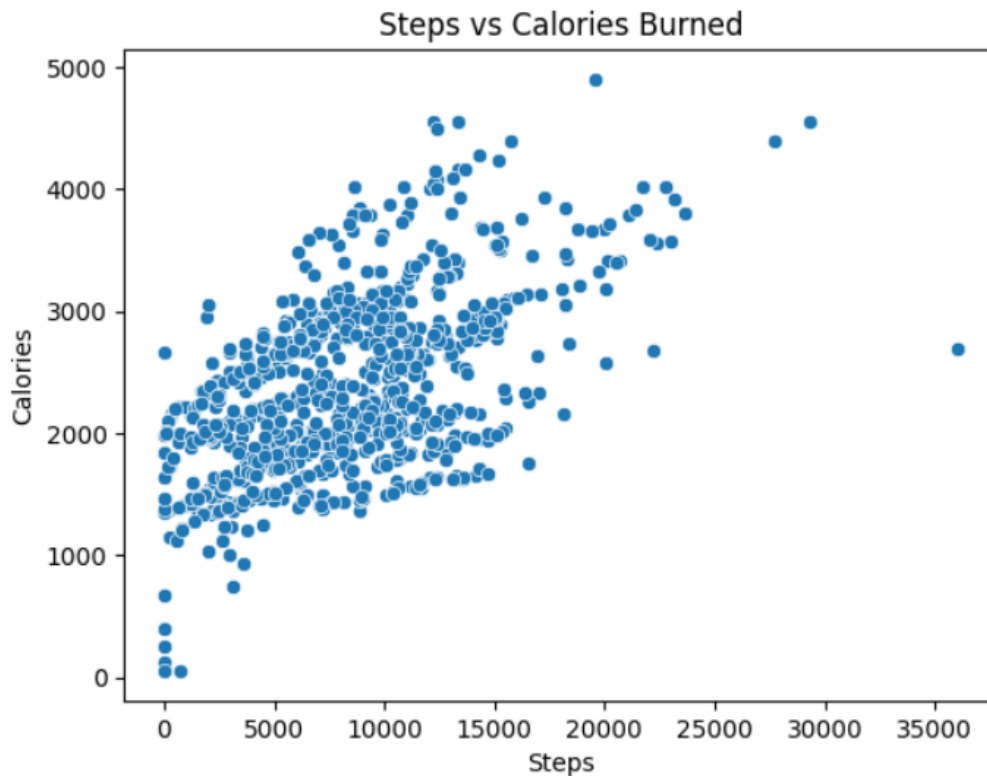
3. Scatter Plot – Steps vs Calories Burned

Insight:

- Strong positive correlation between steps taken and calories burned → confirms expected fitness behaviour.
- Outliers with low steps but high calories likely due to other activities (cycling, strength training, etc).

Business Impact:

- Strava can emphasize to users that steps alone do not tell full calorie story.
- App can promote tracking other forms of exercise to improve accuracy of calorie estimation.



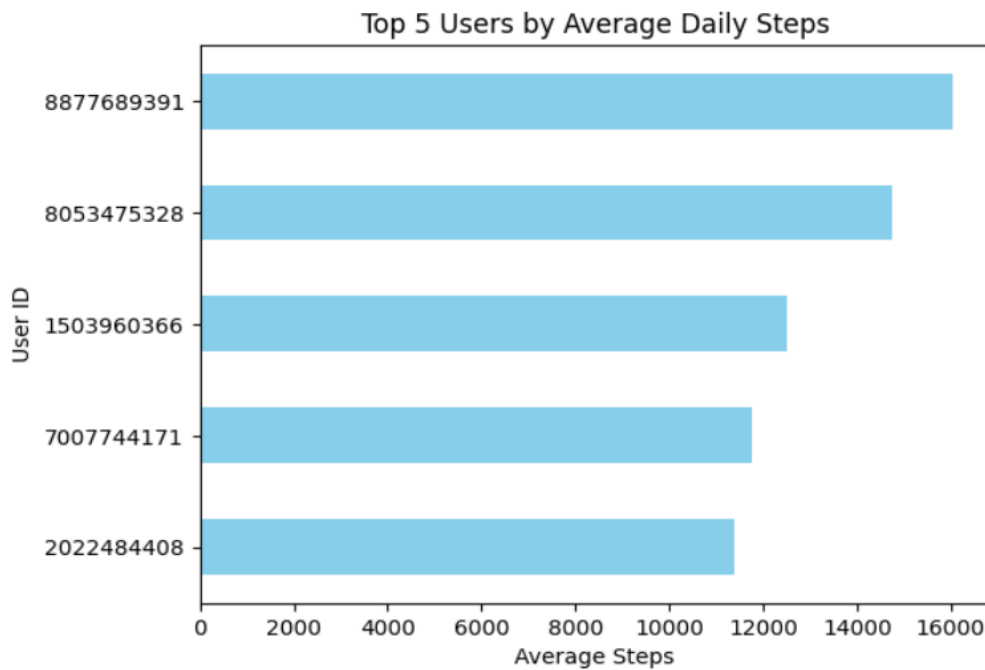
4. Horizontal Bar Chart – Top 5 Users by Avg Daily Steps

Insight:

- Certain users (top 5) consistently outperform others in step count.
- These users demonstrate high engagement with activity tracking.

Business Impact:

- Strava can target top users with premium subscriptions, early access to new features, or reward programs.
- These users can be ambassadors or influencers to promote Strava to peers.



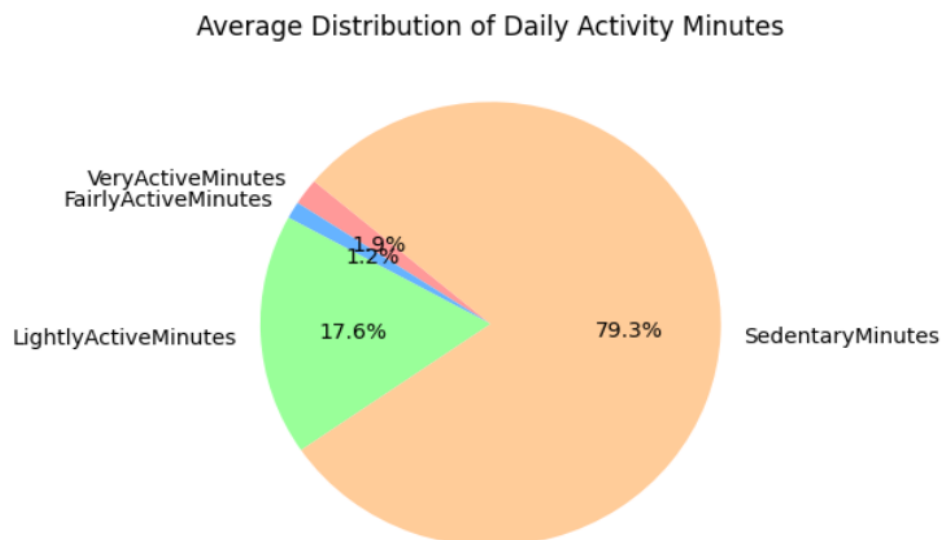
5. Pie Chart – Average Daily Activity Minutes Breakdown

Insight:

- Sedentary time dominates daily minutes (70-80%), similar to known population trends.
- VeryActive and FairlyActive minutes form a smaller portion of the day

Business Impact:

- Strava can promote Active Break reminders to combat sedentary behaviour.
- App can introduce “Active Minutes” challenges to gradually shift users towards more active lifestyle.



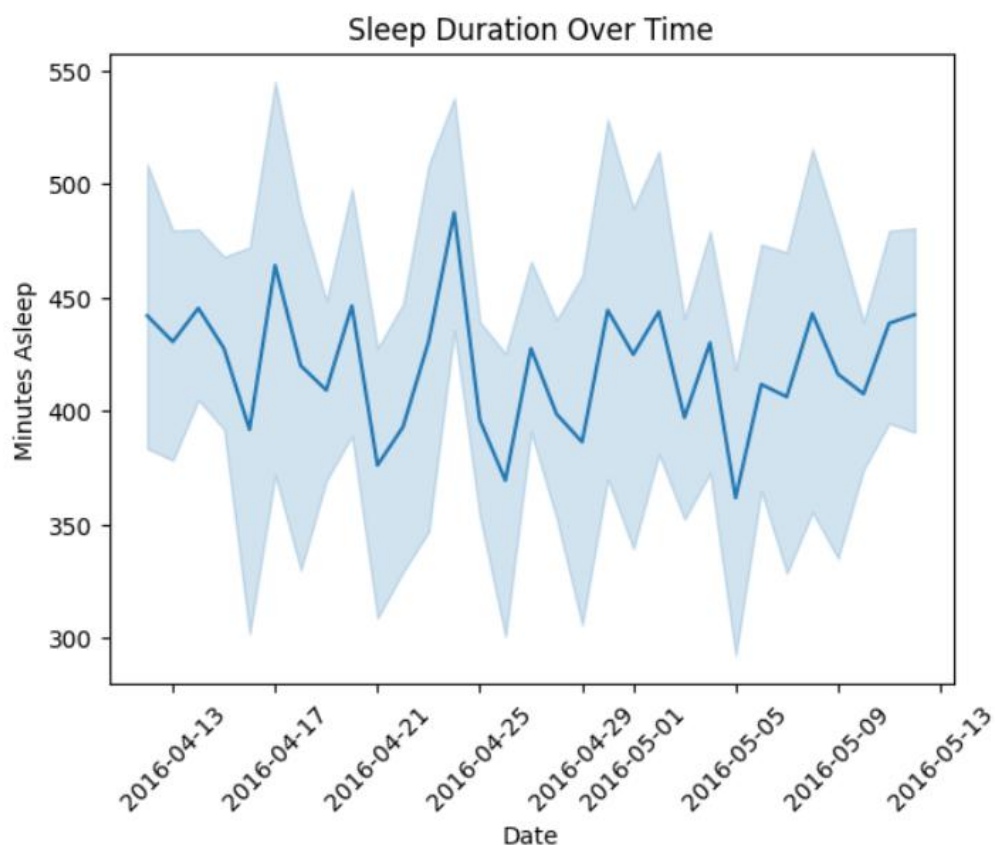
6. Line Chart – Sleep Duration Over Time

Insight:

- Sleep duration fluctuates over time, not always consistent.
- Some users show periods of reduced sleep, opportunity for intervention.

Business Impact:

- Strava can offer personalized sleep trends reports.
- App can trigger alerts when user's sleep drops below healthy thresholds, proactive wellness support.



7. Line Chart – Weight Trend Over Time

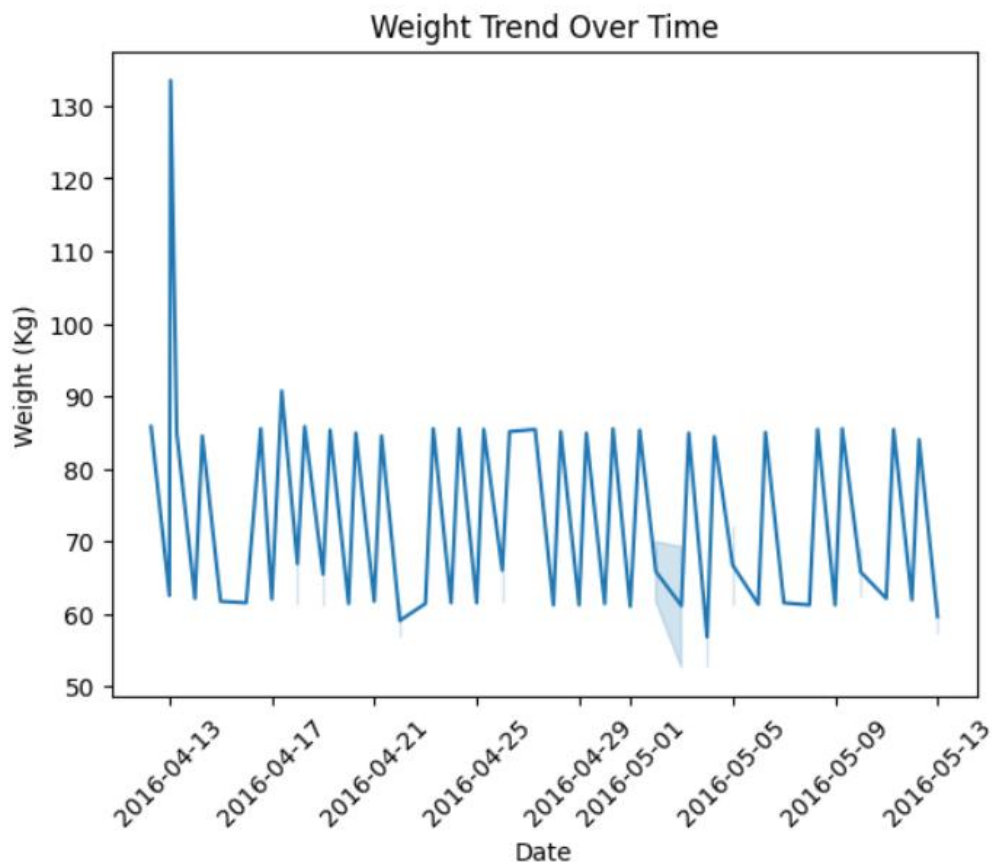
Insight:

- Users tracking weight show mostly stable trends, no drastic changes.
- Some variation suggests ongoing weight management efforts.

Business Impact:

- Strava can promote long-term weight tracking to celebrate small positive changes.

- App can encourage regular weight logging to help users stay engaged and mindful.



3. Conclusion

The insights gathered through this analysis can directly inform the Strava marketing and product strategy, enabling the company to develop:

- More personalized engagement campaigns.
- Gamified experiences to drive retention.
- Wellness-focused features that address sleep, activity, and overall health.
- Targeted outreach to power users and under-engaged segments.

By leveraging these data-driven insights, Strava can further strengthen its position as a leader in the smart wellness market.