A JOURNEY OF UP AND DOWNS

I have always loved analyzing myself and my patterns: why I act the way I do, what makes me feel certain emotions, and what consequences my actions and feelings have. (because I think knowing myself is really important) I have read multiple books on psychology, philosophy, and self-help, and I have watched many videos on these topics. This is why I consider that I know myself quite well. However, I had never actually kept track of any aspect of my life to see whether my everyday actions influenced my mood. So, It's time to go from theory to practice and apply it with the methods learned in class!

For this reason, on September 26th, when the Data Mining professor proposed this pet project, I had no doubts: I wanted to make it about my habits and moods. That is why I have been collecting personal data for two months. These are the aspects I recorded, because I wthought that where the aspects that impacted more in my life:

- Mood (morning, noon, afternoon)
- Sleep hours
- Stress level (scale 1–10)
- Exercise (yes/no)
- Social life (scale 1–5)

METHODS:

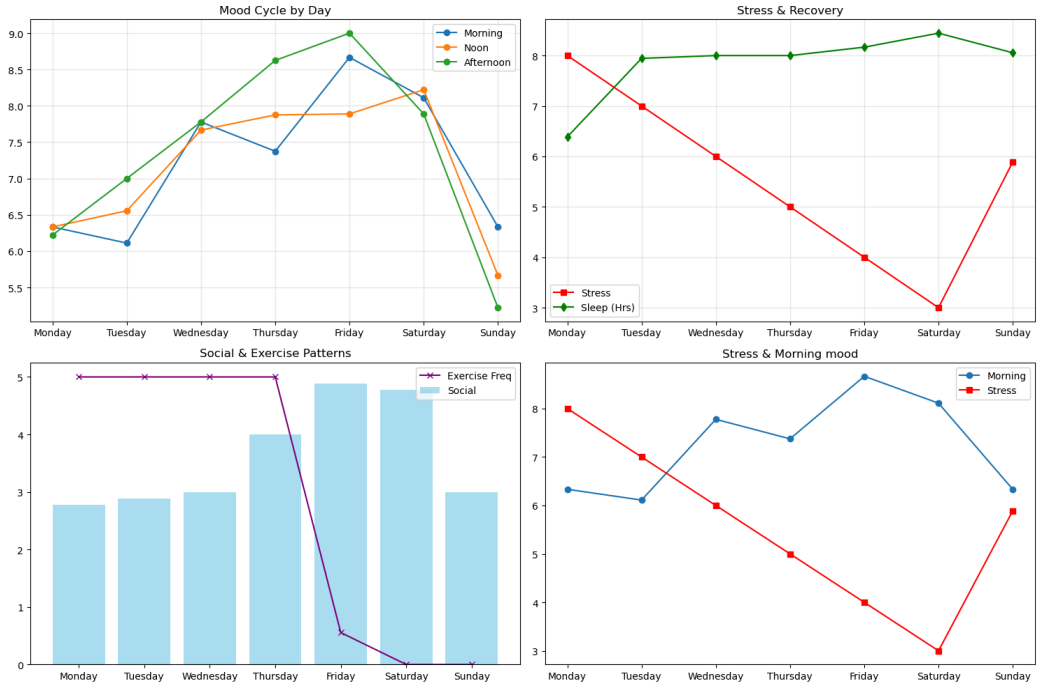
This was the step-by-step process:

- **Data Collection:** I manually recorded my data and stored it in a script.
- **Visualization:** I transformed the data into four different charts, which helped me clearly see how my mood and habits changed from Monday to Sunday.
- **Association Rule Mining:** As we did in the practice, I coded an association rule mining model to analyze whether one habit led to another. For example, I wanted to answer the question: *"If I exercise today, am I more likely to socialize later?"*
- **Recommendation System:** Using scikit-learn, I built a content-based filtering model. I created an "Ideal User Profile" based on my highest-mood days and used cosine similarity to rank the days of the week from "Most Ideal" to "Least Ideal."
- **Anomaly Detection:** I applied an Isolation Forest algorithm to detect outlier days.

RESULTS:

First, after visualizing the data, I observed several clear patterns across the charts:

- My mood starts low on Mondays, increases throughout the week, and then decreases again on Sundays.
- My mood is generally better in the afternoon.
- I have a fairly stable sleep schedule.
- My stress levels decrease considerably on weekends.
- I have a good social life, but it increases on weekends.
- I only exercise during the week.



Secondly, after applying association rule mining, these were the results:

Association Rule: ['Exercised'] ⇒ ['High_Social']

Support: 0.1452, Confidence: 0.25,Lift: 0.60

The lift value of 0.60 indicates a negative correlation. This suggests that on days when I exercise, I am actually less likely to have a highly social day.

Next, in the recommendation system, these were the outputs:

Recommendations

Day of Week	Similarity_to_Ideal
Friday	0.966868
Saturday	0.933797
Thursday	0.884777
Sunday	0.730106
Wednesday	0.725996
Tuesday	0.677168
Monday	0.346796

Recommendation: To improve Monday, match your 'Ideal Profile':
Sleep 8.195652
Stress 4.173913
Exercise 0.391304
Social 4.478261

Friday is my statistical “ideal day,” with a 96.6% similarity to my ideal profile, mainly due to my high morning mood and low stress levels. Monday, on the other hand, is the least similar

day (34.6%) and shows the highest stress levels. To improve my Mondays, the model suggests that I should sleep more and be more social.

Finally, in the anomaly detection analysis, four significant outlier days were detected:

	Date	Day_of_Week	Mood_Morning	Sleep	Stress
2	2025-09-28	Sunday	6	8.5	6
10	2025-10-06	Monday	6	6.0	8
11	2025-10-07	Tuesday	5	7.5	7
24	2025-10-20	Monday	6	6.0	8

CONCLUSIONS:

Through this analysis, I have reached several conclusions about myself. The first is that my mood is consistently low between Sundays and Mondays. I believe this is because the week starts again: I have university on Mondays, which increases my stress levels and causes me to sleep less. As the week progresses, I realize that it is not as bad as I expected, and I get the opportunity to spend time with my friends in the city and to exercise.

Friday appears as my ideal day because I spend time with my friends in Barcelona and then visit my boyfriend and my family. After that, the cycle begins again.

From this study, there are some findings that truly shocked me. I have always thought of myself as a very independent person, but this analysis has shown me that my social life affects my mood, sleep, and exercise more than I realized. I would never have thought that on the days when I exercise, I am less likely to socialize. This is something I should take into account in the future, for example by making plans with my friends in advance.

Overall, my charts show that I am a happy (although stressed university student) person. My stress levels go up and down, but I maintain my habits, my sleep schedule, and I spend time with my loved ones. In conclusion, while there are aspects I could improve, I am mostly proud of myself.

IMPROVEMENTS IN THE STUDY:

Now that I have completed the work, I realize that I would have changed some aspects of the study. My whole family is from the Basque Country, where I lived until I was 18 years old. I now live in an apartment in Barcelona, but my grandparents live in Vilanova i la Geltrú, so I usually spend my weekends there. I think it would be very interesting to include this information to analyze whether other habits influence my mood and whether the place I am in has an impact as well. However, I did not include this data, so this remains a possibility for future work.

Additionally, I see that I could analyze many more aspects using this information, such as how my mood changes across different months or other relationships between variables. However, I feel that including all of this would make the study too long.

I have used Gemini to help me correct the code, because it was difficult for me to generate and code a notebook by myself, and also to correct the spelling of my report.

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