

BIG DATA ANALYTICS PROJECT SCHEDWIZ

Your AI Study Wizard

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PROBLEM MOTIVATION

LACK OF STRUCTURE

Without a set routine, many graduates find it hard to structure their days or stay motivated.

NO CLEAR PATH

Endless tasks and deadlines can feel paralyzing when there's no system to prioritize them.

RIGID PLANS

Traditional study schedules are static—they don't adjust to individual needs, energy levels, or pace.

LACK OF GUIDANCE

Students lack intelligent tools that learn from them and offer real-time, personalized guidance.

PROPOSED SOLUTION

1

To develop an AI-driven system that creates study plans tailored to each student's information, preferences, and performance.

2

To improve focus, engagement, and academic success by providing a structured yet flexible approach to learning.

Flexible Learning

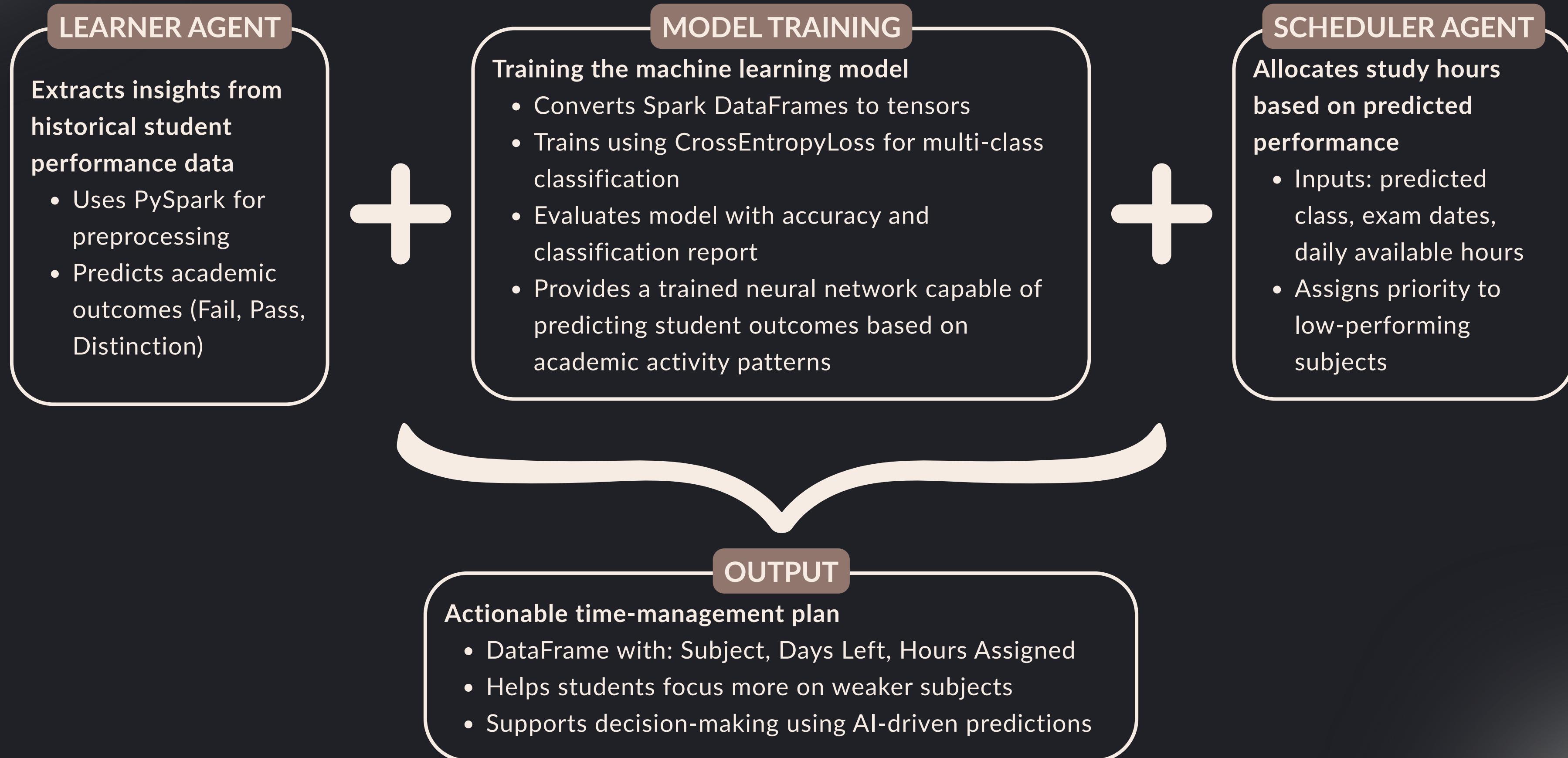
Improved Outcomes

SCHEDWIZ

Personalization

Real-Time Adaptation

METHODOLOGY



DATASET AND EDA

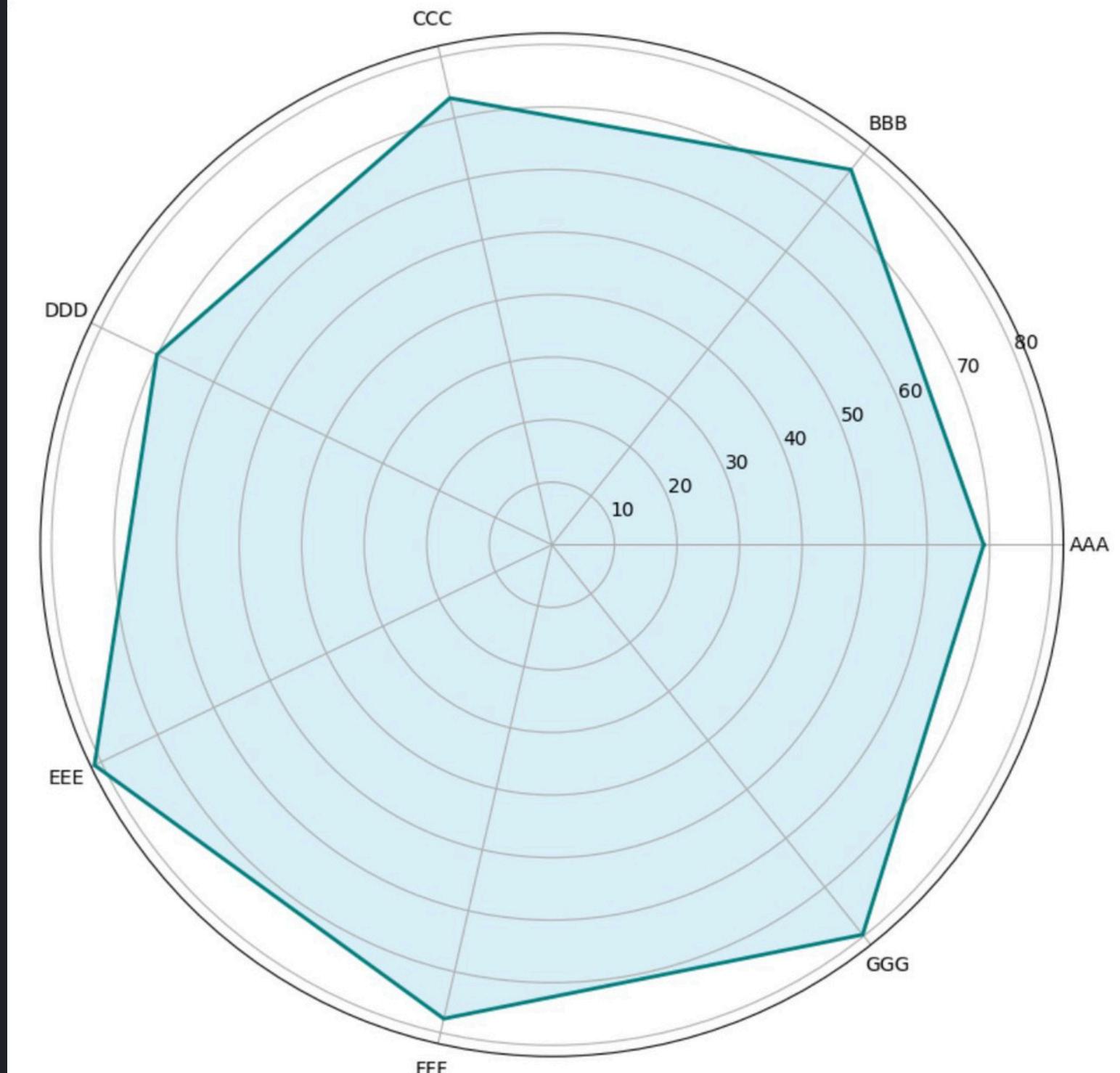
Open University Learning Analytics Dataset:

- Contains data for 32,000+ students across 7 subjects and multiple presentation semesters.
- Tracks student demographics, course enrollment, activity logs, and assessment scores.

Radar Chart Insights:

- Each spoke represents a subject, and the distance from the center shows the average score.
- The blue line connects these averages, and the shaded area shows the overall performance distribution.
- Subjects closer to the center indicate lower performance and can be prioritized in the schedule.

Radar Chart: Subject-Wise Performance



PREVIEW OF RESULTS

Model Summary

Train Accuracy: 74.98%

Test Accuracy: 73.3%

Test Set Classification Report:

	precision	recall	f1-score	support
Fail	0.71	0.65	0.68	807
Pass	0.74	0.89	0.81	2475
Distinction	0.75	0.32	0.45	756
accuracy			0.73	4038
macro avg	0.73	0.62	0.64	4038
weighted avg	0.73	0.73	0.71	4038

The model achieves 74.98% training accuracy and 73.3% test accuracy, showing strong generalization.

It performs best at predicting “Pass” (F1-score: 0.81) but struggles with “Distinction” (F1-score: 0.45), indicating a need for further tuning.

PREVIEW OF RESULTS

Student Input

Available subjects: AAA, BBB, CCC, GGG, DDD, EEE, FFF
How many subjects do you want to schedule for? 2
Enter subject code (e.g., AAA): EEE
Enter exam date for EEE (YYYY-MM-DD): 2025-06-01
Enter latest assessment mark for EEE: 50
Enter subject code (e.g., AAA): GGG
Enter exam date for GGG (YYYY-MM-DD): 2025-06-03
Enter latest assessment mark for GGG: 80
Enter number of hours you can study daily: 4

Users enter subject codes, exam dates, assessment marks, and available study hours through a simple input prompt. This setup personalizes the schedule generation based on urgency and recent academic performance.

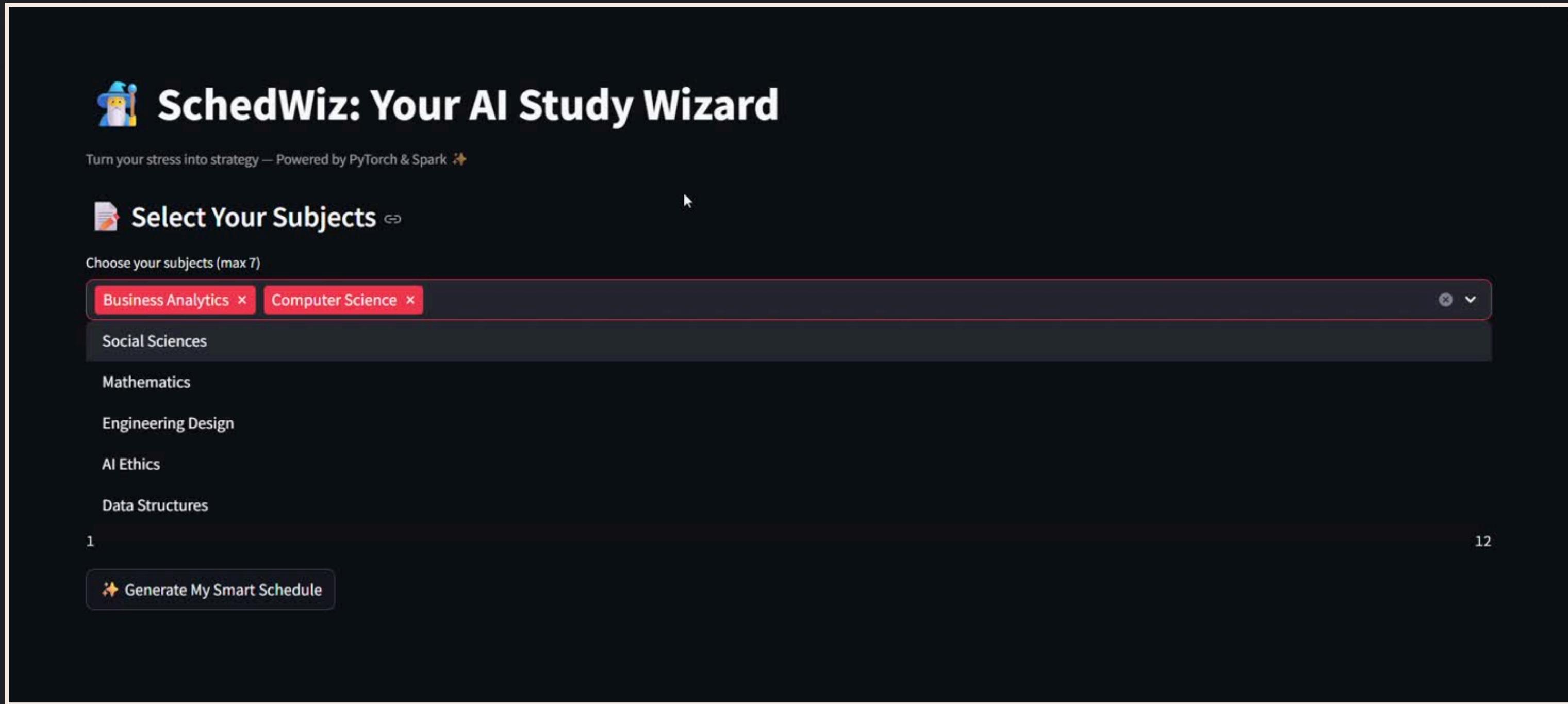
Output

Personalized Study Schedule:

	Subject	Days Until Exam	Total Hours Assigned
0	Humanities	4	8.0
1	Engineering / Applied Physics	2	4.0

A schedule is built by allocating daily study hours based on exam proximity and performance.

FINAL RESULTS



Students enter subject details including exam dates, difficulty level, and latest scores through a user-friendly Streamlit interface. Based on the input, the AI instantly generates a personalized study schedule, prioritizing subjects with higher urgency and lower scores.

SUMMARY

We developed an AI-powered system using PySpark, machine learning, and Streamlit to predict student performance and risk levels. Through an interactive interface, students input scores, exam dates, and difficulty levels to receive a personalized, adaptive study schedule.

CHALLENGES

- Imbalanced data reduced prediction accuracy for high performers.
- Real-time schedule reshuffling was complex to implement.
- Merging backend logic with a smooth user interface took effort.

NEXT STEPS

- Improve model accuracy using class balancing techniques.
- Add real-time progress tracking to adapt plans dynamically.
- Expand input fields (e.g., energy levels, topic difficulty).

CONCLUSION

- Our AI system turns students' overwhelming days into focused, personalized plans.
- It supports better time use, reduces decision fatigue, and boosts performance.



THANK YOU
FOR YOUR
TIME!