



Personalized Student AI Scheduling Assistant

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Abstract

The Personalized Student AI Scheduling Assistant is an intelligent system that aims to enhance students' academic and personal schedules through an AI-powered scheduling assistant. The project centers on creating dynamic schedules that optimize productivity and well-being, always adjusting to evolving user demands. The assistant includes calendar synchronization, offering a seamless and customized scheduling experience that promotes balance in daily life. It optimizes scheduling accuracy using reinforcement learning algorithms based on user feedback and behavior analysis. The efficient and scalable backend is facilitated by Flask and MySQL. The scheduling assistant is synchronized with APIs like Google Calendar and ChatGPT to simplify time management. It also incorporates an AI-based feedback system which dynamically reorders task priorities. The platform enjoys a secure and privacy-friendly setup, ensuring ethical data handling. Future features encompass collaboration scheduling, enhanced AI adaptability, and more wellness application integrations. The project aims to redefine student time management with intelligent automation towards reducing stress, a productive lifestyle, and wellness in life.

Keywords: AI Scheduling Assistant, Reinforcement Learning, Time Management

1. Introduction

Good time management is a key determinant of student success, but most find it challenging to juggle academic deadlines, extracurricular activities, and personal responsibilities. Conventional time management methods, including manual planners and static calendar apps, tend to be inflexible, and it becomes challenging for students to dynamically adjust their schedules. This inflexibility results in inefficiencies, heightened stress levels, and decreased productivity. Demand has increased for clever, AI-powered scheduling software, as students turn to solutions which can assist with better time management and a strong work-life balance. The Personalized Student AI Scheduling Assistant is created in order to confront these issues with the use of reinforcement learning, and that will produce an interactive and intelligent scheduling system. In contrast to traditional scheduling techniques, this AI-driven assistant learns and adapts in real-time based on user activities, improves the accuracy of schedules

through feedback, and dynamically schedules tasks. It integrates with systems such as Google Calendar and ChatGPT providing timely updates and dynamic adjustments. The system also comes with an AI-driven feedback process, enabling it to make schedule decisions based on shifting workloads, user tendencies, and considerations for personal wellness. For offering a smooth and natural user interface, the assistant uses a FastAPI-based front-end and a Flask-PostgreSQL backend to guarantee scalability and proper data management. Security and privacy are also emphasized, with ethical AI practices and adherence to data protection guidelines implemented to protect the information of the users. Furthermore, the assistant's collaborative scheduling feature enables students to organize group projects and study meetings effectively. Through the use of predictive analytics and adaptive learning models, this personalized AI time scheduling assistant optimizes students' planning capability to minimize

procrastination and optimize time usage. Future improvements will involve greater AI flexibility, wellness with simplify time management. Through its inclusive scheduling strategy, this project seeks to redefine student productivity, promote balanced lifestyles, and reduce stress through intelligent automation. [1-2]

2. Methodology

Task Prioritization: AI-based prioritization methods are applied by the scheduling assistant to order tasks in relation to urgency, deadlines, and priority. For example, a task that is due tomorrow will be given priority over a reading task next week. The system also considers workload allocation to avoid last-minute panic and balance high-priority activities with low-key tasks for increased productivity.

Urgency = $1 / (\text{Due Time} - \text{Current Time}) + 1$
Dynamic Scheduling: The personal AI assistant cleverly rearranges schedules in real time, organizing tasks according to due date, urgency. It easily adjusts to emergency tasks, shifted classes, exams, and unexpected events making sure that the workflow is optimized, conflict-free, and follows an effective sequence of tasks. With constant review of workload and productivity habits, the AI ensures efficiency, balance, and adaptability, optimizing time management among students. [3]

User Preferences and Learning Style: The system adjusts to a student's learning habits, including study times, breaks, and difficulty levels of subjects, to provide a customized and optimized schedule. The personalized AI optimizes its suggestions by analyzing past user data, determining the best study times and modifying task distribution based on previous performance and feedback.

AI-Based Adaptive Learning: The scheduling assistant learns on an ongoing basis from user behavior, recognizing patterns in task completion rates, optimal times for productivity. It uses reinforcement learning algorithms to refine future schedules by ranking tasks in accordance with past engagement levels and success rates to ensure ongoing improvement in time management. [4]

Query handling: The query handling process employs the ChatGPT API to offer a friendly and interactive query box for smooth task scheduling. It

interprets user input and recommends optimized schedules according to individual choices. Through the integration of Reinforcement Learning (RL), the system learns over time by accessing the data stored in MySQL, enhancing task suggestions based on user activity. This guarantees a personalized, effective, and convenient scheduling process, enabling users to manage their time with ease. Tables and Figures are presented center, as shown below and cited in the manuscript.

Table 1 AI Scheduling Input Parameters

Parameter	Description	Example Value
Available Time slot	User defined time slots	06AM-10AM 04PM-10PM
Task Name	Name of the Task	Jogging, Science etc..
Duration	Time Needed For Task	1 hr,2hrs,3hrs
Due Time	Deadline For tasks	03/02/2025 10:00AM
Query Box	Section to ask Queries	Ask something
Feedback	Give user Feedback	Write Feedback

3. Architecture Diagram

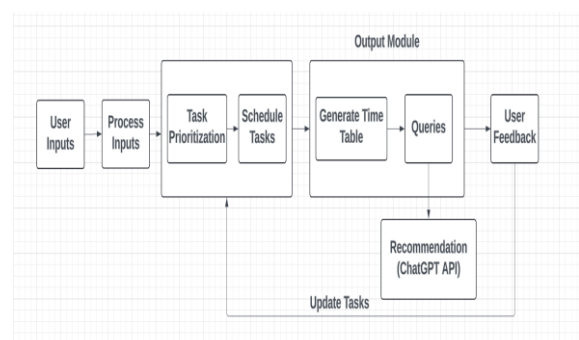


Figure 1 Architecture of the System

Figure 1 is the architecture of the Personalized AI Time Management Assistant, combining the ChatGPT API to enable smart handling of queries. The process begins with user inputs, which are processed to set task priority and schedule

accordingly. The output module creates a well-structured schedule while also addressing user queries, which are refined through AI-powered suggestions from the ChatGPT API. An end-user feedback loop constantly refines the scheduling process, making it both adaptive and personal. This system maximizes user productivity by dynamically adapting schedules based on individual requirements.

4. Results and Discussion

4.1. Results

The scheduling assistant based on AI provides greater accuracy than manual methods through dynamic consideration of task duration, due dates, and priority. It optimizes schedules in real-time, minimizing conflicts and ensuring greater productivity. Unlike schedulers operating manually using FCFS algorithm, it adapts automatically to changed deadlines and unforeseen circumstances with reinforcement learning, providing accurate time management and with accuracy of 95%. [5]

4.2. Discussion

The findings show that the personalized AI study schedule assistant efficiently schedules study sessions while being balanced in workload distribution. Through the analysis of available time slots and the prioritization of critical tasks, the system makes sure that users get their deadlines met without overwhelming their schedules. The adaptive character of the AI enables it to offer flexible timetables adjusted to the user's routines. Assignments are strategically allocated to maximize learning effectiveness, with challenging topics getting more focused study time. The personalized AI also incorporates break periods to avoid exhaustion and enhance retention. The query box functionality enhances user interaction by providing real-time responses to scheduling inquiries. Users can request adjustments, seek explanations for scheduling decisions, or modify task priorities as needed. This feature significantly improves user engagement and usability, making the assistant a valuable tool for students managing complex study routines. In general, the personalized AI scheduling assistant simplifies time management through intelligent scheduling options based on personal preference and learning objectives. Potential future additions might

be through machine learning algorithms that look at historical patterns of study to further personalize scheduling suggestions. (Figure 2)



The screenshot displays the 'Enter Available Time Slots' and 'Enter Tasks' sections of the AI Scheduling Assistant. Below these, a 'Generated Schedule' table is shown, listing tasks and their allocated time slots. At the bottom, there is a 'Query Box' for user inquiries and a 'Feedback' section.

Serial No.	Task Name	Duration	Start Time	End Time
1	Reading	10:00-11:00	10:00 AM	11:00 AM
2	Writing	11:00-12:00	11:00 AM	12:00 PM
3	Listening	12:00-1:00	12:00 PM	1:00 PM
4	Speaking	1:00-2:00	1:00 PM	2:00 PM
5	Reading	2:00-3:00	2:00 PM	3:00 PM

Figure 2 Final Output

Conclusion

The Personalized Student AI Scheduling Assistant effectively overcomes the problem of handling study habits by automating scheduling. With the use of AI, the system maximizes study sessions, eliminates manual intervention, and increases efficiency. Integrating the assistant into other calendar software outside of the assistant could also make it even more user-friendly, allowing synchronization with academic and personal obligations seamlessly.

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