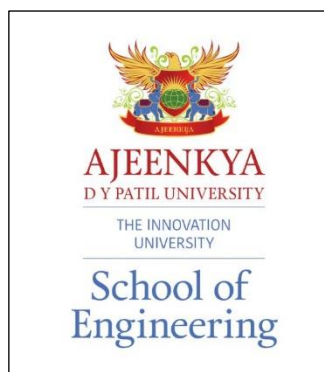




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Introduction

In today's fast-paced world, where the demands on our time and attention seem ceaseless, the ability to manage time effectively stands as a linchpin for achieving academic success and fostering personal growth. Whether navigating the intricate landscape of academic coursework, seeking professional development and upskilling, or immersing oneself in the pursuit of new and enriching hobbies, the cultivation of a well-organized study plan emerges as a fundamental strategy. For individuals between the ages of 18 and 30, a demographic marked by dynamic transitions, diverse commitments, and evolving personal aspirations, the significance of effective time management is particularly pronounced. This age group often finds itself at the intersection of academic pursuits, professional responsibilities, and the exploration of personal interests. In response to these multifaceted challenges, the development of a forward-thinking solution becomes imperative—a personalized study planner meticulously crafted to elevate the productivity and holistic learning experience of young individuals. At the heart of this innovative study planner lies a commitment to individualization. Recognizing that each person possesses unique personalities, learning styles, and preferences, the study planner aims to seamlessly integrate principles of effective time management with personalized insights. The overarching goal is not merely to streamline the allocation of time but to create an immersive and motivating study experience that resonates with the individuality of each user. The study planner aspires to be more than a mere time-tracking tool; it endeavours to be a dynamic companion in the academic and personal development journey. To achieve this, the planner is designed to embody several key principles:

1. **Goal-Setting:** Encourages users to define clear and achievable goals, aligning their academic and personal ambitions.
2. **Efficient Time Management:** Provides intuitive features for scheduling study sessions, optimizing time allocation for various tasks, and ensuring a balance between academic and personal commitments.
3. **Progress Tracking:** Enables users to monitor their progress, offering insights into completed tasks, areas for improvement, and milestones achieved.
4. **Sustained Motivation:** Incorporates motivational elements, such as personalized achievement badges, encouraging messages, and progress visualizations, to keep users engaged and inspired.
5. **Adaptability and Evolution:** Adapts to the changing needs and preferences of users over time, fostering a sense of adaptability and continuous improvement.

Objective

The overarching objective of this personalized study planner is to empower young learners with a tool that goes beyond traditional scheduling. It aims to facilitate a comprehensive and personalized approach to academic and personal development, fostering a sense of ownership over one's learning journey. By harnessing the power of technology and psychological insights, the study planner strives to become an indispensable companion for individuals navigating the intricate balance between education, professional pursuits, and personal enrichment. Through tailored guidance, dynamic adaptability, and motivational reinforcement, the study planner endeavours to be a catalyst for academic success and personal growth in the dynamic lives of young individuals aged 18 to 30.

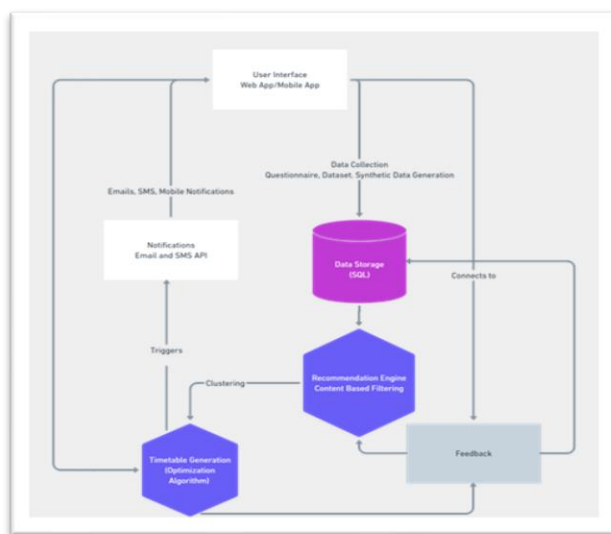
Literature survey

The key insights into personalized study planners, emphasizing effective time management for individuals aged 18 to 30. Research highlights content-based filtering as a significant recommendation system technique, tailoring study plans to user preferences. The integration of motivational elements and user feedback mechanisms emerges as a trend for enhanced engagement and learning outcomes. Time management studies stress the importance of holistic features, including goal-setting and progress tracking. Challenges, such as data scarcity and diverse algorithms, are acknowledged, suggesting collaborative efforts for enriched datasets. In summary, the literature underscores the interdisciplinary nature of developing transformative study planners for the evolving needs of young learners.

Sr. no	Title name	Name of author	Algorithm	Year of publication
1	Enhancing Efficient Study Plan for Student with Machine Learning Techniques	Nipaporn Chanamarn, Kreangsak Tamee	K-means algorithm	2017
2	Personalization in Real-Time Physical Activity Coaching Using Mobile Applications	Francisco Monteiro-Guerra, Octavio Rivera-Romero, Luis Fernandez-Luque, Brian Caulfield	Similarity matching algorithms	2019
3	Intelligent timetable scheduler	Tiny Ekanayake, Pavani Subasinghe, Shawn Regel, Anjalie Gamage	Genetic algorithm	2019
4	Analyzing and Predicting Students' Performance by Means of Machine Learning	Juan L. Rastrollo-Guerrero, Juan A. Gomez-Pulido, Arturo Durán Domínguez	Predicting algorithms	2020
5	Nudge - A day planner android application using artificial intelligence	Ms. Madhumitha.Rm, Ms. Adithi.G, Mrs. Ramya Devi.R	Machine learning algorithms	2019
6	A Personalized Time Management Assistant: Research Directions	Pauline M. Berry, Melinda Gervasio, Tomas Uribe, Martha E. Pollack	Temporal CSP, PLIANT algorithms	2005
7	Everyday planning: An analysis of daily time management	Daniel J. Simons, Kathleen M. Galotti	Search algorithm	2013
8	An intellectual approach to design personal study plan via machine learning	Shiyuan Zhang, Evan Gunnell, Marisabel Chang, Yu Sun		2020
9	Smart Routine Planner using Machine Learning	Prof. Bhagya K, Jesly P Johnson, Anurag Sharma, Sonia Stalance, Apurva A	Logistic Regression algorithms	2021

Methodology

The architecture of the project comprises of user interface(web/mobile app) , data collection (questions, dataset, synthetic data generation), notifications (email and sms api), recommendation engine (content based filtering), feedback, timetable generation (optimization algorithm).



1. User Interface (Web/Mobile App):

The project features a responsive user interface accessible through both web and mobile applications.

Utilizes modern design principles for an intuitive and user-friendly experience.

Responsive layouts cater to various screen sizes and orientations.

2. Data Collection:

Questions: A curated set of questions is presented to users, addressing various aspects like age, academic performance, study habits, and preferences. Questions are designed to collect relevant data for personalized recommendations.

Dataset: A comprehensive dataset is employed, containing historical user data, academic records, and study patterns. Diverse data sources enhance the accuracy of personalized recommendations.

Synthetic Data Generation: Synthetic data generation techniques augment the dataset, ensuring diversity and privacy. The generated data maintains statistical relevance while preserving user anonymity.

3. Notifications:

Email and SMS API: Integration with email and SMS APIs facilitates personalized notifications. Users receive timely reminders, updates, and recommendations through their preferred communication channels.

4. Recommendation Engine (Content-Based Filtering):

Content-Based Filtering: Employs a content-based filtering recommendation engine. Analyzes user preferences, study habits, and historical data to suggest personalized study plans. Considers factors such as academic performance, time availability, and course preferences.

5. Feedback: User Feedback Mechanism: Implements a robust user feedback system for continuous improvement. Collects feedback on recommended study plans, user experience, and overall satisfaction. User input contributes to refining the recommendation engine.

6. Timetable Generation (Optimization Algorithm):

Optimization Algorithm: Utilizes advanced optimization algorithms for efficient timetable generation. Considers constraints like study duration, preferred study times, and breaks. Generates personalized study timetables that align with the user's lifestyle and maximize productivity.

a) Implementation of mobile app using react native and JavaScript

1. Sign-in and Login Page:

- User Authentication: Implements a secure authentication system using Firebase Authentication or a similar service. Enables users to register and log in securely with email/password or social media accounts.
- Form Validation: Incorporates form validation to ensure data integrity. Notifies users of any errors during the sign-in or login process.
- Password Recovery: Allows users to recover their password through a secure email verification process. Enhances user convenience and security.

2. Questionnaire Page (21 Questions):

- Dynamic Question Rendering: Dynamically renders a set of 21 questions on the questionnaire page. Utilizes React Native components to create an engaging and responsive user interface.

- Question Types: Includes various question types such as multiple-choice, rating scales, and text input. Captures diverse user preferences and characteristics.
 - Form Navigation: Implements smooth navigation between questions using React Navigation or a similar library. Enhances the user experience by providing a seamless transition between questionnaire sections.
 - Data Storage: Stores user responses locally on the device using Async Storage or similar mechanisms. Ensures data persistence even if the user closes the app temporarily.
 - Question Logic: Incorporates logic to handle branching and conditional questions based on user responses. Adapts the questionnaire dynamically to provide a personalized experience.
 - Progress Tracking: Displays a progress indicator to inform users about the completion status of the questionnaire. Enhances user engagement by providing a visual representation of progress.
 - Submit and Save: Allows users to submit the completed questionnaire. Optionally, enables users to save their progress and complete the questionnaire later.
 - Error Handling: Implements robust error handling to address unexpected scenarios during the questionnaire process. Provides clear error messages for a user-friendly experience.
 - Accessibility: Ensures accessibility by adhering to best practices for mobile app development. Incorporates features like voiceover and screen reader support for users with disabilities.
3. Styling and Theming:
- Consistent Design Language: Adheres to a consistent design language throughout the application. Enhances the overall visual appeal and usability.
 - Theming Support: Provides theming support to allow users to personalize the app's appearance. Offers light and dark mode options for user preference.
4. Expo Integration:
- Expo Framework: Utilizes Expo to streamline the development and deployment process. Expo provides a set of tools and services that simplify React Native development, offering features like hot-reloading and over-the-air updates.
 - Expo CLI: Leverages Expo CLI to start, build, and manage the React Native project. Expo CLI facilitates the integration of Expo-specific features and services.
 - Expo Client App: Employs the Expo Client app for testing the application during development. Users can easily preview and interact with the app using the Expo Client app.

b) Implementation of web app using JavaScript

1. Sign-in and Login Page:
 - User Authentication: Implements a secure authentication system using technologies like Firebase Authentication or custom server-side solutions. Allows users to register and log in with email/password or social media accounts securely.
 - Form Validation: Incorporates JavaScript for client-side form validation to ensure data integrity. Provides immediate feedback to users on any errors during the sign-in or login process.
 - Password Recovery: Enables users to recover their password through a secure email verification process. Enhances user convenience and security.
2. Questionnaire Page (21 Questions):
 - Dynamic Question Rendering: Dynamically generates a set of 21 questions on the questionnaire page using HTML and JavaScript. Utilizes HTML forms and JavaScript functions to create an interactive user interface.
 - Question Types: Implements various question types using HTML input elements, such as radio buttons, checkboxes, and text inputs. Captures diverse user preferences and characteristics.
 - Form Navigation: Utilizes JavaScript for smooth navigation between questions within the HTML document. Enhances the user experience with a seamless transition between questionnaire sections.
 - Data Storage: Stores user responses locally on the browser using JavaScript's local storage. Ensures data persistence even if the user reloads the page.
 - Question Logic: Implements JavaScript functions to handle branching and conditional questions based on user responses. Adapts the questionnaire dynamically to provide a personalized experience.
 - Progress Tracking: Displays a progress indicator using HTML and JavaScript to inform users about the completion status of the questionnaire. Enhances user engagement with a visual representation of progress.
 - Submit and Save: Allows users to submit the completed questionnaire using a JavaScript function. Optionally, enables users to save their progress locally and continue the questionnaire later.
 - Error Handling: Implements JavaScript functions for robust error handling to address unexpected scenarios during the questionnaire process. Provides clear error messages for a user-friendly experience.
 - Accessibility: Ensures accessibility using HTML semantics and ARIA attributes. Incorporates features like keyboard navigation for users with disabilities.
3. Styling and Theming:
 - CSS Styling: Applies CSS styling to create a consistent design language throughout the web application. Enhances the visual appeal and usability of the application.
 - Theming Support: Provides theming support through CSS variables or dynamic style changes using JavaScript. Offers light and dark mode options for user preference.

Conclusion

In conclusion, the development of a personalized study planner geared towards young individuals aged 18 to 30 represents a dynamic and multifaceted endeavour. Acknowledging the challenges posed, such as the scarcity of sufficient data, the diversity of recommendation system algorithms, the demand for comprehensive features beyond timetable generation, the limited availability of datasets, inconsistent data records, and the critical aspect of user experience (UI) design, it becomes evident that addressing these challenges is integral to the success and adoption of the study planner. One of the primary challenges identified is the constraint posed by insufficient data. The efficacy of recommendation systems relies heavily on the availability of diverse and abundant datasets. As a solution, an emphasis must be placed on actively seeking and acquiring relevant data that mirrors the diverse academic and personal scenarios of the target demographic. Collaborations with educational institutions, industry partners, and leveraging user-generated data can serve as avenues to enrich the dataset, providing a more robust foundation for the study planner's algorithms. Given the multitude of recommendation system algorithms available, a judicious selection and comparison become imperative. Rigorous testing and evaluation of these algorithms against real-world scenarios will be essential to identify the most effective approach. This demands a systematic exploration of algorithms, considering factors like accuracy, scalability, and adaptability to the unique characteristics of the study planner's user base. Moreover, it is imperative to recognize that users require more than just a timetable generation tool. The study planner must evolve into a holistic educational companion, integrating features that address various facets of the user's academic journey. This includes comprehensive goalsetting, progress tracking, motivational elements, and adaptability to changing preferences. A user-centric approach, involving continuous feedback and iterative design, is essential to ensure that the study planner aligns with the diverse needs and expectations of its users. The challenge of a limited number of datasets and inconsistent data records emphasizes the importance of data quality. Standardization and normalization processes should be applied to ensure data consistency, allowing for more reliable outcomes in the study planner's functionalities. Efforts should also be directed towards creating and curating datasets that encompass a wide range of academic disciplines, personal interests, and learning styles. The significance of user experience (UI) design cannot be overstated. A seamless and intuitive interface is paramount to user engagement and satisfaction. Addressing challenges related to adjusting screen sizes for consistency across various devices is essential. A responsive design approach, coupled with usability testing, will be instrumental in delivering a study planner that not only meets but exceeds user expectations. In essence, the successful development and implementation of a personalized study planner necessitate a comprehensive strategy that tackles the identified challenges head-on. By embracing data enrichment, algorithmic exploration, feature diversification, data quality enhancement, and user-centric design, the study planner can emerge as a transformative tool, empowering young learners on their academic and personal development journeys.

Reference

Once user input convert it into map values and store it into json format