Smart Reminder App for Wellness and Workplace Productivity

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Task 0

Abstract

In this report I have proposed the idea of Smart Reminder App for Wellness and Workplace Productivity designed to enhance workplace productivity for small and large businesses. The app addresses the prevalent issue of inefficient task management in busy work environments and aims to seamlessly integrate with project management tools and team communication platforms to improve employee efficiency.
The Smart Reminder app tackles all the key issues by utilizing machine learning to understand user behavior, preferences, and context, providing intelligent and personalized reminders. With its user-friendly interface, coupled with adaptive notifications it not only ensures a smooth experience but also allows users to focus and complete timely tasks.

Problem statement

Workplace productivity is important to maintain the organization's well being. Workplace Productivity defines a company's performance over the past year that determines whether they would be able to succeed in completing upcoming projects or not. If the organization's productivity is low, then it would harm product quality and affect the profit scale as well.
In the fast-paced realm of modern workplaces, achieving optimal productivity in task management and completion poses a multifaceted challenge.
The exorbitant number and intricate nature of tasks, makes it difficult to devise clear and straightforward execution plans. Employees often grapple with the overwhelming volume of tasks, leading to missed deadlines, forgotten meetings etc. Organizing and managing these tasks in the midst of having unclear priorities in dynamic work environments, further complicate matters, leaving individuals and teams to feel overwhelmed by its sheer volume leading to disorganization. This leads to increased stress levels, decreased job satisfaction which not just affects their day-to-day performance but also the overall quality and performance of product delivery from the organization as well.

Balancing workplace productivity and maintaining a healthy work-life balance can be a tricky endeavor. Individuals often face challenges in maintaining a balance between their professional responsibilities and personal well-being. With the mounting pressure

of work they often fail to take care of themselves which affects productivity. Optimal productivity is intricately linked to personal health and mindfulness
Therefore there is a growing need for a comprehensive solution that seamlessly integrates reminders for both work-related tasks and personal wellness activities.

This creates a pressing need for an intelligent and user-friendly application specifically designed to optimize task organization and enhance user wellness.

The Smart Reminder app tackles all these issues seamlessly while maintaining simplicity by organizing and making priority predictions leveraging machine learning. It not just offers offers customizable reminders but also incorporates location-based reminders along with comprehensive analytics for tracking task completion thus helping users optimize their efficiency through actionable insights.
Apart from this, it also maintains the personal wellness of the user by monitoring daily activity and leveraging real-time weather data to provide personalized wellness predictions and recommendations for optimal health.

Market / Customer/ Business Need Assessment:

- Dynamic Work Environments
  - Professionals in dynamic work environments, such as project teams, often grapple with the intricacies of task coordination and prioritization.
  - Individuals and team heads struggle with task management in complex work settings, leading to missed deadlines and decreased productivity
  - Traditional task management solutions often lack adaptability, leading to rigid schedules that may not align with individual work patterns.
  - Modern workplaces require adaptable tools that cater to the diverse needs of different functional teams.
  - Individuals with demanding schedules dont prioritize a balanced lifestyle and therefore become victims to various types of stress and health issues.
  - Physical and emotional exhaustion could diminish their sense of self-worth, making it challenging for them to recognize their capabilities. This in turn, may erode their overall motivation to work, subsequently impacting their levels of productivity.

- ➢ Therefore prioritizing personal wellness, including mental health, physical activity, and quality sleep is very important.

- ❖ Remote Work Challenges
  - ➢ The rise of remote work and the growing emphasis on collaborative workflows have intensified the need for a sophisticated task management solution.
  - ➢ At present there aren't many tools (having shared functionalities) that improve collaboration among team members in such cases.
  - ➢ With location-based reminders, the app addresses the unique challenges of remote work by intelligently reminding users based on their physical location.
- ❖ Customer demand
  - ➢ As the customers' demands keep growing, so does the amount of work the organization has to do to meet their expectations.. Therefore there needs to be a way to manage, organize and effectively prioritize all these tasks so that a quality product can be delivered while adhering to all the deadlines and guidelines while giving importance to employee's potential and wellbeing.

- ❖ Existing apps often focus on either productivity or wellness, leaving users to navigate between multiple tools. The need for a singular, intelligent platform that harmonizes work responsibilities and well-being is evident.

Target specifications and characteristics

Target:

- ❖ To increase user productivity
- ❖ To improve user wellbeing
- ❖ To ensure quality products are gotten out
- ❖ Optimize resource utilization

Analyze:

- Which tasks they spend their time on the most so that these tasks can be assigned during times they are most productive
- Which time they are most productive so that difficult and urgent tasks can be organized accordingly.
- Their frequencies of doing tasks and taking breaks gives an analysis of employee personality and where their potential can
- How fast they complete tasks will help in understanding the employee and what steps can be taken to improve their efficiency/maximize their potential.
- Organize individuals who excel in completing specific types of tasks into designated groups, ensuring that each person is assigned tasks aligned with their strengths to maximize their full potential.
- Comprehensive analysis helps users identify areas that need improvement and peak productivity levels.
- Activity and sleep patterns
- Daily routine
- Weather patterns
- Task Completion Trends:

External Search

Sources used:

Study of workplace productivity:

- https://www.classicinformatics.com/blog/workplace-productivity-for-project-managers
- https://osf.io/cb9dn/download
- https://www.researchgate.net/publication/315603325_An_analysis_of_application_usage_for_notes_and_reminders_by_older_persons-ElderNote_Case_study

Dataset:

The ML model is trained on the following dataset.

https://www.kaggle.com/datasets/mayankkashyap07/task-completion

Attributes

- Task name
- Type of task (eg: Work,Learning)
- Priority (Medium)
- Due date
- Task completion status (Over/Under)

Priority Prediction Algorithms:

Machine learning (ML) is an application of Artificial Intelligence (AI) that provides the system with the ability to automatically learn and improve from experience rather than explicit programming. It has revolutionized the world by ushering in unprecedented advancements across various sectors. Its ability to automate tasks, analyze vast datasets, and derive insights has significantly enhanced efficiency and decision-making processes. Its impact on smart reminder apps is no exception.

The primary goal of Priority Prediction in the Smart Reminder App is to leverage machine learning (ML) algorithms to predict and assign priority levels to tasks. This predictive capability enhances task management by automatically categorizing tasks based on their perceived importance..

Classification algorithms are well-suited for tasks where the goal is to categorize items into distinct classes. In the case of priority prediction, tasks can be categorized into different priority levels (e.g., High, Medium, Low).

To train the model, historical data is needed where tasks are already labeled with their respective priority levels. The dataset's features such as due date,task type,time sensitivity etc is used.Random Forest, Support Vector Machines, and Gradient Boosting can be used.

Weather API:

https://openweathermap.org/api

A reliable weather API is integrated to fetch real-time weather data based on the user's location. The API should provide information such as temperature, humidity, and weather conditions.

Activity monitoring:

- Geospatial technology triggers reminders when the user is in the vicinity of the specified location. It uses GPS and built-in accelerometer and gyroscope sensors in smartphones to track and analyze motion.
- The pedometer tracks the user's daily step count, providing insights into overall physical activity and gives health based alerts accordingly.
- When a user enters the vicinity of a predefined location, the app triggers the associated reminder and sends push notifications.
- Some other technologies that can be used are Smart Polling Intervals.

Community Engagement:

Users can join community groups within the app, sharing goals and collaborating with like-minded individuals.

Server-Side Frameworks and Database Management Systems can be used.

For authentication OAuth 2.0 technology can be used.

Bench marking alternate products (comparison with existing products/services)

Feature	Smart Reminder App	Existing Products
Context-Aware Wellness Reminders	Utilizes machine learning for context-aware reminders (weather, location, preferences).	Lack advanced context-aware features, focus on generic task management.
Community Engagement	Allows users to join wellness-focused community groups for motivation.	Existing products typically lack specific community features for wellness.
Machine Learning Predictions	Predicts task priorities using ML algorithms, adapting to user behavior.	Existing products lack ML-driven task prioritization.
Wellness Integration	Integrates wellness reminders based on activity, sleep, and real-time weather.	Existing products primarily focus on task and note management.

Applicable constraints

- Convincing an organization to adopt this system
- Budget constraints: Limited financial resources for development, marketing, and maintenance.
- Lack of technical knowledge (especially users used to traditional task management)
- Continuous use of Wifi services (might be difficult in small organizations)
- Difficult to manage and maintain user data in huge organizations having multiple functional teams
- Compatibility across a wide range of devices and operating systems.

- ❖ Not user friendly to people who are visually impaired.

Applicable regulations

- ❖ Security and privacy issues
- ❖ Location-Based Services Regulations
- ❖ Consumer Protection Laws

Business model

This app would not just take care of the well being of the user but also ensure productivity in their workplace.

- ❖ These smart reminders can be purchased by organizations that can distribute to teams that are working on the end stages of product deployment or small teams that have a large chain if tasks are lined up.
- ❖ Organizations can adopt this system by purchasing one of the 2 plans:
  Free Model:
    - Description: Offer a free version of the app with basic features, and provide a premium subscription for enhanced functionalities such as advanced wellness insights and personalized analytics.

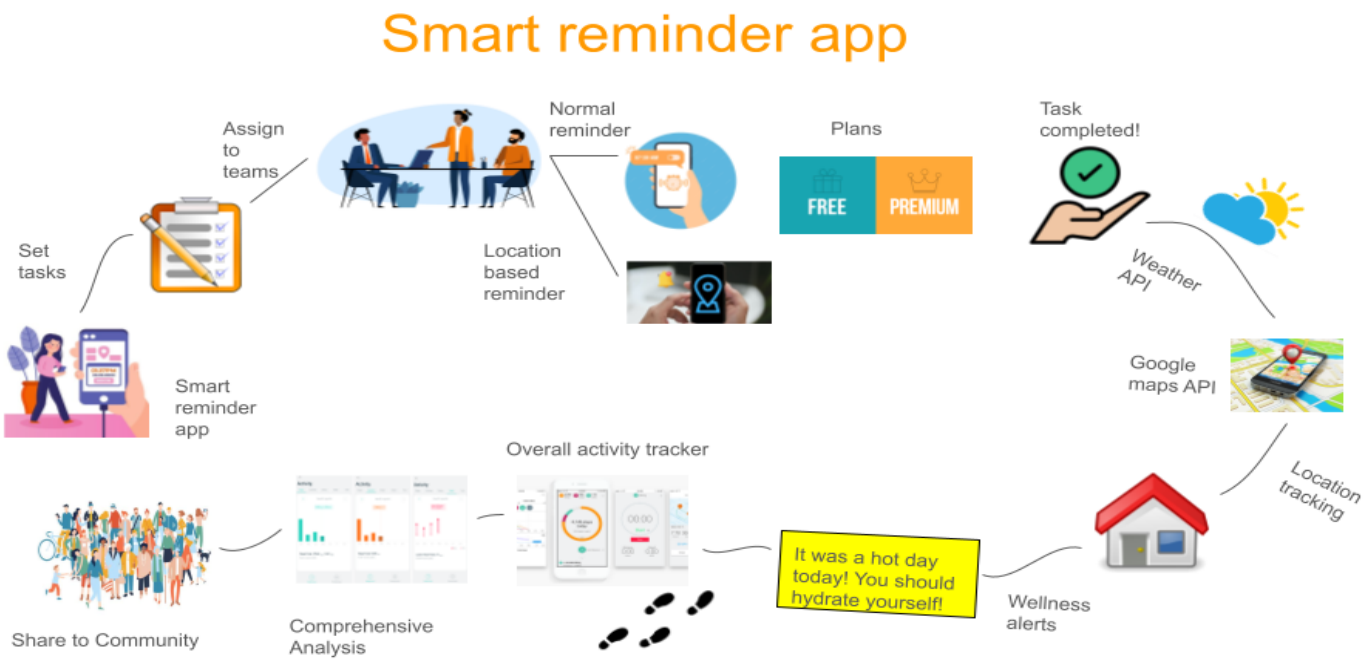
  Subscription-Based Model(Premium):
    - Description: Charge users a recurring subscription fee for access to the full suite of features, including advanced wellness tracking, machine learning-driven prioritization, and exclusive community engagement and features to compare your performance with another colleague.

- ❖ Through community groups an organization can also connect and share ideas with another organization.
- ❖ Through branded partnerships it can collaborate with other wellness brands and integrate exclusive offers or discounts for users thus generating revenue through partnership agreements.
- ❖ Employees who are part of an organization that purchased this app can get special discounts and free access to premium features of the personalized wellness features of the app.

Concept generation

The concept is to increase productivity of users in the workplace while maintaining their wellness in terms of health and emotion at other times.

Final Product Prototype



Product details

How it works

- **Download:**
  - The user can download the app from PlayStore.Once downloaded the user will be prompted to answer certain questions regarding their bedtime,most productive times etc.
- **Task setting and reminders:**
  - Users can set tasks, deadlines, and reminders either individually or within teams. The app provides customizable options for task categorization, priority levels, and due dates.

    - This app has different levels of functionalities that can be distributed across different functional teams of the organization that can make use of the app according to their own needs.
    -
    - This means that not just individual Users but the team head too can set reminders for tasks, meetings, or deadlines by broadcasting the same to their group.

- **Priority Prediction (Machine Learning):**
    - It utilizes machine learning algorithms (prioritization algorithms) to predict the priority of tasks.
    - Learns from the user's historical data, helping prioritize tasks based on importance and deadlines.

- **Adaptive Notifications:**
    - The app uses Machine Learning to understand the user's preferred task completion times and most productive period which is used to prioritize and reorganize/adjust tasks accordingly. Historical data on task completion is analyzed and used to predict the likelihood of completing a task on time . It is used to suggest optimal times for task completion.

- **Comprehensive Analytics:**
    - Provides detailed insights into task progress,completion and productivity trends.
    - Allows users to compare themselves with other people within their organization(in case of a business) as well with other people globally.
    - Allows users to track their efficiency, identify peak productivity periods, and make data-driven decisions.

- Users can also join community groups that share like minded goals to improve their productivity and keep their completion status in check.

Activity monitoring:

- The app is integrated with a weather api that can fetch weather updates in real time. This is used to give smart predictions and alerts to the user.
- For instance: The app can suggest what kind of clothes to wear before going out to work or what kind of activities can be performed based on analyzing various climatic factors.

Location based reminders:

- The app leverages geospatial technology such as Gps to provide reminders based on the user's physical location.
- Users can set reminders based on their location, and the app will intelligently remind them when they are in the vicinity. This is ideal for tasks tied to specific places, such as picking up groceries or completing errands.
- Thus based on the location of the user along with information from the integrated weather api the app is able to send health-conscious reminders.
- For eg: If the user comes from his work after a hot day, alerts could be sent to remind users to hydrate themselves.

- With the apps built in pedometer it captures users' step counts and provides comprehensive analysis into their daily physical activity levels. Based on this automatic wellness reminders are set leveraging Machine Learning Technology.
- For instance, if a user hasn't reached their daily step goal by a certain time, the app can suggest a short walk or quick exercise to promote physical activity.
- Users can also set daily or weekly step goals within the app and the pedometer tracks progress toward these goals.

Algorithms and Frameworks

- **NLP**: ML Component: Natural Language Processing (NLP) is employed to understand the context of reminders and interpreting user input.

- ***Recurrent Neural Networks (RNNs)****:* Employed for pattern recognition, predicting task priorities based on historical data and user behavior.

- **Framework Used**: Flutter provides a cross-platform framework, enabling the development of the Smart Reminder App for both Android and iOS platforms with a single codebase. Its hot-reload feature facilitates rapid development and testing.

- **Machine Learning Algorithm for Priority Prediction:**
    - **XGBoost(Extreme Gradient Boosting):** XGBoost is employed for predicting task priorities based on historical data and user behavior patterns. Its efficiency in handling structured data and feature importance analysis makes it suitable for this context.
    - **Decision Trees:** Decision trees or regression models can be used to predict the optimal order in which tasks should be completed.

- **Geospatial Technology for Location-Based Reminders: Google Maps API**

  The Google Maps API enables the integration of geospatial technology, allowing users to set reminders based on their physical location. It provides accurate mapping and location services for seamless reminders.

- **Adaptive Notifications:**TensorFlow Lite is utilized for the integration of machine learning models into the app, enabling on-device processing for adaptive notifications. It enhances the app's responsiveness and ensures timely notifications based on user behavior.

Teams required to develop

- Front end and Back end Developers
- UI/UX Designers
- Data scientists
- ML Engineers
- Project Management Team
- Security Team
- QA Team

Conclusion

The Smart Reminder App represents a cutting-edge solution, seamlessly merging task management with personalized wellness features. With innovative elements like adaptive notifications, ML-driven prioritization, and real-time weather integration, the app not only addresses the challenges of remote work but also promotes holistic well-being. User-centric design, privacy focus, and community collaboration makes it a valuable tool for those seeking balance in their professional and personal lives.