Smart Task Manager for Android: Improving User Productivity

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Abstract –
As technology advances and transforms our lives, we know technology is for our comfort. Nowadays, it is very complicated to remember every single event and date on paper. Most people rely on their calendars to remember these things, so here is the solution to it. This application can be used by, a college department, an enterprise, or by any general user. By using an online platform, users can accomplish their day-to-day tasks. The platform allows users to set short-term and long-term goals and track progress. It helps users to meet a particular deadline. Users can access tasks anywhere and anytime. This provides users with a way to assign a task and analyze its completeness or incompleteness on a priority basis. In this research, we are working on a secure vault to save important and confidential data for security purposes and a location-based notification and alert system to get easy access to the location mentioned in the list. To implement this we need the Google Maps and location APIs so that we can get the real-time location of the user's device this will help the user in such a way that if they have mentioned many tasks at a particular location then this task manager will trigger a notification to user. we can use this application in our daily life as it helps in unburdening routine management chores and allows users to focus on the core.
Index Terms – Google Maps,API,Secure Vault

1.INTRODUCTION

In this fast moving world, how will you feel if technology is helping you to remind your daily to do lists tasks? Yes, it can be possible. We all strive to meet deadlines in our daily lives, and completing a task on time has become an essential part of our everyday lives. To keep track of the events, people typically carry a notebook or diary with them wherever they go as this helps them remember everything that needs to be done throughout the day. Nowadays, carrying notebooks or diaries with you wherever you go is a tedious task as well as not a good practice in terms of maintaining those notes all the time and everywhere. You just need to install an android application – Smart task manager. As the name itself suggests, smart task manager is here to handle your daily task distribution and tracking smartly. The collaboration, customization and secure vault features has enhanced its functioning.

SMART TASK MANAGER

A task manager is an application that facilitates task management and has several technological features that set it apart from other task managers. It provides a platform to store all significant dates and information about events. In addition, an additional feature of the application allows the user to store passwords for important websites on their smartphone along with multiple login credentials.

Therefore, it is critical for people who normally forget to complete urgent work and tasks to develop such a productive application. This will make it easier for them. The proposed software will enable the user to communicate with other users and assign tasks easily to eliminate time-consuming and unnecessary meetings. The Smart Task Manager facilitates the efficient and effective organization and prioritization of your projects. Smart Task Manager Software starts with the task, ends with a checkmark, notifies deadlines, and tracks the work as it progresses.

II. MODULE DESCRIPTION

1. **Task creation** – The application users can create new tasks, assign a title, description and can maintain a deadline for their tasks.

2. **Task organization** – You can prioritize your work based on due date, category or in some other ways. This feature will keep your daily work in an organized manner and you will not feel burden at the end.

3. **Reminders and notifications** –If you have issues in memorizing the deadlines for your work, then this application can be a boon for you. The app allows users to set reminders, and notifications for upcoming tasks, so they don't forget important deadlines.

4. **Task completion tracking** – You can track your tasks and marks as compete after completion of deadlines. You can check your progress through this feature and can do better performance afterwards.

5. **Customization** – The app will allow users to customize the interface and settings according to their preferences, such as changing the color scheme or choosing different notification sounds. So, this feature will help avoiding any nuisance in your daily schedule as your preferences will be preferred here.

6. **Collaboration** – This is one of the helpful and unique features of the application. The app will allow users to collaborate with others on tasks, share tasks and assign them to different people, changes done by one will be reflected to another and much more.

7. **Secure vault** –The users can store their data and passwords safely at a single place with this feature.

8. Location Based notification and alert: with this application one can easily know the location where the user have assigned multiple task of same domain, like if users have enlist the task related to grocery shop then this app will trigger a alarm or notification about every grocery shop located on Google map around that particular location .

III. LITERATURE REVIEW

- A study conducted by Toffel and colleagues (2020) found that using a task manager application helped users to complete more tasks and improved their time management skills.

- Task manager android applications offer a variety of features such as task creation, setting reminders, prioritizing tasks, adding subtasks, assigning tags and categories, syncing with multiple devices, and many more. According to a study conducted by Ahmed and colleagues (2020), the most important features of a to-do manager application are ease of use, task organization, and task reminders.

- Another study by Park and Kim (2019) reported that using a task manager application increased the productivity of users by reducing procrastination and improving task completion.

- A study by Kumar and colleagues (2021) reported that users are concerned about the security and privacy of their data while using to-do manager android applications.

- Task managers can be integrated with other tools such as calendars, email, and note-taking applications. A study by Ahmed and colleagues (2020) reported that users prefer task managers that can be integrated with other tools to streamline their workflow and improve their productivity.

IV. PROPOSED METHODS

Android: Android is a mobile operating system (OS) developed by Google. It is based on the Linux kernel and designed primarily for touch screen mobile devices such as smartphones and tablet computers utilizing ARM processors. As Android consists of a kernel based on the Linux kernel with middleware, libraries, and APIs written in C and application software running on an application framework that includes Java-compatible libraries based on Apache Harmony. By using Android Software Development new applications are created for the Android operating system. Most applications are usually developed in the Java programming language using the Android Software Development Kit. Android uses the Dalvik virtual machine with just-in-time compilation to run Dalvik dex-code (Dalvik Executable), which is usually translated from Java byte code.

As "Smart Task Manager" is an Android application, it needs Java as a programming language for the functionality, Firebase for the database, and Android Studio for the development.

Android Studio: it is the official integrated development environment (IDE) for Android app development. It is developed by Google and provides a comprehensive set of tools and features for creating, testing, and deploying Android apps. some of its Key features are a code & Layout editor, virtual devices, a
Gradle build system, profiling tools, and Plug-in Support.

 Activity life Cycle:

Fig 1, In Android app development, an activity is a key component that represents a single screen with a user interface. The activity life cycle refers to the series of states that activity goes through as it is created, started, resumed, paused, stopped, and destroyed. Following is fig.
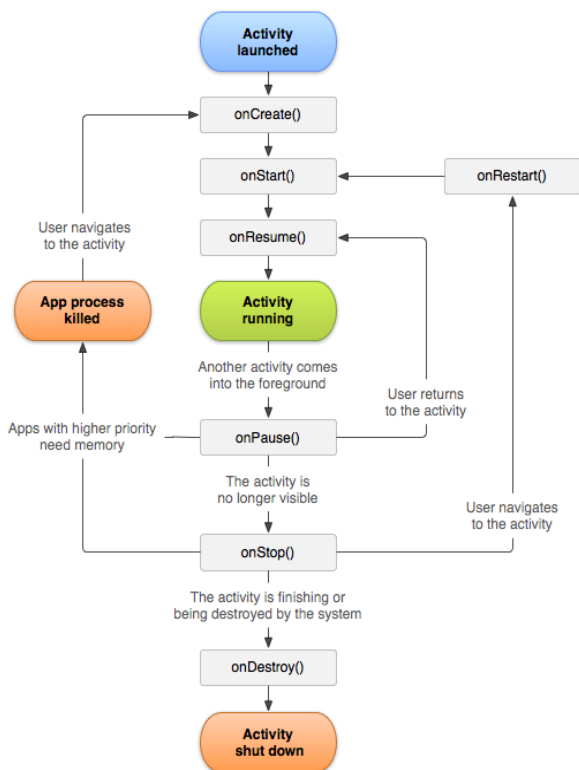

Figure1-Activity Life Cycle

V. SYSTEM DESIGN

The system design of a smart task manager application would involve several components, including the user interface, the application logic, and the database. Here are some key elements of the system design for a smart task manager application:

1. User interface: The user interface is the part of the application that the user interacts with directly. It would include screens for creating, editing, and deleting tasks, as well as screens for viewing task lists and setting reminders. The user interface should be intuitive and easy to use, with clear labels and buttons.

2. Application logic: The application logic is the set of rules and algorithms that govern the behavior of the smart task manager application. This might include algorithms for prioritizing tasks based on due date and urgency, or for sending reminders to the user when tasks are approaching their due dates. The application logic should be designed to be efficient and reliable, with error handling and data validation built in.

3. Database: The database is where the application stores data related to the user's tasks, such as task names, due dates, priorities, and completion status. The database should be designed to be secure and scalable, with backup and recovery mechanisms in place in case of data loss or corruption.

4. APIs: The application might use APIs to integrate with other systems, such as calendar or email applications, to provide additional functionality to the user.

5. Security: The smart task manager application might include security features such as authentication and authorization to ensure that only authorized users can access the application and its data.

6. Testing and debugging: The system design should include a robust testing and debugging process to ensure that the application works as intended and is free from errors or bugs. This might include unit testing, integration testing, and user acceptance testing.
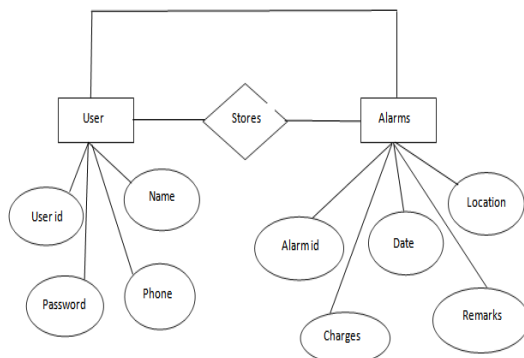
Figure 2-ER diagram

The above entity-relationship diagram describes the information about the workflow of the task manager application. we can consider it as a blueprint of the application that simply tells us how will be the structure of the task manager and how will work with the user's end and the system's end. The system has all the information we only have to access it with the permission of the administrative. we can consider it for now but further changes and implementations of the best algorithms can be done later for now, in starting stage, we have to consider this as a blueprint. it's saying that when the user will use the task manager application then if the task manager has administrative permission it will show information by accessing the system.
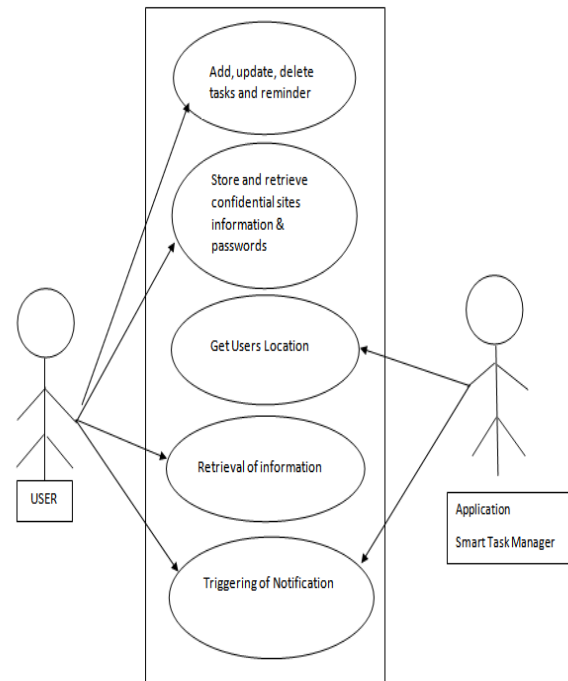

Figure 3-Use case Diagram

The above diagram shows how the user will interact with the application and how the application will interact with the system as well as the user. task manager application has to get administrative permission for showing anything about the device. user has to give all permissions to the task manager else, the application will not work. in the use-case diagram, we saw that if a user wants to know anything from the app then the app will request that particular information from the system. if the user has provided permission to the task manager then the system will give access to that particular information and the task manager application will show that information to the user.

VI. LANGUAGES AND DATABASE USED

Java: - Android is used to define the working of the layout created by the XML. The Java code of Android is responsible to communicate with the database and the interface. Firebase's real-time database is a NoSQL cloud-hosted database that allows developers to store and sync data between users in real-time.

In Android app development, Java is used to write the logic and functionality of a Native app. Java code is compiled into bytecode, which is then executed by the Dalvik virtual

machine (now replaced by Android Runtime) on the Android platform. Java is particularly well-suited for Android app development because of its platform-independent nature, which means that code written in Java can be easily ported to different platforms and devices.

XML: - it is a markup language that is commonly used in Android Studio for layout designing and user interfaces (UI) of Android apps. it is used to create flexible, maintainable, and platform-independent UI designs that can be easily modified and customized.

Firebase: Firebase is a mobile and web application development platform, owned by Google, that offers a range of services to help developers build, deploy, and manage their applications. Firebase provides several features, including hosting, a real-time database, authentication, messaging, analytics, and more.
Firebase's real-time database is a NoSQL cloud-hosted database that allows developers to store and sync data between users in real-time. It uses a flexible JSON data structure, which makes it easy for developers to manage and manipulate data. also provides an authentication system.

VII. ADVANTAGES AND APPLICATIONS

• The system is used to notify the user of, the progress status of tasks, supervision, etc. to make it an effective task management application of the Android app.
• Flexibility and scalability
•The system is accessible from anywhere. The system provides everything which is required.
• Effective time management: The system can trace the work concerning time.
• Notifications and reminders: It provides notifications to the user. The Notification is based on the respected user.
• Notifications and reminders: It provides notifications to the user. The Notification is based on the respected user.
• Easy to use: this task manager can be used In real-time by any normal user, a student, an enterprise, etc. It will provide an interface to communicate with other members assigned to the same task.
• Secure vault: The Secure Vault would help the users to store important passwords and confidential data from any source.
• the users will be able to find the location where they have been assigned multiple tasks with the same domain.

• Effective notification management and alert system is also crucial benefit of this system.
• Perfect for personal and professional tasks
• Developed for all API devices.

VIII. Acknowledgement

IX. CONCLUSION

In conclusion, smart task manager applications offer a range of benefits for users who are looking to increase their productivity and manage their tasks more efficiently. With the rise of mobile devices and the growing demand for flexible work arrangements, smart task managers have become an essential tool for many individuals and organizations.

Smart task manager applications provide features such as task organization, prioritization, reminders, and time tracking, which help users to stay on top of their to-do lists and manage their time more effectively. Additionally, some smart task managers offer integration with other tools, such as calendars and email, which allows users to streamline their workflows and reduce the need for manual data entry.

Research studies have shown that the use of smart task managers can lead to increased productivity, reduced stress, and improved work-life balance. Furthermore, smart task managers can be customized to suit the unique needs and preferences of individual users, which makes them a versatile and adaptable tool.

So,this application is all in one and provides almost every feature that one demands from an app. You can make this android application as part of your daily life to maintain your schedules safely and follow it without any disturbances. smart task manager applications have become an essential tool for individuals and organizations looking to improve their productivity and manage their tasks more efficiently. With their range of features and benefits, smart task managers are likely to continue to be a popular tool for many years to come.

X. REFERENCES

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