

A Major Project Synopsis on

Project Management Application Task Trek

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1. Introduction

Today's rapidly changing business world, having the proper means to manage projects is extremely important. With many tasks, deadlines, and collaboration among teams to manage, being able to adequately manage projects will help to ensure that businesses, teams, and individuals are successful.

Not properly managing any or all of those things can lead to missed opportunities and delays. Ultimately, all of this will affect overall success. Task Trek, a mobile application available on Android devices built using Android Studio and Kotlin of the MVVM (Model-View-View Model) Architecture. Both highly interactive and user-friendly, has been designed to help make project planning, task management, and monitoring team progress and collaboration is made easy, so you can remain organized and productive, as well as sharing progress with your team during your planning and execution of the project. If you are entrepreneurial whether you want it for personal use or if you are a student.

It allows you to create tasks for you or your team in real-time and manage your projects so they are easy to manage.

Why Choose Task Trek?

1. All-inclusive Management of Tasks and Projects

- Create projects, allocate tasks and deadlines.
- Monitor project status and receive updates in real-time.
- Values project organization results in task scheduling also factoring in priority.

2. Intelligent Notifications & Alerts

- Provide reminders regarding deadlines which are approaching.
- Provides notifications based on a project being updated.
- Automated alerts associated with the important aspect of tasks.

3. Collaboration & Communication with a Team

- Follow the phases of team members.
- Add comments and updates etc. however to facilitate communication.
- Insight is being able to view performance and productivity with the team.

4 Secure, Cloud-Based Storage of Data

- Store all project related data securely with a back up.
- Can sign through various devices.
- Role based access is provided for security and privacy.

5. Intuitive & User-friendly Interface

- A clean and simple interface to allow navigation.
- Dark mode, customize themes for a better user experience.
- Offline mode to access your tasks without the internet.

2. Motivation

Effective project management is essential for the success of any team or individual working on complex tasks. However, many existing solutions are either too complex, lacking essential features, or not suited to the specific needs of small teams, freelancers, or students. This creates a significant gap in the market for an app that can address these challenges while remaining user-friendly, cost-effective, and efficient.:

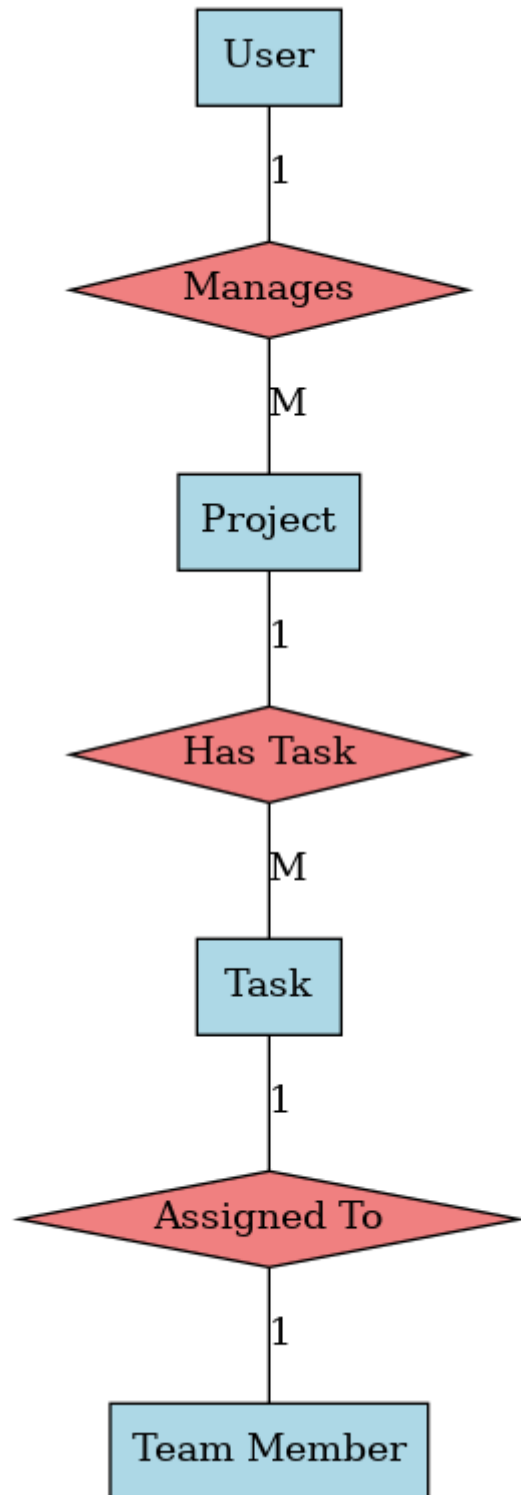
Challenges in Existing Project Management Apps

- **Difficult Interfaces:** Many project management apps have cluttered and complicated dashboards, making it difficult for users to navigate and manage their projects effectively.
- **Lack of Real-Time Updates** – Teams often face communication delays due to the absence of real-time notifications. This results in project delays and a lack of synchronization between team members.
- **Poor Task Assignment Features** – Some apps fail to provide efficient tools for task delegation, making the collaboration among team members disjointed and less productive.
- **High Cost & Subscription Fees** – A significant number of project management tools come with hefty subscription fees, which can be a barrier to entry for students, freelancers, or small companies with limited budgets.

How Project Manager Solves These Problems

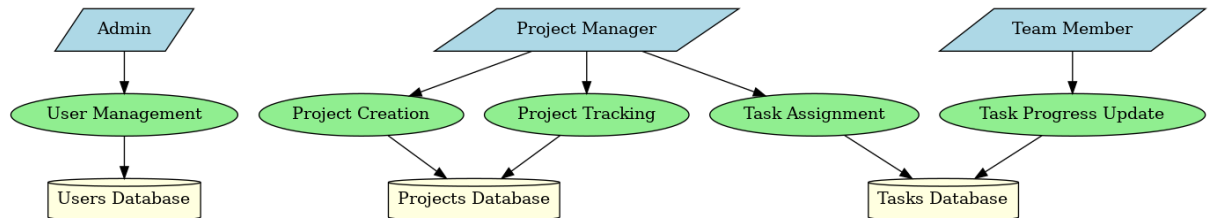
- **Minimal & Intuitive UI:** The app will feature a clean, straightforward design that enhances usability and minimizes confusion, ensuring that users can navigate and manage their projects with ease.
- **Real-Time Syncing** – Instant updates will ensure that team members are always in the loop, reducing communication gaps and allowing teams to stay informed and react quickly.
- **Smart Task Assignment** – The app will offer robust tools for task delegation, progress monitoring, and task editing, streamlining collaboration and ensuring that no task is left behind.
- **Affordable & Accessible** – The app will be available for free with premium add-ons for more advanced features. This makes it accessible to a broader audience, including students and small businesses, without the burden of costly subscriptions.

3. ER Diagram

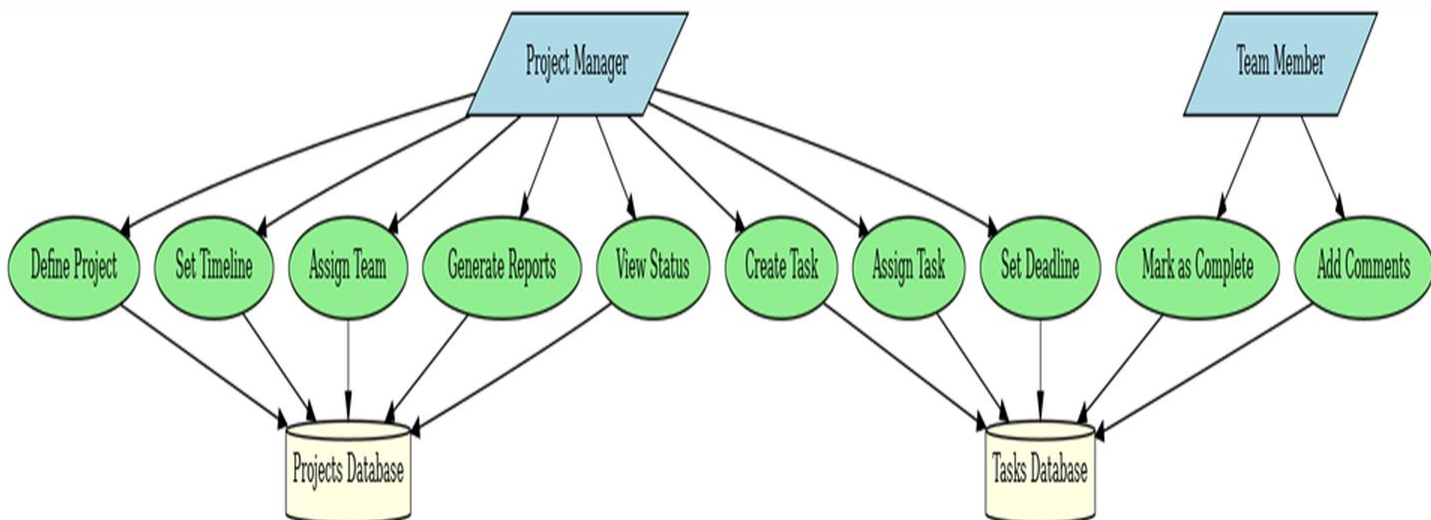
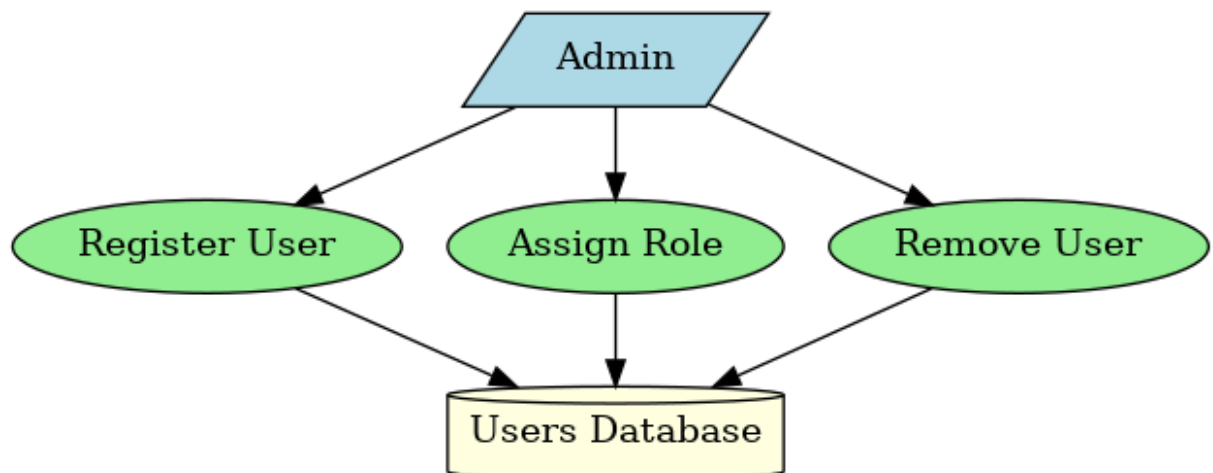


4. DFD Diagram

a. Context level DFD



b. Level 1 DFD



5. Methodology & Planning of Work

The development of the **Project Management App** will be carried out using a structured and methodical approach to ensure high performance, user-friendliness, and scalability. The workflow is divided into distinct stages, each focusing on key aspects of development to create a fully functional and efficient app:

1. App Development & Architecture

- **Frontend** The app will be developed using **Kotlin** and **Jetpack Compose**, providing a modern, smooth, and intuitive UI that adapts well to different screen sizes.
- **Backend: Firebase Firestore** will be used for cloud storage and real-time data synchronization, ensuring data is updated instantly across all users.
- **Architecture:** The app will follow the **MVVM (Model-View-ViewModel)** architecture for clear separation of concerns, improving code manageability and scalability.

2. Features & Functionalities

- **Task Management:** Users can easily **create, assign, edit, and track tasks**, all in one place, keeping projects organized and on schedule.
- **Push Notifications:** Instant notifications will alert users about task updates, approaching deadlines, and other important project changes.
- **Dashboard & Analytics:** A user-friendly dashboard will display project status, task progress, and productivity reports, helping teams stay on top of performance.
- **Offline Mode:** The app will support **offline mode**, allowing users to continue working on tasks even without internet access. Updates will sync automatically once online.
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3. Security & Performance Optimization

- **Authentication:** Secure user login will be handled by **Firebase Authentication**, supporting both **Email/Password** and **Google Sign-In** methods.
- **Data Encryption:** All project data will be securely encrypted to ensure privacy and prevent unauthorized access.
- **Optimized Performance** The app will be optimized for smooth navigation and fast performance, ensuring a seamless experience even on lower-end devices.

6. Requirements for Proposed Work

Software Requirements

- **Operating System:** Windows
- **Development Environment:** Android Studio with Kotlin
- **Architecture Pattern:** MVVM (Model-View-View Model)
- **Database:** Firebase Firestore / SQLite for local storage
- **Push Notifications:** Firebase Cloud Messaging (FCM)

Hardware Requirements

- **Processor:** Intel i9
- **RAM:** 8GB
- **Storage:** Minimum 20GB free space for development and testing

7. Conclusion

With its smart features, real-time collaboration, and intuitive UI, **Task Trek** is the ultimate solution for individuals and teams looking to streamline their workflow. By leveraging **Kotlin, Android Studio, and MVVM Architecture**, this app ensures **a smooth, responsive, and scalable project management experience**.

Our goal is to provide a **powerful yet simple tool** that makes task management stress-free, enabling users to focus on productivity rather than administrative chaos. Whether you're managing a small project or leading a big team, **Task Trek is your go-to app for success!**

8. Bibliography/References

- Android Developer Documentation
- Kotlin Official Docs
- Firebase Firestore Documentation
- MVVM Architecture Guide