

# **Time Management App**

## **A PROJECT REPORT**

*Submitted by*

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*in partial fulfillment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

*in*

**COMPUTERSCIENCE AND ENGINEERING**



**RAJALAKSHMI ENGINEERING COLLEGE**

**ANNA UNIVERSITY, CHENNAI**

**MAY 2024**

# **RAJALAKSHMI ENGINEERING COLLEGE, CHENNAI**

## **BONAFIDE CERTIFICATE**

Certified that this Thesis titled “**Time Management App**” is the bonafide work of “**NANDHAKUMAR S (2116210701172),PRAGADEESHWARAN S (2116210701190)**” who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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## ABSTRACT

In the realm of personal productivity, effective time management is paramount. Our innovative mobile application, crafted using Kotlin, presents a holistic solution for individuals seeking to optimize their daily routines and elevate their productivity levels. This app, named TimeFlow, encompasses a suite of essential features tailored to meet the diverse needs of users. It includes a precise stopwatch function for accurate time tracking, a user-friendly interface for seamlessly adding and organizing daily tasks, and comprehensive daily activity reports that offer valuable insights into time allocation and task completion rates. By harnessing the robust capabilities of Kotlin, TimeFlow ensures a seamless and reliable user experience while providing a powerful set of tools to enhance time management proficiency.

With TimeFlow, users can effortlessly track time using the stopwatch feature, efficiently manage their daily tasks, and gain actionable insights through detailed daily activity reports. This app is designed to empower individuals to take charge of their schedules, boost productivity, and achieve their objectives effectively. TimeFlow is currently in the final stages of development and is slated for release in the upcoming quarter of 2024, promising to revolutionize how users approach time management on their mobile devices.

By combining the precision of a stopwatch, the flexibility of customizable task management, and the analytical depth of daily activity reports, TimeFlow offers a comprehensive solution for individuals looking to optimize their time utilization. With its intuitive design and robust functionality, TimeFlow sets out to be a game-changer in the realm of mobile time management applications, providing users with the tools they need to streamline their schedules, enhance productivity, and make the most of each day. Stay tuned for the official launch of TimeFlow and embark on a journey towards efficient time management and heightened productivity.

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# CHAPTER 1

## INTRODUCTION

In the digital age where time is a precious commodity, the demand for efficient time management solutions has never been greater. Introducing our innovative mobile application, TimeTrack, meticulously crafted using the versatile Kotlin programming language. TimeTrack is a comprehensive tool designed to revolutionize how individuals approach their daily schedules, combining essential features like a stopwatch, customizable daily task management, and detailed activity reports to empower users in maximizing their productivity.

At the core of TimeTrack lies a sophisticated stopwatch feature, allowing users to accurately track and manage their time with precision. This stopwatch functionality serves as a fundamental tool for users to monitor tasks, meetings, or activities, providing a tangible way to visualize and optimize their time utilization. Seamlessly integrated within the app's intuitive interface, the stopwatch feature ensures users stay on top of their schedules and make the most of every moment.

Beyond time tracking, TimeTrack offers a robust daily task management system that enables users to effortlessly add, organize, and prioritize tasks according to their preferences. With the ability to customize task lists, set reminders, and establish deadlines, users can effectively structure their day for optimal efficiency. Moreover, TimeTrack's seamless synchronization across devices ensures users have access to their tasks anytime, anywhere, enhancing flexibility and productivity in managing daily responsibilities.



## **1.1 PROBLEM STATEMENT**

In a fast-paced world where time is a valuable asset, individuals often struggle to effectively manage their schedules and tasks. The lack of a comprehensive tool combining features like a stopwatch, customizable daily task management, and detailed activity reports hinders productivity and goal achievement. This project aims to address these challenges by developing a time management mobile app using Kotlin to streamline time utilization and enhance user efficiency.

## **1.2 SCOPE OF THE WORK**

The scope of this project involves developing a time management mobile app using Kotlin that provides a stopwatch for precise time tracking, allows users to add and organize daily tasks, and generates detailed activity reports for enhanced productivity. The app will be designed for Android devices and will focus on delivering a user-friendly interface, seamless functionality, and valuable insights to help users optimize their time management strategies.

## **1.3 AIM AND OBJECTIVES OF THE PROJECT**

The primary aim of this project is to develop a comprehensive time management mobile application using Kotlin that empowers users to optimize their daily routines, boost productivity, and achieve their goals more effectively. By integrating essential features such as a stopwatch, customizable daily task management, and detailed activity reports, the app will provide a centralized platform for users to streamline their time utilization and gain valuable insights into their time management strategies.

The project's objectives are to create a user-friendly interface that enhances the overall experience and engagement of the app, implement a stopwatch feature that allows for precise time tracking and monitoring of tasks and activities, and develop a daily task management system that enables users to add, organize, and prioritize tasks based on their preferences. Additionally, the app will generate detailed activity reports that provide insights into time allocation, task completion rates, and productivity trends, ensuring users can make informed decisions to optimize their time management strategies.

## **1.4 RESOURCES**

This project has been developed through widespread secondary research of accredited manuscripts, standard papers, business journals, white papers, analysts' information, and conference reviews. Significant resources are required to achieve an efficacious completion of this project.

The following prospectus details a list of resources that will play a primary role in the successful execution of our project:

- A properly functioning workstation (PC, laptop, net-books etc.) to carry out desired research and collect relevant content.
- Unlimited internet access.
- Unrestricted access to the university lab in order to gather a variety of literature including academic resources (for e.g. Mobile Application Development, Internet Facilities and Android Studio Application for Developing App etc.), technical manuscripts, etc. Mobile Application development kit in order to program the desired system and other related software that will be required to perform our research.

## **1.5 MOTIVATION**

The motivation behind creating this time management mobile app using Kotlin stems from the increasing need for individuals to efficiently manage their time in a fast-paced world. By integrating features like a stopwatch, daily task management, and activity reports, the app aims to empower users to enhance productivity and achieve their goals effectively.

## **CHAPTER 2**

### **LITERATURE SURVEY**

1. "Automated Testing of Android Apps: A Systematic Literature Review" – ResearchGate.
2. "An empirical study on quality of Android applications written in Kotlin" – UPHF.
3. "Effectiveness of Kotlin vs. Java in android app development tasks" – ScienceDirect.
4. "Performance Evaluation of Kotlin Multiplatform Mobile and Native iOS" - Diva-Portal.
5. "Tracking the software quality of android applications along their evolution" - IEEE Xplore.
6. "End users' perception of hybrid mobile apps in the google play store" - IEEE Xplore.
7. "Hybrid mobile apps in the google play store: An exploratory investigation" - IEEE Xplore.
8. "Detecting Antipatterns in Android" - IEEE Xplore.
9. "Static analysis of Android apps: A systematic literature review" - IEEE Xplore.
10. "Update on Kotlin for Android" - Google Developers Blog.

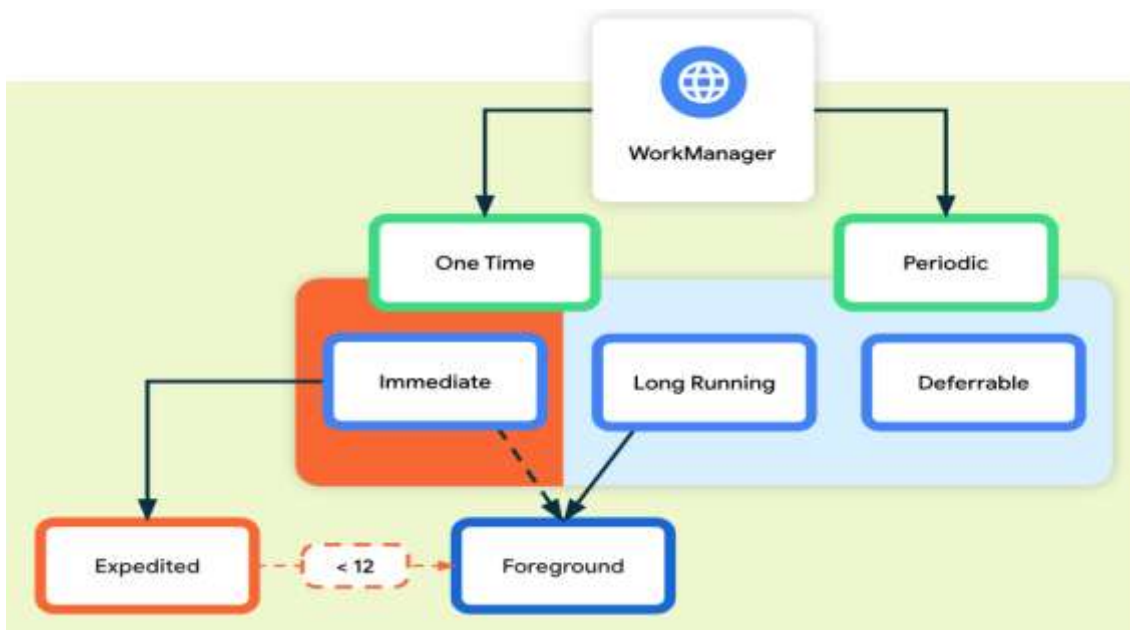
## CHAPTER 3

### SYSTEM DESIGN

#### 3.1 GENERAL

In this section, we would like to show how the general outline of how all the components end up working when organized and arranged together. It is further represented in the form of a flow chart below.

#### 3.2 SYSTEM ARCHITECTURE DIAGRAM



**Fig 3.1: SystemArchitecture**

### 3.3 DEVELOPMENT ENVIRONMENT

#### 3.3.1 HARDWARE REQUIREMENTS

The hardware requirements may serve as the basis for a contract for the system's implementation. It should therefore be a complete and consistent specification of the entire system. It is generally used by software engineers as the starting point for the system design.

**Table 3.1 Hardware Requirements**

COMPONENTS	SPECIFICATION
PROCESSOR	Intel Core i5
RAM	8 GB RAM
GPU	NVIDIA GeForce GTX 1650
MONITOR	15" COLOR
HARD DISK	512 GB
PROCESSOR SPEED	MINIMUM 1.1 GHz

#### 3.3.2 SOFTWARE REQUIREMENTS

The software requirements for this weather application project encompass several key components. Firstly, developers will need access to Android Studio, the official integrated development environment (IDE) for Android app development, which provides tools for designing, coding, and debugging applications. Kotlin, a modern programming language preferred for Android development, will serve as the primary coding language, offering features such as null safety and coroutines for efficient asynchronous programming. Additionally, reliable weather APIs will be essential for accessing real-time weather data, ensuring the accuracy and timeliness of information displayed in the app.

## **CHAPTER 4**

### **PROJECT DESCRIPTION**

#### **4.1 METHODOLOGY**

In developing the time management mobile app using Kotlin with features like a stopwatch, daily task management, and daily activity reports, a systematic methodology will be employed. The project will commence with a comprehensive requirements gathering phase, focusing on understanding user needs, defining essential features, and establishing clear project goals. Subsequently, the design phase will ensue, where wireframes and prototypes will be created using tools like Sketch or Adobe XD. Stakeholder feedback and usability testing will drive iterative refinements to the design before transitioning to the implementation phase.

During implementation, developers will utilize Android Studio and Kotlin to translate the design specifications into a functional app. This stage involves coding user interface elements, integrating weather APIs for real-time data retrieval, implementing features such as notifications and customizable settings, and ensuring adherence to best practices in mobile development. Regular code reviews and testing procedures will be conducted to uphold code quality, identify and rectify any bugs or issues, and ensure a seamless user experience.

Upon completing the initial implementation, the app will undergo rigorous testing encompassing functional, usability, and compatibility testing across diverse Android devices and versions. Feedback from testing will inform further refinements to enhance the app's performance and user satisfaction. The deployment phase will involve releasing the app on the Google Play Store, accompanied by comprehensive documentation and support materials. Continuous monitoring and updates will be integral to maintaining the app's functionality and relevance to meet the evolving needs of users effectively.

## **4.2 MODULE DESCRIPTION**

The time management mobile app using Kotlin will consist of three core modules: the Stopwatch Module, Daily Task Module, and Daily Activity Report Module. The Stopwatch Module will enable users to track time accurately and efficiently. The Daily Task Module will allow users to add, organize, and prioritize tasks seamlessly. The Daily Activity Report Module will provide users with insightful reports on their daily activities, task completion rates, and time allocation trends.

### **4.2.1 USER INTERFACE DESIGN**

The User Interface Design module focuses on creating an intuitive and visually appealing interface for the time management application. Using Android Studio's layout editor, developers will design essential UI components such as stop watch, daily task than can be added by the user, and the daily activity reports. The design will adhere to material design principles to ensure consistency, accessibility, and user-friendliness. Wireframes and prototypes will be created to visualize the layout and user flow, followed by iterative testing and feedback sessions to refine the design.

### **4.2.2 DATA RETRIEVAL AND PROCESSING**

The Data Retrieval and Processing module in the time management mobile app using Kotlin will be responsible for fetching real-time data for the stopwatch, daily tasks, and activity reports. This module will integrate weather APIs for timely updates, manage user-inputted tasks, and process data to generate insightful daily activity reports. By leveraging Kotlin's capabilities, this module will ensure efficient data retrieval, processing, and presentation to enhance user experience and productivity.



### **4.2.3 FEATURE IMPLEMENTATION**

The Feature Implementation module in the time management mobile app using Kotlin will focus on developing the core functionalities of the app. This includes building the stopwatch feature for precise time tracking, creating the daily task management system for user-friendly task addition and organization, and developing the daily activity report feature to provide valuable insights into time utilization. The module will utilize Kotlin's robust programming capabilities to ensure seamless integration and optimal performance of these key features.

### **4.2.4 TESTING AND QUALITY ASSURANCE**

The Testing and Quality Assurance module in the time management mobile app using Kotlin will be responsible for ensuring the app meets the highest standards of functionality, performance, and user experience. This module will conduct rigorous testing, including unit testing, integration testing, and user acceptance testing (UAT), to identify and resolve any issues or bugs. By implementing a comprehensive testing strategy, this module will guarantee the delivery of a high-quality app that exceeds user expectations.

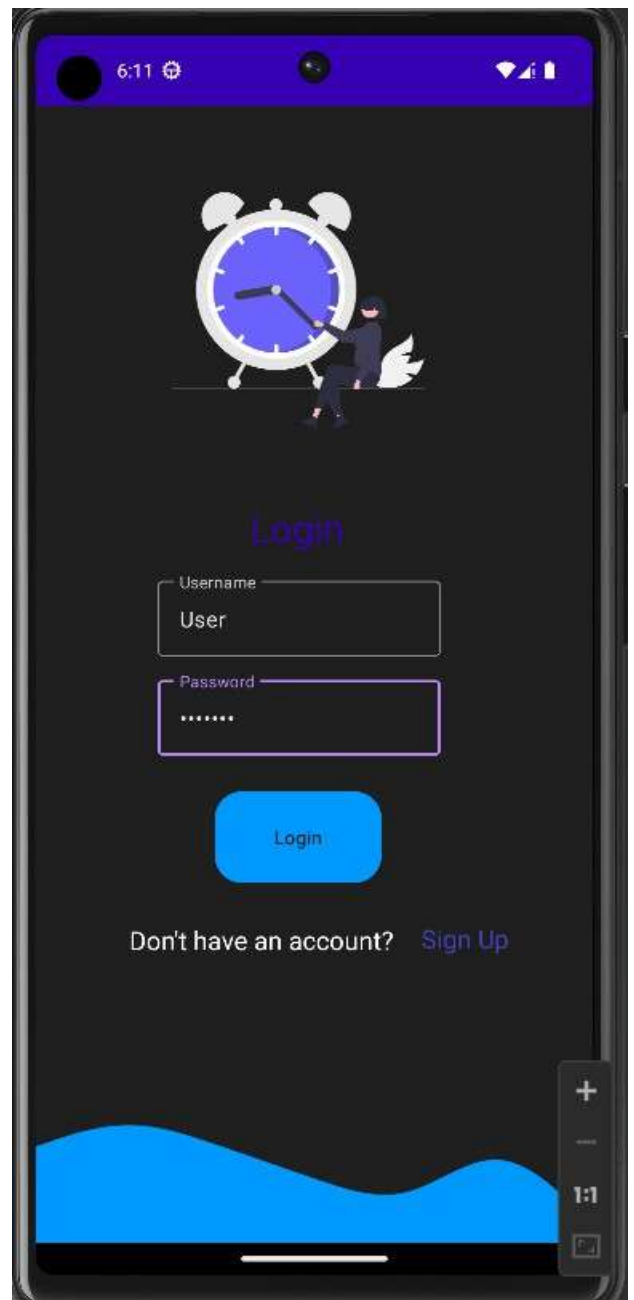
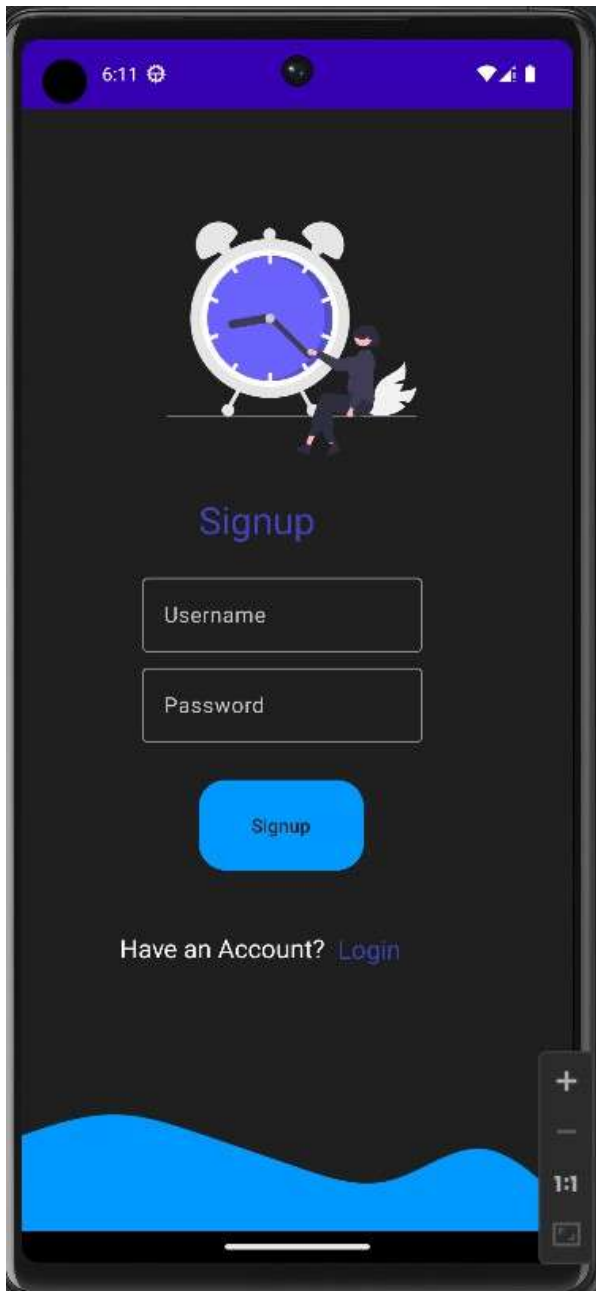
## CHAPTER 5

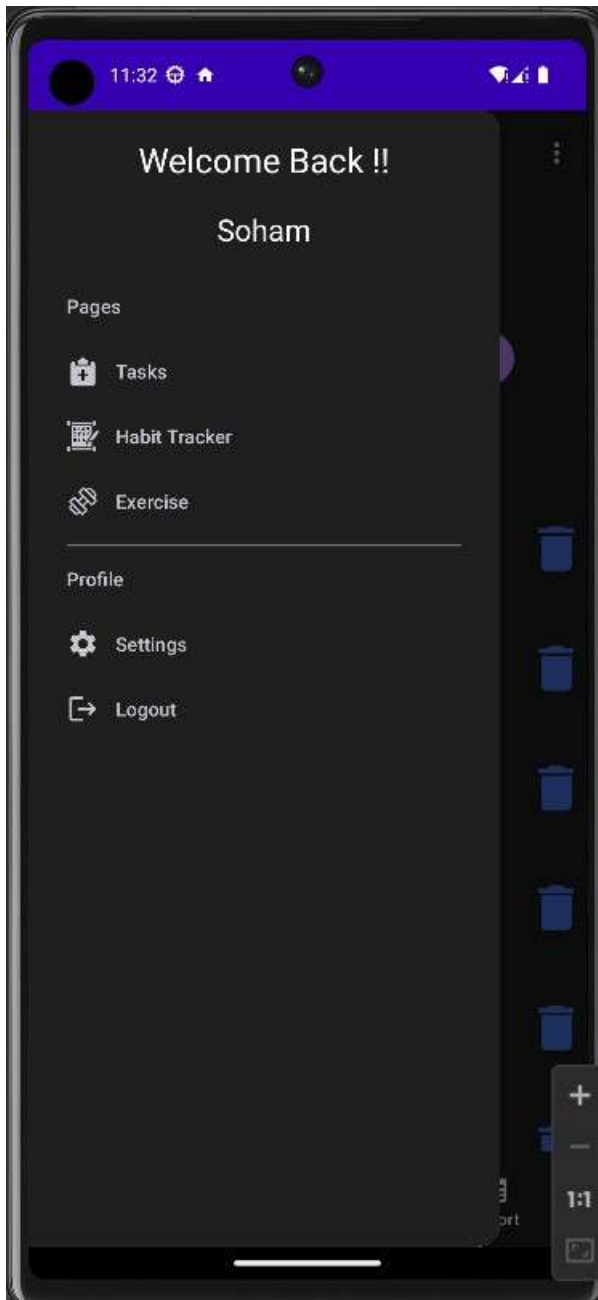
### RESULTS AND DISCUSSIONS

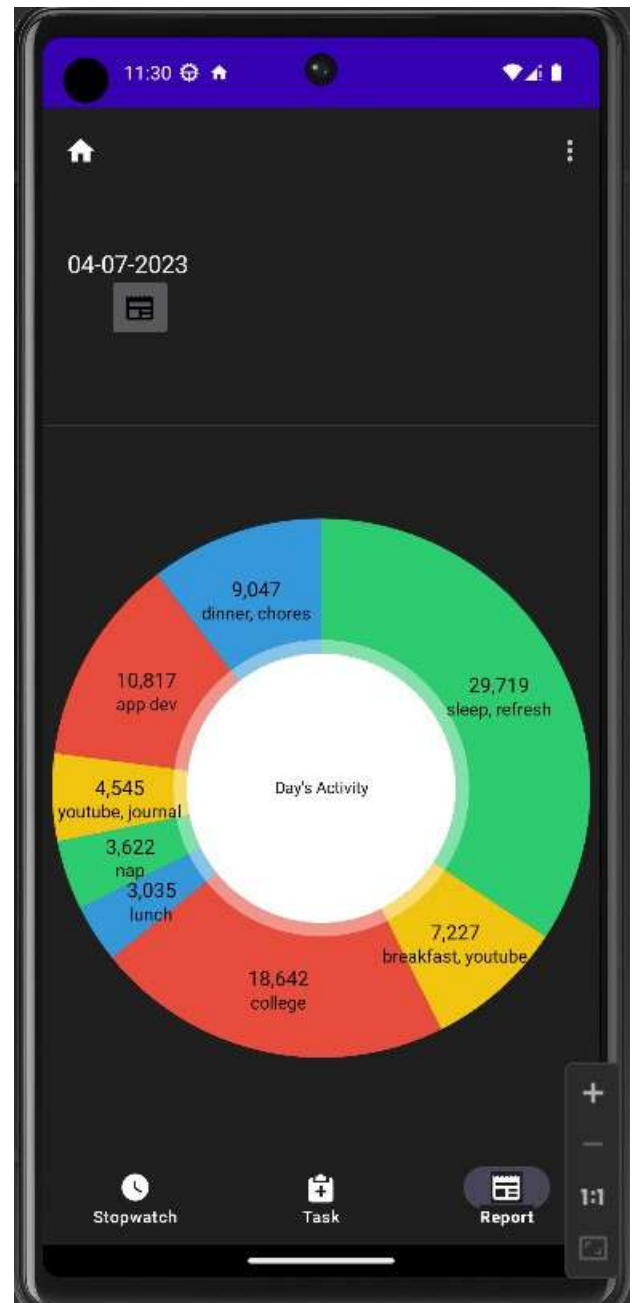
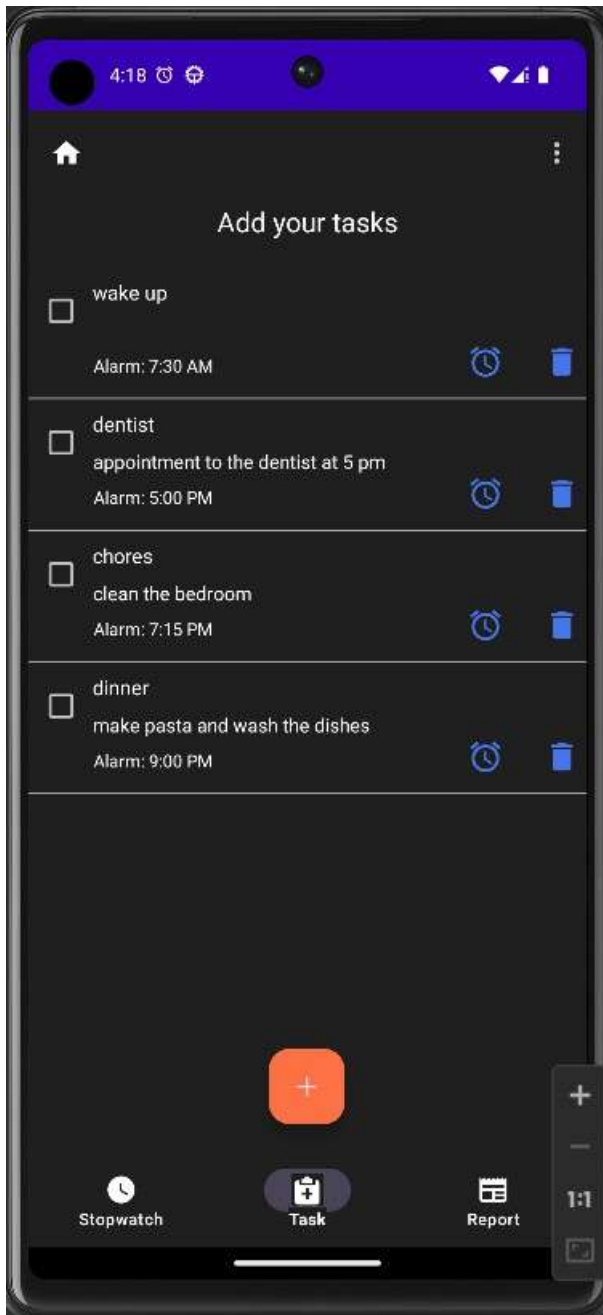
#### 5.1 OUTPUT

The following images contain information about the modules images which are attached below:

##### Output Screenshot:







**Fig 5.1.2: Output Screenshot**

## **5.2 RESULT**

The Result module in the time management mobile app using Kotlin will serve as the culmination of the app's core features, including the stopwatch, daily task management, and daily activity reports. Users will experience a seamless and efficient time tracking experience through the stopwatch feature, enabling precise monitoring of tasks and activities. The daily task management system will empower users to add, organize, and prioritize tasks with ease, enhancing productivity and time management skills.

Moreover, the daily activity reports generated by the app will provide users with valuable insights into their daily routines, task completion rates, and time allocation trends. By presenting this data in a clear and actionable format, users can make informed decisions to optimize their schedules and achieve their goals effectively. The Result module aims to deliver a comprehensive solution that not only streamlines time management but also fosters a sense of control and productivity in users' daily lives. Through the seamless integration of these features, the Result module ensures that users can leverage the app to enhance their efficiency, prioritize tasks efficiently, and ultimately, take charge of their time with confidence and clarity.

## **CHAPTER 6**

### **CONCLUSION AND FUTURE ENHANCEMENT**

#### **6.1 CONCLUSION**

The time management mobile app developed using Kotlin emerges as a powerful tool for individuals seeking to optimize their time management strategies. By integrating a stopwatch, daily task management, and detailed activity reports, the app empowers users to enhance productivity, prioritize tasks effectively, and gain valuable insights into their time utilization. The app's seamless functionality and user-friendly interface make it an indispensable companion for modern professionals and individuals striving for greater efficiency and success in their daily lives.

The stopwatch feature enables precise time tracking, allowing users to monitor their activities and tasks with accuracy. The daily task management system provides a centralized platform for adding, organizing, and prioritizing tasks, ensuring users stay on top of their responsibilities. The detailed activity reports generated by the app offer a comprehensive overview of time allocation, task completion rates, and productivity trends, enabling users to identify areas for improvement and make informed decisions to optimize their schedules.

The development of this app using Kotlin showcases the language's versatility and suitability for building robust and feature-rich mobile applications. Kotlin's conciseness, safety, and interoperability with Java have made it an increasingly popular choice among Android developers, and this project demonstrates its potential in creating efficient and user-centric time management solutions.

#### **FUTURE ENHANCEMENT**

A potential future enhancement for this Project could involve incorporating more advanced techniques or expanding the application's features to create a more immersive and interactive experience. Here's an idea for a future enhancement.

**Advanced Time management Features:** Integrate machine learning algorithms to improve the accuracy of daily task reports and offer more detailed task reports, such as hourly breakdowns and long-term trends.

One exciting future development for the time management mobile app could be the integration of an interactive stopwatch feature. This enhanced stopwatch could offer advanced functionalities such as split-screen timers for tracking multiple tasks simultaneously, customizable lap times, and the ability to set target times for specific activities. Users could also benefit from visual cues and haptic feedback to stay focused and aware of their time usage. By incorporating these interactive elements, the stopwatch feature would become an even more powerful tool for precise time management and task optimization.

In addition, exploring integration with voice assistants for hands-free task management and time tracking could enhance user convenience and accessibility. Gamification elements, such as achievement badges or productivity challenges, could further motivate users and foster a sense of accomplishment in task completion. Embracing emerging technologies like augmented reality for interactive task visualization and virtual collaboration features could revolutionize the app's user experience, making time management engaging, intuitive, and effective in the digital age



## APPENDIX

### SOURCE CODE:

#### EXAMPLEINSTRUMENTEDTEST.KT:

```
package com.example.timemanagementapp;

import android.content.Context;

import androidx.test.platform.app.InstrumentationRegistry;
import androidx.test.ext.junit.runners.AndroidJUnit4;

import org.junit.Test;
import org.junit.runner.RunWith;

import static org.junit.Assert.*;

/**
 * Instrumented test, which will execute on an Android device.
 *
 * @see <a href="http://d.android.com/tools/testing">Testing documentation</a>
 */
@RunWith(AndroidJUnit4.class)
public class ExampleInstrumentedTest {
    @Test
    public void useAppContext() {
        // Context of the app under test.
        Context appContext = InstrumentationRegistry.getInstrumentation().getTargetContext();
        assertEquals("com.example.timemanagementapp", appContext.getPackageName());
    }
}
```

## AndriodManifest.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">

    <uses-permission android:name="android.permission.INTERNET" />
    <uses-permission android:name="android.permission.FOREGROUND_SERVICE"/>
    <uses-permission android:name="android.permission.USE_EXACT_ALARM" />
    <uses-permission android:name="com.android.alarm.permission.SET_ALARM" />
    <uses-permission android:name="android.permission.SCHEDULE_EXACT_ALARM" />
    <uses-permission android:name="android.permission.WAKE_LOCK" />
    <uses-permission android:name="android.permission.POST_NOTIFICATIONS" />

    <!-- for now the application name is removed -->
    <application
        android:name=".MainApplicationFile"
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/Theme.TimeManagementApp"
        tools:targetApi="31">

        <activity
            android:name=".activities.SignUpPage"
            android:exported="true">
```

```
</activity>
```

```
<activity
```

```
    android:name=".activities.LoginPage"
```

```
    android:exported="true">
```

```
</activity>
```

```
<activity
```

```
    android:name=".MainActivity"
```

```
    android:exported="true"
```

```
    android:windowSoftInputMode="adjustResize"
```

```
>
```

```
    <intent-filter>
```

```
        <action android:name="android.intent.action.MAIN" />
```

```
        <category android:name="android.intent.category.LAUNCHER" />
```

```
    </intent-filter>
```

```
</activity>
```

```
<receiver android:name=".broadcastReceiver.TaskAlarmBroadcastReceiver" />
```

```
<receiver android:name=".broadcastReceiver.StopwatchTimeLapReceiver"/>
```

```
<service android:name=".services.StopWatchService"/>
```

```
</application>
```

```
</manifest>
```

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