CS4048 Project Proposal

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1   Group Members

Please add the number (in Sulis) and the names of every member of your group below.

Group
David Chuntishvili – ID: 24278688

Main Idea

Describe in 250 words max the main idea of your app. Who are the typical users and what are the main functions they will use?

TidyTime is a productivity app designed for individuals seeking to enhance their time management skills. The app offers three core functionalities: a stopwatch, a countdown timer, and a to-do list. These features help users track time spent on tasks, set focused time periods for activities, and manage their daily responsibilities effectively.

Typical users are anyone looking to organize their daily activities and tasks. For instance, a student can use the stopwatch to measure study sessions, the timer for timed exams, and the to-do list to keep track of assignments.

TidyTime's minimalistic and elegant design ensures a seamless experience, integrating all features into a simple navigation structure. Users can effortlessly switch between tools, set reminders, mark completed tasks. The app aims to empower users to stay productive and achieve their goals.

User Stories

To gather the main functionality of your application, write 4 to 6 user stories (or more if necessary). If there are different types of users that achieve different goals with your app (e.g. students and teachers in Sulis), make sure to write at least one user story per type of user.

Remember to use for every user story the pattern:

As a <type of user>, **I want to** <perform some task> **so that I can** <achieve some goal>.

1. As a user, I want to start and stop the stopwatch so that I can measure the time spent on a task.
2. As a user, I want to set a countdown timer so that I can focus on tasks within a set time frame.
3. As a user, I want to add tasks to a to-do list so that I can organize my responsibilities.
4. As a user, I want to mark tasks as completed so that I can track my progress.
5. As a user, I want to link tasks with timers so that I can manage time more effectively.
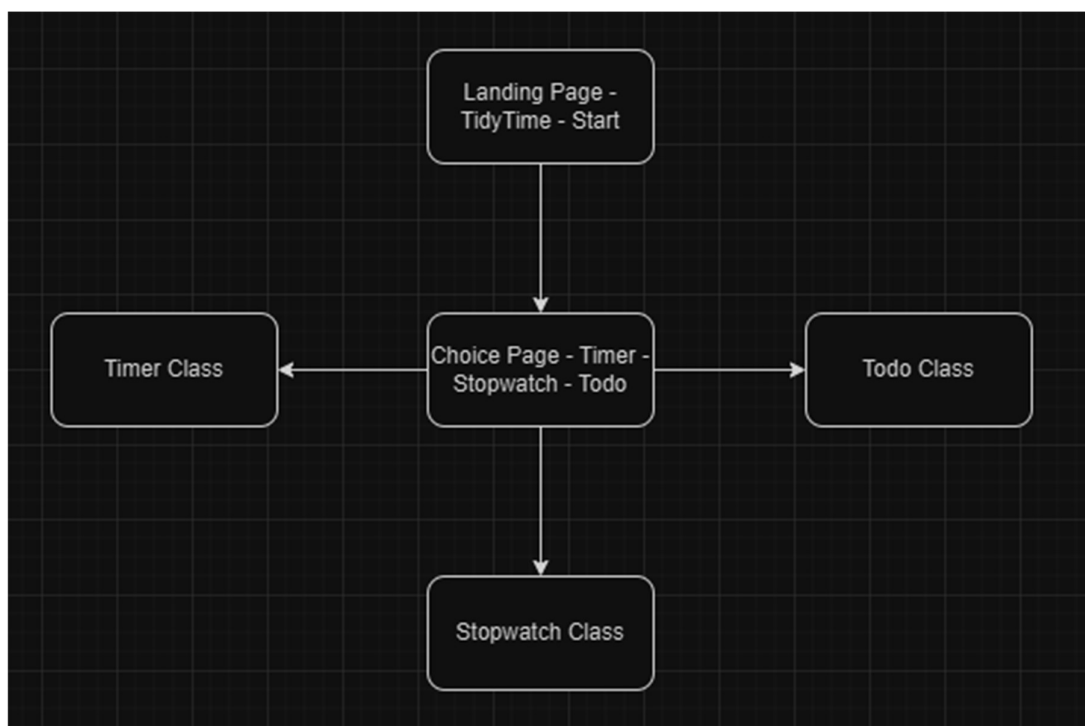
Technology

List any APIs and frameworks you intend to use (e.g., database, location-based functions, authentication, …)

API/framework	Purpose
Android SDK	Used for screen navigation.
RecyclerView	Displaying lists and grids.
AppCompat	For backward compatability.
FloatingActionButton	For the Action button.
Chronometer	For stopwatch.
CountDownTimer	Manages countdown timing logic where you set a specific duration, and it ticks down to zero.
SystemClock	In conjunction with Chronometer to track elapsed time.

5

Navigation Structure

5.1 Overview

Draw a simple overview diagram of the navigation structure. How does the user navigate through the app? At which point does the user see which information? We are not expecting that you know every detail yet (like the colour of the app logo or the number and positions of buttons in every Activity). We suggest you use online tools like Google Docs and https://app.diagrams.net/ where you can share and edit documents and diagrams in your team.

A flowchart diagram showing:
- Landing Page - TidyTime - Start → Choice Page - Timer - Stopwatch - Todo
- Choice Page - Timer - Stopwatch - Todo → Timer Class (left)
- Choice Page - Timer - Stopwatch - Todo → Todo Class (right)
- Choice Page - Timer - Stopwatch - Todo → Stopwatch Class (down)

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5.2 Description

Write a brief description (20 to 100 words) to every node in your diagram and explain what information is given in this particular part and which other nodes the user can reach from there.

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Landing – In here user is introduced to the application, and can choose to start in order to get the app
going.
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Choice page – The application has 3 main functionalities – Timer, Stopwatch, and Todo
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Timer – This page provides user with the timer application, that helps the user to set the time and
concentrate on work.
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Stopwatch – This page provides a stopwatch for the user, to keep an eye out on the time, they've ben
concentrating on work.
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Todo –This page is for users to write down the necessary tasks, to complete them.
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Report

ID: 24278688

Introduction

The purpose of this project was to develop a multifunctional Android application named "TidyTime" that integrates several utilities including a Timer, Stopwatch, Todo List, and a navigation feature through a Choice Activity. This report details the design considerations, development process, key functionalities, and technologies used in the creation of the TidyTime app.

Project Overview

TidyTime is designed to assist users in time management and task organization. It offers four main features:

Timer: Allows users to set a countdown for any duration.

Stopwatch: Provides a stopwatch to track elapsed time.

Todo List: Enables users to create, modify, and track tasks.

Choice Activity: Serves as the main navigation hub from which users can select the above features.

Development Environment

I developed the application using Android Studio, the official integrated development environment (IDE) for Google's Android operating system. I utilized Java as the primary programming language,

along with XML for layout design. Key components of the Android SDK were employed, including Activities, Intents, RecyclerView, and various UI controls like Buttons and EditTexts.
Design and Implementation

Choice Activity

The Choice Activity serves as the launch point of the application. I created buttons that direct users to either the Timer, Stopwatch, or Todo List functionalities. I implemented this activity using AppCompatActivity and AppCompatButton for UI elements, ensuring compatibility across different Android versions.

Timer Activity

The Timer Activity allows users to input a specific duration in minutes and seconds, after which it counts down to zero. I achieved this using CountDownTimer, a utility class that manages countdown operations. I designed a user interface with EditText fields for input and a TextView to display the remaining time.

Stopwatch Activity

For the Stopwatch functionality, I utilized the Chronometer widget. It offers straightforward methods to start, stop, and reset the elapsed time. I used SystemClock.elapsedRealtime() method to provide the necessary time base for the stopwatch.

Todo List Activity

I implemented the Todo List using RecyclerView, which is an efficient way of displaying dynamic lists of items. I created a TodoAdapter to manage the layout and binding of individual todo items stored in a List. Users can add new tasks via an AlertDialog that prompts for task details.

User Interface Design

I designed the user interface utilizing Material Design principles, providing a clean and intuitive user experience. XML layout files define the UI structure, while styles and themes are used to ensure a consistent aesthetic across the application.

Testing and Validation

I conducted rigorous testing to ensure functionality and usability:

Unit Testing: Java classes were tested independently to validate logic.

Integration Testing: Interactions between components were tested.

UI Testing: I tested the graphical interface on multiple emulators and real devices to ensure responsiveness and intuitive design.

Challenges and Solutions

I encountered several challenges during development:

UI Responsiveness: I ensured the UI remains responsive during long-running operations by implementing asynchronous task management.

Data Persistence: I managed todo items across sessions using local storage mechanisms.

User Input Validation: I implemented robust error checking and validations to handle user input errors gracefully.

Conclusion

The development of the TidyTime app provided a comprehensive learning experience in Android application development, from conceptualization to deployment.

2   Necessary Links:

Github: https://github.com/d4v3chn/TidyTime.git

Google Drive (With video):

https://drive.google.com/drive/folders/1MZGq3lcn0gFlEpM5ixBAsUY2HyGk8WCu?usp=sharing