

PERSONAL TASK MANAGER PROJECT 2024-2025

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Project Report: Task Management Android App

Features & Provided Functionality:

A. Create a New Task

- Users are presented with a simple form to create new tasks.
- Task details include:
 - **Name:** A short name for the task.
 - **Description:** A brief description of the task.
 - **Start Time:** The time when the task starts, formatted as "HH:mm".
 - **Duration:** How long the task will take in hours.
 - **Location:** A place where the task should be completed.
- **Data Storage:** All task data is stored in a Room database, ensuring persistence and reliability.

B. Delete Existing Task

- Users can delete a task by providing the Task's id, or by clicking the *Delete Task* button in the *View all Tasks* form for the Task they wish to delete.
- The app connects to the Room database to remove the task entry.
- A confirmation message is displayed to notify the user of the number of rows affected by the delete operation.

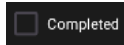
C. Periodic Task Status Update

- Every hour, the app runs a background check on all existing tasks.
- Tasks are checked to determine if their status needs to be updated, considering parameters like the **start time** and **duration**.
- Tasks that have passed their start time and duration without being marked as completed are updated as expired.

D. View Incomplete Tasks

- The app presents a list of incomplete tasks, ordered by urgency.
- **Urgent tasks** (e.g., expired tasks) are listed at the top, ensuring users see the most pressing tasks first.

E. Change Task Status

- Users can change the status of a task to "Completed" with a click. A small rectangular button with a dark background and the word "Completed" in white text.
- This action updates the task in the database and reflects the new status in the task list.
- If a task has an appropriate location provided, users can view the location on Google Maps by clicking the "View Map" button.
- The app uses Google Maps' geo: scheme to open the location in an external map app.

F. Export Incomplete Tasks

- The app allows users to export incomplete tasks to a file.
- The file is generated in **HTML** format, containing all relevant task details (Task Name, Description, Start Time, Duration, Location).
- The file is saved in the **Downloads** folder, making it easy for users to open it in another app.
- The exported file includes proper HTML structure and basic styling for better readability.

Technical Implementation:

1. Room Database

- The app uses **Room** as the database framework to store and manage task data.
- The following entities are used:
 - **Task**: Represents the task with attributes like name, description, start time, duration, and location.
 - **TaskDAO**: Data Access Object (DAO) interface for querying tasks from the database.
 - **MyApp**: Extends the Application class allowing it to manage global application state and perform database closure which should happen once throughout the lifecycle of the app.

2. Background Task Status Update

- The app uses **WorkManager** to periodically run background tasks every hour to check and update the task statuses.

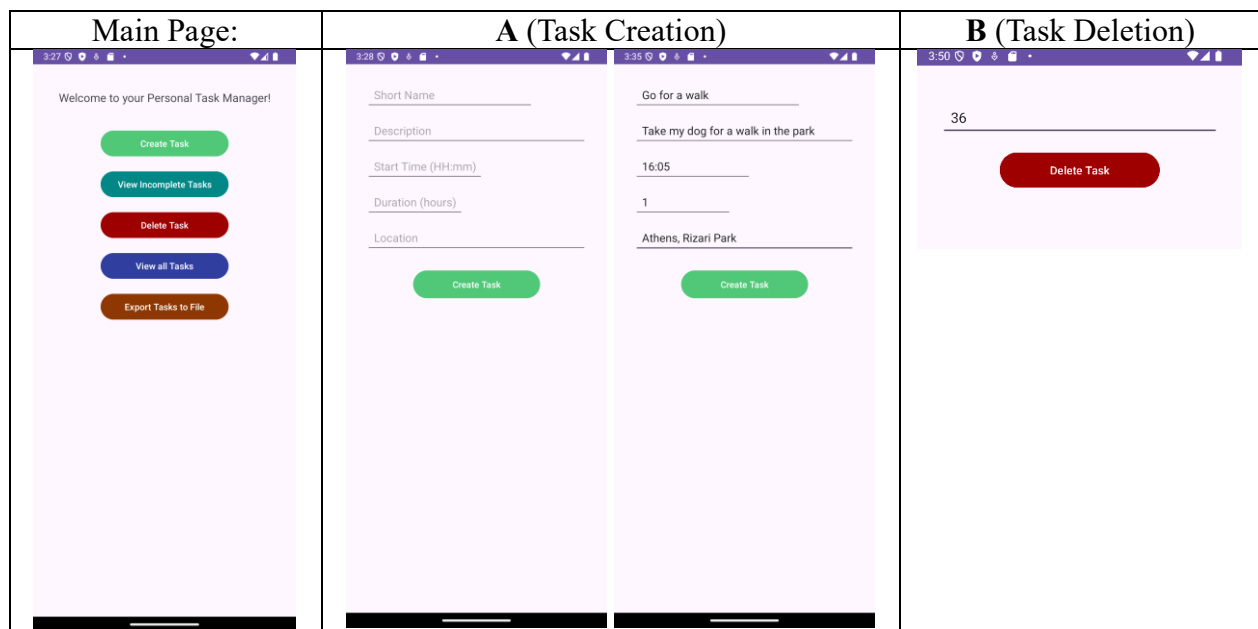
3. Exporting Tasks to File

- The **FileGenerator** class is responsible for generating the content for the HTML file and saving it to the Downloads folder.

4. User Interface

- The app includes user-friendly screens for creating, viewing, and managing tasks.
- **AddActivity**: Provides a form for creating new tasks.
- **ViewAllTasksActivity**: Displays the list of all tasks with options to mark tasks as completed, edit information, delete, or view them in Google Maps.

Relevant Screenshots for each Functionality:



C (Periodic Checks)

```

D Starting ViewAllTasksActivity...
D Scheduling work ID 1175818a-2541-4482-863d-b4d6468516f3Job ID 487
D Starting work for 1175818a-2541-4482-863d-b4d6468516f3
D Processor: processing WorkGenerationalId(workSpecId=1175818a-2541-4482-863d-b4d6468516f3, generation=0)
D Starting work for hua.dit.mob_dev_project.Worker.UpdateStatusWorker
D onStartJob for WorkGenerationalId(workSpecId=1175818a-2541-4482-863d-b4d6468516f3, generation=0)
I Worker completed successfully
D Work WorkGenerationalId(workSpecId=1175818a-2541-4482-863d-b4d6468516f3, generation=0) is already enqueued for processing
I Worker result SUCCESS for Work [ id=1175818a-2541-4482-863d-b4d6468516f3, tags={ hua.dit.mob_dev_project.Worker.UpdateStatusWorker } ]
D Processor 1175818a-2541-4482-863d-b4d6468516f3 executed; reschedule = false
D 1175818a-2541-4482-863d-b4d6468516f3 executed on JobScheduler
D Cancelling work ID 1175818a-2541-4482-863d-b4d6468516f3
D onStopJob for WorkGenerationalId(workSpecId=1175818a-2541-4482-863d-b4d6468516f3, generation=0)
D visibilityChanged oldVisibility=true newVisibility=false
D endAllActiveAnimators on 0x7111d1aac570 (RippleDrawable) with handle 0x71110d1ad5610
D app_time_stats: avg=167.63ms min=3.58ms max=1149.31ms count=9

```

D (View Incomplete Tasks)

Task ID	Name	Status
36	Go for a walk	recorded
37	Go running	recorded
38	Study	in-progress

E (status-change to 'Completed', View on Map)

Task ID: 37

Name: Go running

Status: recorded

Description: Go for a quick run around Ilioupoli

Start Time: 8:00

Duration: 1 hours

Location: Greece, Ilioupoli

☐ Completed

Edit Delete Task View Map

Task ID: 38

Name: Study

Status: in-progress

Description: Study for the exams

Start Time: 15:40

Duration: 4 hours

Location: Library of the School of Philosophy

☐ Completed

Edit Delete Task View Map

Task ID: 39

Name: Eat lunch

Status: recorded

Description: eat some lunch with my family

Start Time: 14:00

Duration: 1 hours

Location:

☒ Completed

Edit Delete Task View Map

Library of the School of Philosophy

See similar places

Library of the School of Philosophy (National and Kapodistrian University of Athens)

Βιβλιοθήκη Φιλοσοφικής Σχολής ΕΚΠΑ

4.6 ★★★★★ (130)

University library ·

Open · Closes 6 PM

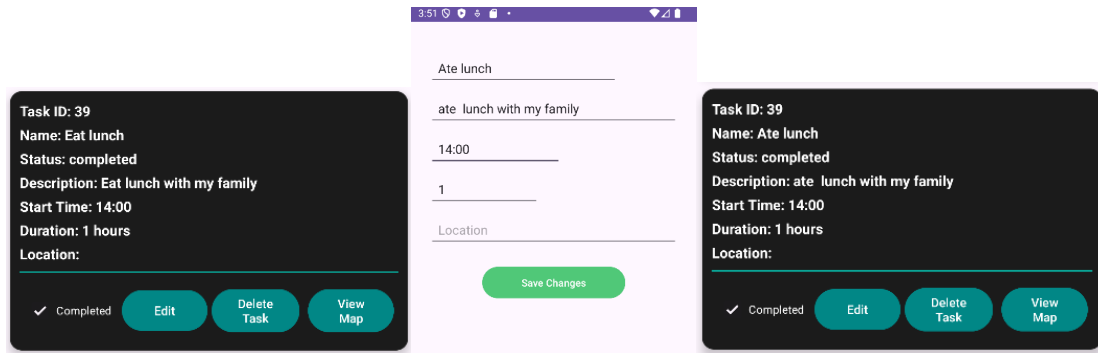
Directions Call Save Share

F (Exported IncompleteTasks.html)

Incomplete Tasks

Task Name	Description	Start Time	Duration (hours)	Location
Study	Study for the exams	15:40	4	Library of the School of Philosophy
Go for a walk	Take my dog for a walk in the park	16:05	1	Athens, Rizari Park
Go running	Go for a quick run around Ilioupoli	8:00	1	Greece, Ilioupoli

Editing a Task's information:



Logcat example:

```
2025-02-08 21:13:01.876 7633-7633 MainActivity pid-7633 D Starting AddActivity...
2025-02-08 21:13:02.843 7633-7633 VRI[MainActivity] pid-7633 D visibilityChanged oldVisibility=true newVisibility=false
2025-02-08 21:13:52.347 7633-7633 MainActivity pid-7633 D Starting ViewIncompleteTasksActivity...
2025-02-08 21:13:53.274 7633-7633 VRI[MainActivity] pid-7633 D visibilityChanged oldVisibility=true newVisibility=false
2025-02-08 21:14:18.688 7633-7633 MainActivity pid-7633 D Starting DeleteActivity...
2025-02-08 21:14:19.458 7633-7633 VRI[MainActivity] pid-7633 D visibilityChanged oldVisibility=true newVisibility=false
2025-02-08 21:14:26.643 7633-7633 MainActivity pid-7633 D Starting ViewIncompleteTasksActivity...
2025-02-08 21:14:27.443 7633-7633 VRI[MainActivity] pid-7633 D visibilityChanged oldVisibility=true newVisibility=false
2025-02-08 21:14:34.973 7633-7633 MainActivity pid-7633 D Starting ViewAllTasksActivity...
2025-02-08 21:14:35.859 7633-7633 VRI[MainActivity] pid-7633 D visibilityChanged oldVisibility=true newVisibility=false
2025-02-08 21:16:30.326 7633-7633 MainActivity pid-7633 D Starting File Exportation...
2025-02-08 21:16:36.232 7633-7633 MainActivity pid-7633 D Starting AddActivity...
2025-02-08 21:16:37.125 7633-7633 VRI[MainActivity] pid-7633 D visibilityChanged oldVisibility=true newVisibility=false
2025-02-08 21:17:08.174 7633-7633 MainActivity pid-7633 D Starting ViewIncompleteTasksActivity...
2025-02-08 21:17:08.942 7633-7633 VRI[MainActivity] pid-7633 D visibilityChanged oldVisibility=true newVisibility=false
2025-02-08 21:17:14.347 7633-7633 MainActivity pid-7633 D Starting AddActivity...
2025-02-08 21:17:16.841 7633-7633 VRI[MainActivity] pid-7633 D visibilityChanged oldVisibility=true newVisibility=false
2025-02-08 21:17:56.061 7633-7633 MainActivity pid-7633 D Starting ViewIncompleteTasksActivity...
2025-02-08 21:17:57.076 7633-7633 VRI[MainActivity] pid-7633 D visibilityChanged oldVisibility=true newVisibility=false
2025-02-08 21:18:00.070 7633-7633 MainActivity pid-7633 D Starting File Exportation...
```

Conclusion:

This Personal Task Management Android app provides a comprehensive solution for users to create, manage, update, and track Tasks. With features like periodic status updates, Task status modification, location viewing, and file exporting, it offers an intuitive experience for task management.