

## Online Learning & Course Management App

A mobile application designed to help students track their courses and learning progress. Instructors can create and assign courses, while students can enroll and monitor their progress.

The system maintains the following details:

- **Id** – The internal course ID, an integer value greater than zero.
- **Name** – A string representing the name of the course.
- **Instructor** – A string representing the instructor's name.
- **Description** – A string containing course details (e.g., topics covered, objectives, prerequisites).
- **Status** – A string representing the course status, e.g., "upcoming", "ongoing", or "completed".
- **Students** – An integer representing the number of students enrolled in the course.
- **Duration** – An integer representing the estimated duration in hours.

Application Features (Available Without Restarting the App)

Instructor Section (Separate Activity/Screen)

- A. **(1p) Create a new course** using `POST /course` by specifying all course details. Available both online and offline.
- B. **(2p) View all courses in a list** using `GET /courses`. The list should display at least the **id, name, instructor, and category**. If offline, an error message and retry option should be provided. Retrieved only once, the data should be available regardless of network status or restarts.
- C. **(1p) Select a course from the list to view all details** using `GET /course` with the course ID. Retrieved only once, data should persist on the device even after restarts or when offline.
- D. **(1p) Delete a course from the list** using `DELETE /course` with the course ID. Available online.

Student Section (Separate Activity/Screen) - Available Online Only

- A. **(1p) View all available courses currently "ongoing"** using `GET /allCourses`. The list should display **name, duration, status, and enrolled students**. Note that the filtering operation will be performed on the client.

Analytics Section (Separate Activity/Screen) - Available Online Only

- A. **(1p) Using `GET /allCourses`, generate the top 5 most popular courses**, sorted by **status (ascending)** and **number of enrolled students (descending)**.

Additional Features

- **(1p) WebSocket Integration** – When a new course is added, the server sends a WebSocket notification to all connected clients with the course details. The app displays the **name, instructor, and description** using a toast, snackbar, or dialog.
- **(0.5p) Progress Indicator** – A progress indicator appears on all server or DB operations.
- **(0.5p) Error Handling & Logging** – All server or DB errors are displayed using a toast or snackbar, and a log message is recorded.