Mobile Application Development 2023-24

A teamwork management application

Lab1 – Design and prototyping

Learning objectives

- Using GitHub to share the project code within the group
- Understand requirements, application use cases and user stories
- Designing basic UIs: layouts, colors, icons, menus
- Prototyping navigation

Description

A teamwork management app is designed to facilitate collaboration, communication, and coordination among team members to enhance users' overall productivity and efficiency.
By using this app, a user may manage her/his participation in one or more teams, get and set information about tasks to be performed by team members, document her/his own progress and achievements, report contributed efforts, and gather feedback from other team members as well as analytic information derived from collected data.

The goal is to streamline communication, enhance collaboration, and improve overall team performance by providing an easy to use app that keeps track of all the details of the team activity.

The app will support the following features:

- User Authentication and Profiles
    - User registration and login functionalities
    - Personal profile management
- Managing teams
    - Ability to create, edit, and delete teams
    - Sending invitations to new members via deep links and/or QR-Codes
    - Accessing the list of team members, showing profile pictures and roles
    - Option to send direct messages to other team members or to the team as a whole
    - Ability to set the degree of one's participation in a team or to withdraw from it

- Managing tasks of a team
    - Ability to create, edit, and delegate tasks to team members
    - Ability to define recurring tasks
    - Task categorization and tagging for easy identification
    - Real-time task status tracking (e.g., pending, in-progress, on-hold, completed, overdue)
    - Filter and sort options for easy navigation
- Task Details:
    - Detailed view of a selected task
    - Task title, description, assigned team member(s), and due date
    - Task state and history
    - Comments section for team communication
    - Attachments and links to related documents
- Feedback and Performance:
    - Performance metrics and analytics for individual team members
    - Visual representations of team achievements

During this lab, it is important to build the foundations for the project, before starting to code the application. This can be done by following structured processes such as design thinking or requirements analysis.

Care should be taken to properly involve all team members, trying to subdivide the work so that each one is responsible for a part of it, while maintaining a cohesive and shared view of the global aim.

At this point, you should have already brainstormed with the team and searched for existing apps that offer a comparable service.
Now you need to focus on the app's idea in this lab, considering the functionality that the program needs to offer.

Starting with these three hours and continuing over the next few weeks, analyze the project requirements, identify the entities involved, and sketch out how the information should be displayed on the screen. You can do this through paper prototyping or tools that allow you to model diagrams digitally so that you can easily version them. In the course of future labs, it will be normal for these representations to evolve, so you might change them.

The laboratory submissions will be done by pushing code inside a GitHub private repository provided to you through the GitHub Classroom system.

Steps

1. Set up your profile inside GitHub Classroom. This must be done only once,

accepting the first group assignment for Lab1.

   a. Load page: https://classroom.github.com/a/c3mhkwNk

   b. Login with your GitHub account (or create a new one) and authorize the GitHub Classroom system to access your profile

   c. Associate your GitHub account with your user identity in the full list that appears.
   Note: the prefix of each identity is the group identifier chosen in https://docs.google.com/spreadsheets/d/1DKTqzizsTy-g3vg1F46tLUJwl9-vLGnV2j15DCbT2E8/edit#gid=0

   d. Then you must join a group. If you are the first person in your group to complete the procedure, please create a new team with the **same group name** specified in the Google Sheet. If one of your colleagues has already created your team, just join it. Pay attention to not joining the **wrong team**

   e. Now, a new repository for lab1 group assignment has been created, and you can start collaborating with your colleagues using it. Take care to manage push operations, and not overwrite existing code. Consider using a well-known methodology like Git Flow (https://infinum.com/handbook/android/building-quality-apps/using-git)

   f. You can fork a new branch with the aim of developing features and also use release/tag strategy to mark milestones during the development

   g. The deadline of the assignment is a cutoff date: after the date is reached, you will lose write access to the repository

   h. The **last commit** before the deadline or the version of the project tagged as “completed” will be considered for evaluation

2. Understand requirements

   a. Who are the users involved? Think about possible *personas*

   b. What are possible usage flows? The various use cases bring together different scenarios that define the use flows to be implemented by the app in the future

   c. You can use a tool like FigJam or Miro to create a map that summarizes the possible **usage flows** of the application

3. Thinking of the users and the purpose of the application, identify what information needs to be collected and displayed on each screen.

   a. How are they going to be represented?

    b. Is some information more relevant than others?

    c. Are there any dependencies?

4. From requirements to screens.

    a. Consider paper prototyping or using a wireframing tool to directly model a possible UI for the application

    b. Figma provides an online service for editing and developing vector drawings. It is straightforward to use and runs in a browser

    c. Using a service like Figma allows you to work on the same project with your colleagues, designing with complete freedom and using components that follow the guidelines for Android UI

    d. Figma also allows the implementation of screen navigation. This is very useful for prototyping user interaction, which will be analyzed in more detail in the coming weeks

5. (Optional in this phase) Teamwork management application ER diagram

    a. Define possible entities and relationships in your application. You can create a schema (following the ER model or UML class diagram) leveraging FigJam, plantUML or other tools, to model the entities of the system

    b. This may help you better understand how the various contents are linked together and, in the next phase, how you will have to model the user data

Submission rules

- The work must be submitted by April, 8 23:59
- The design of the user interface will be evaluated, so take care to upload pictures / PDF files (and not links to Figma or other resources) representing UI sketches, diagrams for usage flow, and any material you produced for the requirements analysis and design of the application.
  Add to the repository material produced before Lab1 (if any) during the competitive analysis.
- The last commit before the deadline will be evaluated. Alternatively, create a release and label it “completed”.