Instituto Superior de Engenharia de Lisboa

Licenciatura em Engenharia Informática e de Computadores
Licenciatura em Engenharia Informática, Redes e Telecomunicações

Mobile Devices Programming

Practical Assignment - Option C, Winter Semester 2025/2026

Delivery date: December 21, 2025

This document specifies the requirements for **Option C** of this course's practical assignment. In this option, your task is to implement the **Chelas Multi-Player Poker Dice** application, a multi-player Poker Dice game where each player uses their own device. In this option, it is assumed that an HTTP API is developed by the students within the scope of the DAW course, whose requirements are described in the corresponding assignment description.

Games are set up using a lobby system. Players can either create a new lobby or join an existing one. A lobby consists of an identifier, a name, a short description and all relevant match setup information, including the number of rounds and the number of expected players.

When creating a lobby, the host defines the match parameters and waits for other participants to join. Lobbies that are not yet full are visible to all players, who can freely choose which one to enter. Once the required number of players have joined, the match starts. Players can leave the lobby at any time. If the host leaves the lobby and the match has not yet started, the lobby is closed and all other players are notified.

The match is played over the number of specified rounds. Each round consists of as many turns as the number of players, one per player. Each round begins with all players paying an *ante* (for example, 1 coin) from their balance in order to participate. On their turn, players start by rolling all five dice and may, up to two times, hold any subset and re-roll the remaining dice, for a maximum of three rolls per turn. At the end of the rolls, the player's final dice combination is established (i.e., the player's hand for the round). Once all players have taken their turn, their hands are compared and the highest-ranking hand wins the round. The winner collects the total amount of coins paid as antes, and all balances are updated accordingly. The next round then begins, with the starting player alternating between rounds. Players who cannot pay the ante are excluded from the new round. The match ends when all rounds are completed, or earlier if only one player can afford to pay the ante.

Dice combinations are ranked in descending order of strength as follows: *Five of a Kind*, *Four of a Kind*, *Full House*, *Straight*, *Three of a Kind*, *Two Pair*, *One Pair,* and finally *Bust* (no combination, hand strength determined by the highest die). These rankings adhere to the traditional poker-style hierarchy adapted for dice-based gameplay, with *Five of a Kind* placed above all other hands and excluding *Flushes*.

The **Chelas Multi-Player Poker Dice** application contains the following screens:

- Login - used to collect the user's credentials;
- Title - main menu;
- Lobbies - lists available lobbies;
- Lobby Creation - configure a new game (name, number of players, number of rounds);
- Lobby - lists waiting players;
- Game - play turns, rounds and announce results;
- About - information regarding the game and the application authors;
- Player Profile - local player info and statistics.

The suggested application navigation is depicted in Figure 1, where arrows represent navigation options. Usage begins at the Login screen, where players provide their credentials to access the application. Anonymous use is not supported. A successful login leads to the Title screen, where the application's main menu is presented. There, players can either elect to play a match (Lobbies screen), see the available game information (About screen) or consult their information (Player Profile screen). From the Lobbies screen, players can either enter an existing lobby or create a new one (Lobby Creation screen). In either case, they'll wait for other players to join in the Lobby screen. If players leave the waiting room (Lobby screen) while the game has not yet started, they navigate back to the Title screen. Further details pertaining to the functionalities provided in each screen are described in the Planning section, where the development milestones are also presented.

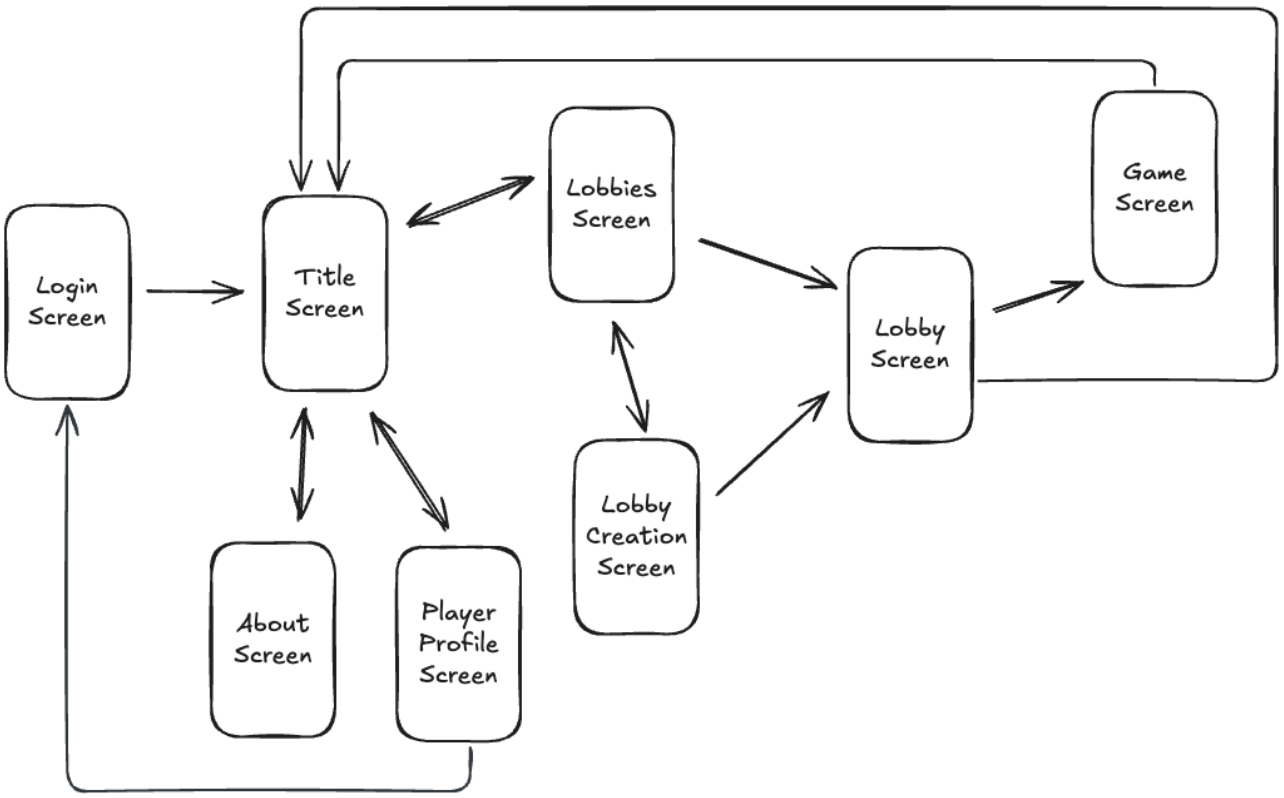

Figure 1 - Suggested application navigation

Authors are free to improve on the suggested navigation experience. The remaining details, such as the general appearance of the UI, which orientation is used in each screen, and further interaction details are left to the authors' discretion. A good reference for designing user experiences (UX) is "Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability", by Steve Krug

Planning

The project's milestones are presented next. In each milestone, students are expected to deliver the described functionalities. Deliveries are carried out by creating "chepd_c_X" tags, where "X" stands for the milestone number, in the group's GitHub repository. The repository is created within the scope of GitHub Classrooms by the teacher of each section group and **must contain at its root the README.md file with the identification of the group's members and the link to the video demonstrating how the application works.**

Milestone 1 (week 2 - 15/09/2025)

Deliverables: Title screen and About screen.

- Title screen: displays the application title and the following menu options
    - Start Match → navigates to Lobbies
    - Profile → navigates to Player Profile
    - About → navigates to About
- About screen: shows application information.
    - Includes general description of gameplay and link to web page with detailed description
    - Lists all group members with name and student number
    - Includes a button that opens the email app to contact all group members

Acceptance criteria:

- The app starts at the Title screen
- All three menu options are visible and lead to the corresponding screens (dummy screens)
- The About screen shows correct group information and an email button
- When the link for the detailed gameplay description is pressed, the browser opens it
- Pressing the email button opens the email app
- Navigation back to the Title screen is always possible

Milestone 2 (week 6 - 13/10/2025)

Deliverables: Match setup screens, used to select/configure a new game before it starts. At this stage, use fake service implementations, that is, with no actual communication with the HTTP API.

- Lobbies screen: displays the list of available lobbies with the following options
    - Displayed list is automatically updated
    - Select Lobby → navigates to Lobby
    - Create Lobby → navigates to Lobby Creation
- Lobby Creation screen: used to configure a new game before it starts.
    - Input the lobby name (no empty or blank strings)
    - Input a short description (no empty or blank strings)
    - Select number of expected players (2-6 players)
    - Select the number of rounds (a multiple of the number of players, up to 60)
    - Start Match button creates the corresponding lobby and navigates to Lobby Screen
- Lobby screen: waiting room for the match
    - Displays the lobby information
    - Displays the list of players in the lobby
    - Lobby information is automatically updated

Acceptance criteria:

- The Lobbies screen is accessible from the Title screen
- The list of lobbies is shown and refreshes automatically (simulated with fake service)
- Selecting a lobby always navigates to its Lobby screen
- Creating a lobby with valid input adds it to the list of lobbies and navigates to the Lobby screen
- Invalid input (empty name/description, out-of-range number of players, invalid rounds) is rejected with appropriate feedback
- The Lobby screen shows correct information for the chosen lobby
- The list of players in the lobby updates automatically (simulated with fake service)
- Navigation between these screens follows the planned UX
- In the Lobby screen, there is an Abandon option
- Abandoning removes the current player from the lobby and returns to the Title screen
- If the abandoning player was the last remaining in that lobby, the lobby is deleted and the lobby list is updated

Milestone 3 (week 8 - 27/10/2025)

Deliverables: Login screen, used to collect the user's credentials. At this stage, use fake service implementations, that is, with no actual communication with the HTTP API and no persistent storage of authentication tokens.

- Input the user credentials
- If credentials are invalid, display appropriate feedback
- Anonymous use of the application is not supported

Acceptance criteria:

- Application starts at the Login screen
- Users cannot proceed to any other screen without successful login
- After successful login, the Title screen is displayed
- Invalid credentials are rejected with appropriate feedback

Milestone 4 (week 10 - 10/11/2025)

Deliverables: Game screen, used to play the game. At this stage, use fake service implementations, that is, with no actual communication with the HTTP API.

- For each turn:
    - Displays current player, current round, and number of re-rolls left
    - Displays the five dice; in their turn, players can hold and release dice if re-rolls are available
    - Allows up to three rolls in total
    - Displays the hands of all players in the current turn
- After all players' turns:
    - Display players' hands and announce round winner
    - Alternate starting player for the next round
- At the end of the match:
    - Show the score of all players and identify the winner

Acceptance criteria:

- The screen clearly indicates whose turn it is
- The dice configuration (hand) of the current player is displayed at all time
- The hands of other players (if already played) are displayed at all time
- In the player's turn, dice can be rolled, held, and re-rolled up to the allowed maximum
- At any moment, the state of each die is clearly identifiable
- Dice rolls are not instantaneous
- After all players finish, the round winner is announced
- The match ends after all rounds are played or all other players have forfeited
- The match winner is displayed when the game ends

Milestone 5 (week 12 - 24/11/2025)

Deliverables: Replace fake service implementations by actual implementations using DAW's HTTP API

- Lobbies are now created, listed, and joined via the HTTP API
- Game state is synchronized in real-time between devices
- Player presence is updated (joining, leaving)

Acceptance criteria:

- Lobbies created on one device are visible to others
- Actions in the game (rolls, holds, results) are propagated across devices in real-time

- Leaving or disconnecting a player updates the game state consistently for remaining players

Milestone 6 (week 14 - 08/12/2025)

Deliverables: Player Profile screen, used to display local player information and statistics. The details are in accordance with the requirements of DAW's course assignment.

- Shows local player information (i.e. user name, balance)
- Displays personal statistics: number of games played, number of games won, frequency of each hand
- Allows users to logout

Acceptance criteria:

- Player information is displayed
- Statistics are displayed and are updated after completing games
- Login data is persisted locally across application restarts

Final Milestone (week 15 - 15/12/2025)

Final Demo

- Deliver a complete and fully functional version of the application
- All features from previous milestones must be integrated and working together
- The group must prepare a short demo video (5–7 minutes) showcasing the application in action
- The demo must cover: starting a match, playing several rounds, showing a match result, verifying updated statistics, and navigating to all screens
- The video link must be included in the repository's README.md file

Acceptance criteria:

- The app is complete and stable, with all planned screens accessible
- All functionality works as specified in earlier milestones
- The demo video clearly shows the application's features
- The repository is correctly tagged (chepd_c_f) and contains the video link in the README.md

Due date
December 21, 2025

ISEL, September 8, 2025