

## **Project Title: Tic-tac-toe App**

### **1. Introduction**

The Tic-tac-toe game and its popularity as a simple yet engaging two-player game.

### **2. Front-End Design / Back-End Logic**

- Layout and Components: Android XML for layouts. Elements include a 3x3 grid of buttons and a reset button.
- User Interaction: User can enter the players names for "X" and "O" and those names show when one of those players wins. Also, those names appear all time on the game screen and show the scores for each player.
- Responsive Design: Compatibility with various Android device sizes and orientations.
- Graphical Assets: Custom icons and buttons.
- Game State Management: Maintaining the state of each cell and player turns using Java arrays
- Winning Logic: Algorithm to check for winning conditions after each move.
- Update Score: After each winning the score of the winner player is updated.
- Reset Game: The user can press this button anytime to reset the game.

### **3. Game Specifications**

- Platform: Android mobile devices.
- Programming Language: Java.
- IDE: IntelliJ IDEA.
- Grid Layout: 3x3 board.
- Players: 2 players (Player 1: 'X', Player 2: 'O').
- Winning Condition: First player to get 3 of their marks in a row (vertically, horizontally, or diagonally).
- Draw Condition: Game ends in a draw if all 9 squares are filled without a winner.

### **4. Future Improvements**

- AI Mode: Single-player mode against a computer-controlled opponent.
- Online Multiplayer: Implementing real-time multiplayer gameplay over the internet.
- Customizable Themes: Allowing users to customize the game's appearance.

- Localization: Support for multiple languages.

## 5. Challenges Faced

We had issues for setup our PCs, as SDK version issue. Also, we had difficult to implement the player's name.

Moreover, we had some bugs in the game logic.