

# Assignment

## Flip Flop Memory Game in JAVA

### Objective

Develop a GUI based Java desktop application for the flip-flop memory game, also known as the concentration game. The application should allow players to test and improve their memory skills by finding matching pairs of cards. The game should utilize **multi-threading** to enhance performance, and it should incorporate **file handling** and **database functionality** based on your own business logic and project needs.

### Requirements

#### User Interface

- Design and implement a graphical user interface (GUI) for the game.
- Display a grid of cards/tiles, initially facedown.
- Each card/tile should have a distinct design or image on its face.
- Provide a score or timer display to track the player's progress.

#### Game Logic

- The game should have a set of cards/tiles with matching pairs.
- Randomly shuffle the cards/tiles before the game starts.
- Implement the flip functionality, allowing the player to click on a card/tile to flip it over and reveal its face.
- Implement the logic to check if the two flipped cards/tiles match or not.
- If the cards/tiles match, keep them face up and allow the player to continue their turn.
- If the cards/tiles do not match, flip them back face down after a short delay.
- Track the player's score or time taken to complete the game.

#### Multi-threading:

- Identify a suitable module in the game where multi-threading can be implemented and implement multi-threading in the chosen module.

#### File Handling:

- Implement file handling functionality based on your project's requirements.

#### Database Integration:

- Utilize a database system (e.g., MySQL) based on your project's needs. Identify the relevant data to be stored in the database.

## Error Handling:

- Handle any unexpected errors or exceptions.

## Note:

The specific implementation details and requirements for **file handling**, **Database functionality** and **Multi-Threading** are left to the student based on their own business logic and project needs.

The Following screen shots have been attached for your reference and are of a Mobile Application. You may use them as a reference. You may also modify and change the GUI according to your own project needs.

