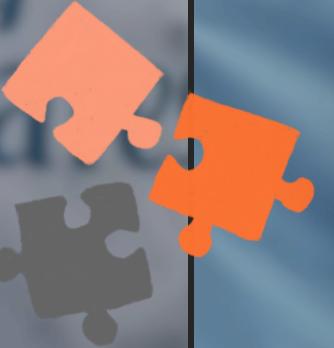
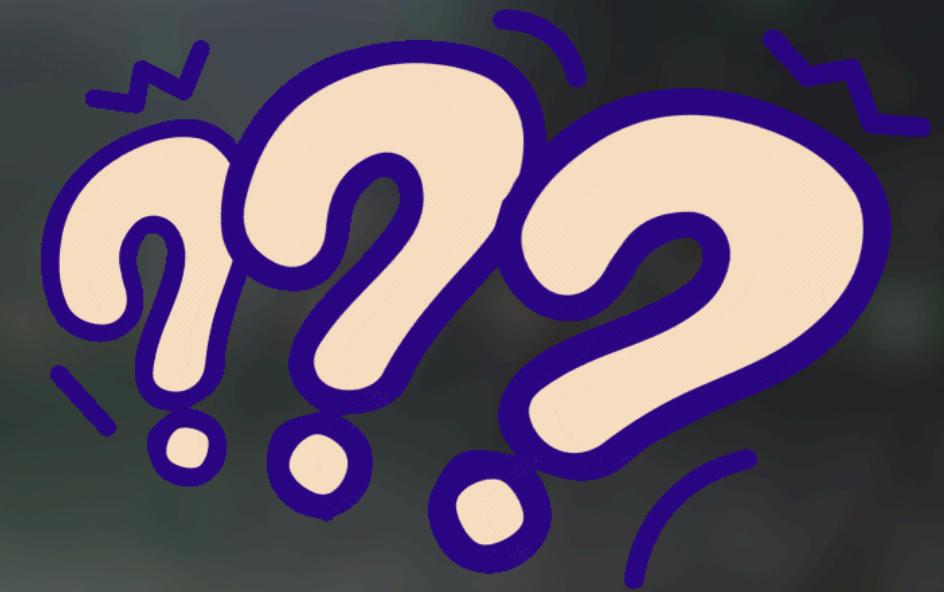




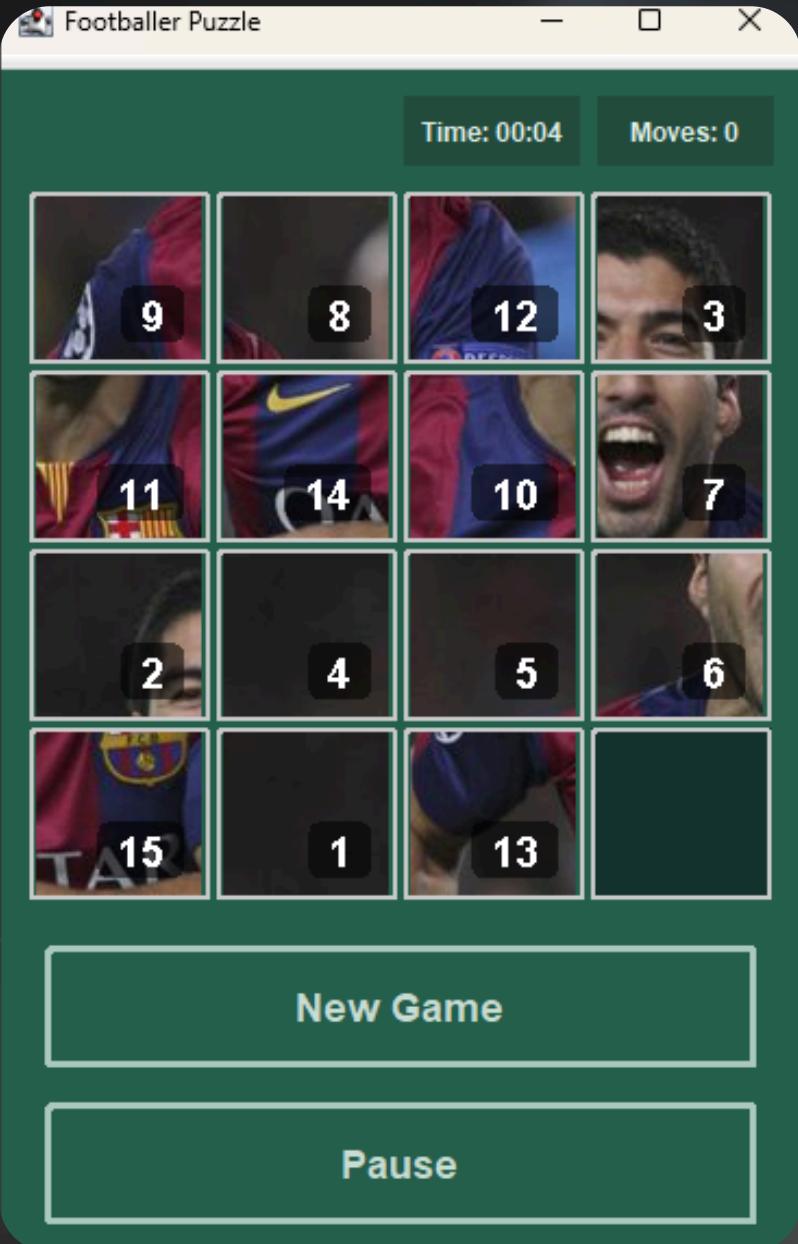
# Footballer Puzzle



# Inspiration



# Feature & Design



**15 Puzzle:** พร้อมตัวเลขกำกับ

**New Game:** สุ่มรูปใหม่

**Pause / Resume:** หยุดเกม / เล่นต่อ

**Time:** นับเวลา

**Moves:** นับจำนวนการเคลื่อน

**Complete:** แสดงรูปเต็มและสถิติ

# System Design

## Model

**PuzzleTitle**

```
- id : int  
- image : BufferedImage  
  
+ PuzzleTile(id : int , image : BufferedImage )  
+ getId () : int  
+ isEmpty() : boolean  
+ getImage() : BufferedImage  
+ setImage(Image : BufferedImage) : void
```

**PuzzleBoard**

```
- n : int  
- grid : PuzzleTitle [][]  
- emptyR, emptyC : int  
  
+ PuzzleBoard(n : int)  
+ getSize() : int  
+ setTile(r : int, c : int, tile : PuzzleTile) : void  
+ canMove( r : int, c: int) : boolean  
+ move(r : int, c : int) : boolean  
+ getTilesFlat() : java.util.List<PuzzleTile>  
+ isSolved() : boolean
```

**PuzzleGame**

```
- n : int  
- board : PuzzleBoard  
- moves : int  
- paused : boolean  
- timer : Timer  
- seconds : long  
- onSolved : java.lang.Runnable  
- onTick : java.util.function.LongConsumer  
- onMove : java.util.function.IntConsumer  
  
+ PuzzleGame(n : inr)  
+ getSize() : int  
+ getBoard() : PuzzleBoard  
+ getMoves() : int  
+ get Elapssedseconds() : long  
+ isPaused() : boolean  
+ setOnSolved(r : Runnable) : void  
+ setOnTick(c : LongConsumer) : void  
+ setOnMove(c : IntConsumer) : void  
+ togglePause() : boolean  
+ newGame(fullImage : BufferedImage) : void  
+ tryMove(r : int, c : int) : boolean  
- sliceImageWithNumbers(img : BufferedImage , n : int) :  
java.util.List<PuzzleTile>  
- isSolvable(perm:java.util.List<Integer>, n:int) : boolean  
- restartTimer() : void  
- stopTimer() : void
```

← Use ← Use →

# System Design

## View & Controller

**ImageManager**

```
- images : java.util.List<java.awt.image.BufferedImage>
- completed : java.util.set<Integer>
- currentIndex : int
- baseNames : String[]
- exts : String[]

+ loadDefaultImages() : void
+ getCurrentImage() : java.awt.image.BufferedImage
+ randomImageDifferentFromCurrent() : java.awt.image.BufferedImage
+ randomUncompletedImage() : java.awt.image.BufferedImage
+ markCurrentCompleted() : void
+ allCompleted() : boolean
- tryLoadAny(baseName : String) : java.awt.image.BufferedImage
- tryLoadFromDir(dir : File, baseName : String) : java.awt.image.BufferedImage
- findFolderUpwards(start : File, targetName : String, maxDepth : int) : File
- generateFallback(w : int, h : int) : java.awt.image.BufferedImage
```

← Use →

**PuzzleUI**  
  <extends JPanel>

```
- game : PuzzleGame
- tileButtons : JButton [][]

+ PuzzleUI(game : PuzzleGame)
- initBoardButtons() : void
+ newGame() : void
+ togglePause() : void
+ setBoardEnabled(enabled : boolean) : void
- refreshTiles() : void
- onSolved() : void
- formatTime(seconds : long) : String
- styleMainButton(b : JButton) : void
- styleStatusLabel(l : JLabel) : void
```

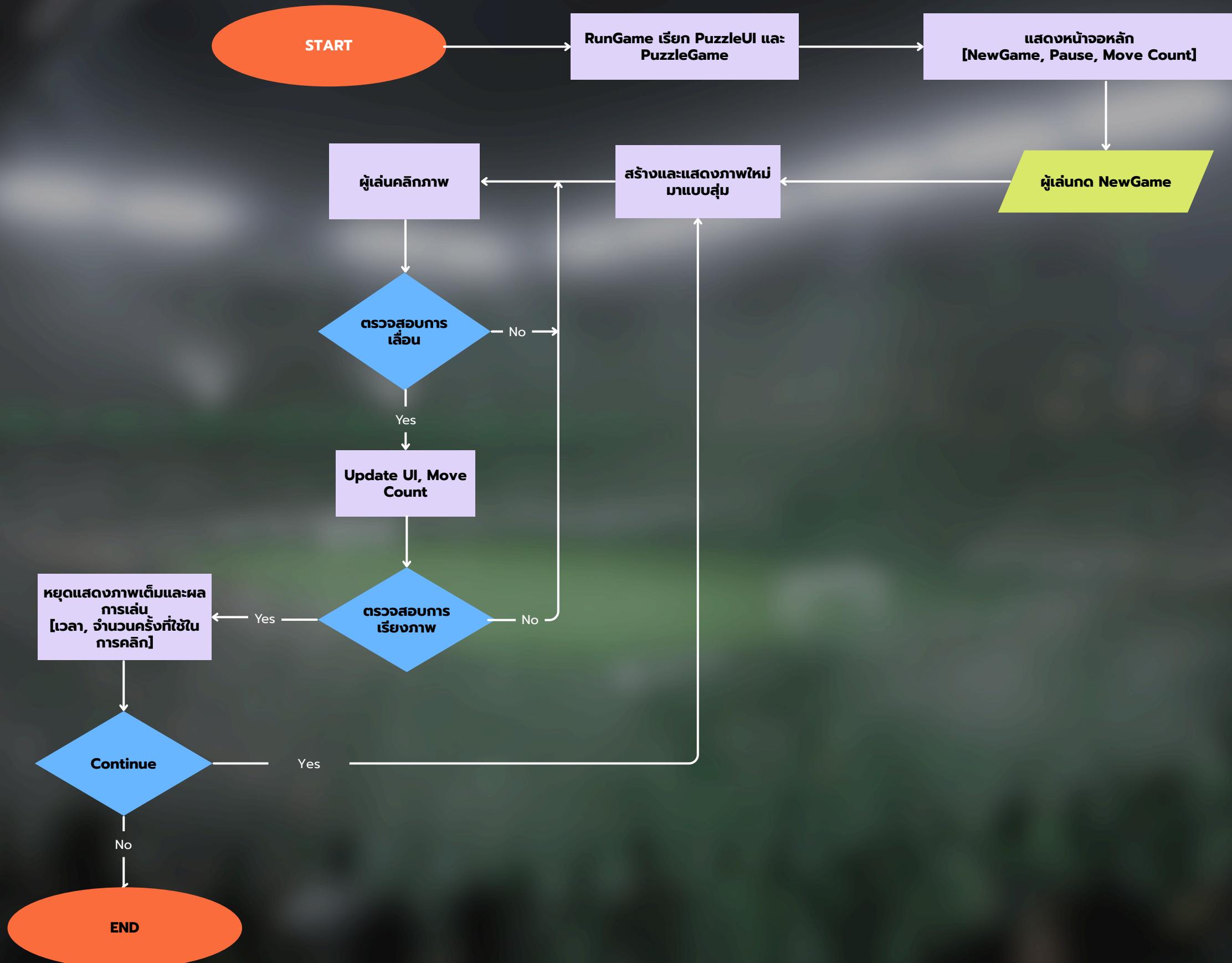
← Use →

**FootballerPuzzle**  
  <extends JFrame>

```
- puzzleUI : PuzzleUI

+ FootballerPuzzle()
- buildMenuBar() : JMenuBar
```

# System Flow

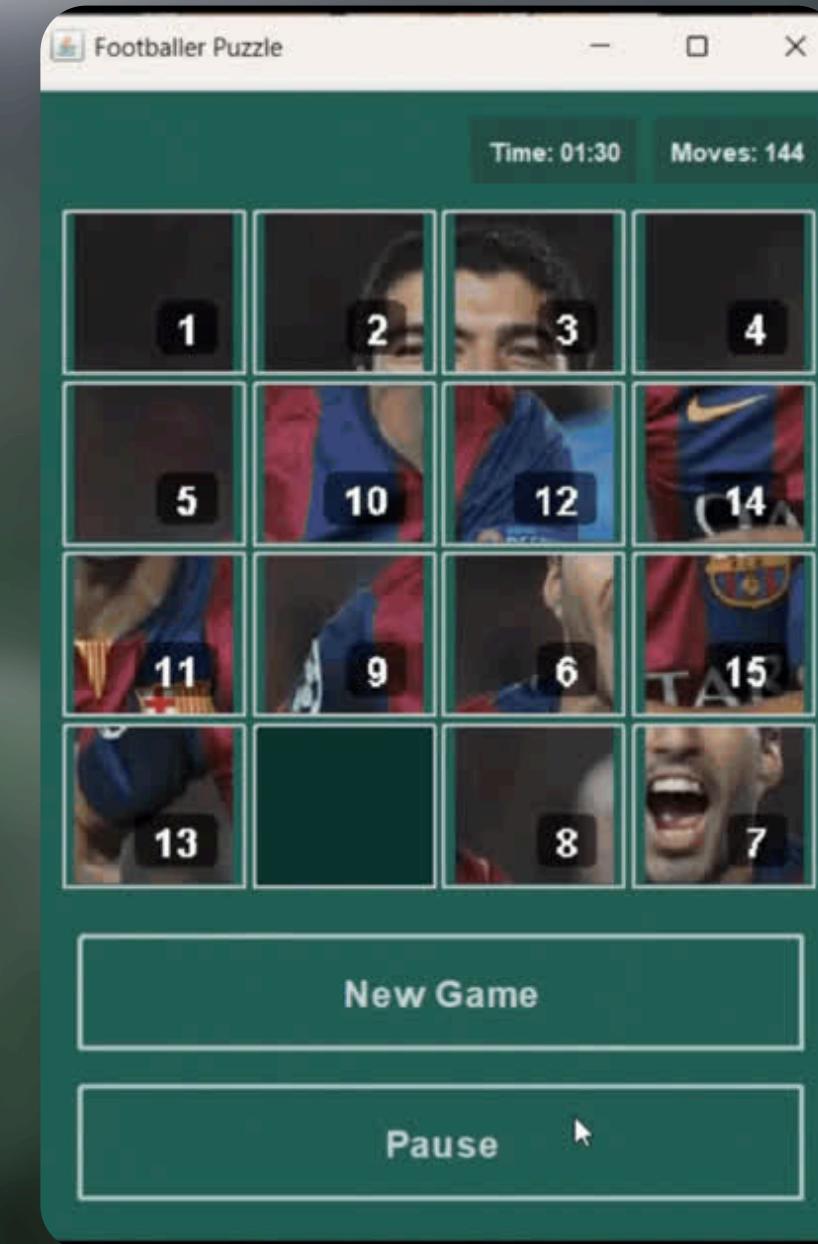


# Result

## Game Play



## New Game

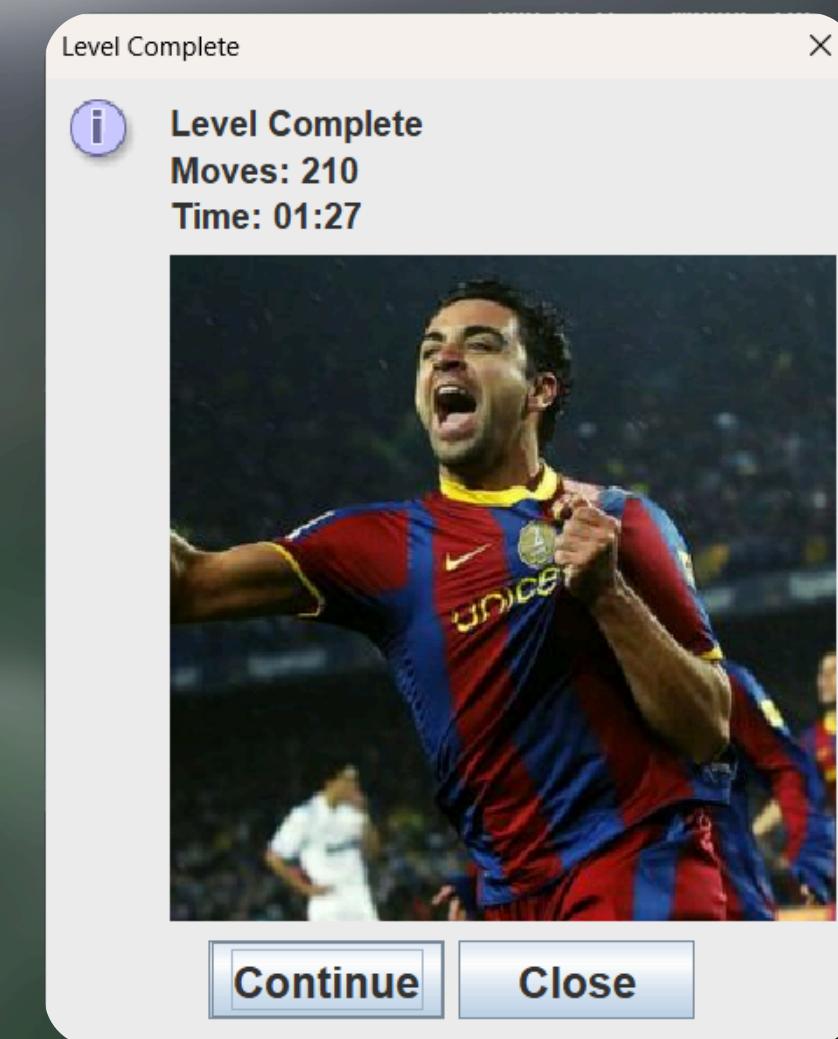


# Result

Pause Game



Complete



# O&A





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