Android Puzzle Game

Shikaku

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Introduction

Objective:

The objective of this project is to develop a puzzle game application, based on the Android platform.
The puzzle game chosen for this project is "Shikaku".

Shikaku:

Shikaku is a puzzle game which is played on a Square/Rectangular Grid. The Grid is further divided into square shaped tile panels called as "Cells". Some of these cells in the grid will contain a number in them. The main objective of the game is to divide the grid into square or rectangular sections based on the number in the cell, which represents the area of that particular section. When all the numbers are covered in sections, all the cells in the grid are a part of one or the other selected sections the game is considered as solved. Any stray tiles means that the game is not yet complete. No sections can overlap at any point of time.

Development Phase

Phases of Development:

There are two phases of development involved in the creation of this application.

- The User Interface.
- The Game-Logic Implementation.

Development Phase

Phase 1: User Interface Development

- Main Menu Interface.
- Difficulty Level Selector.
- Puzzle Selector.
- About.
- Score Board.
- Grid Board.
- In – Game Menu.

Development Phase

Phase 2: Game-Logic Implementation

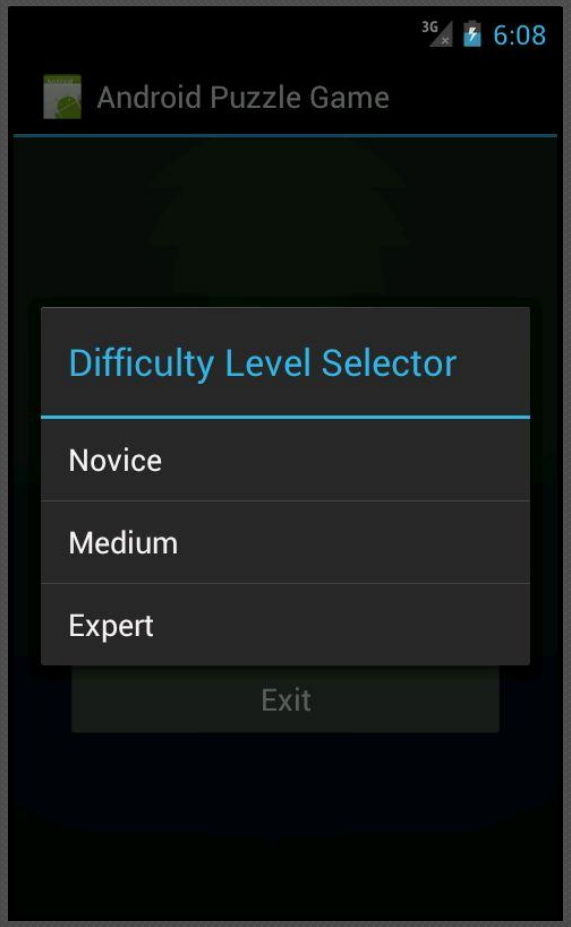
- The "Select & Drag" functionality.
- Cell Spacing for section distinction.
- Conflict Management.
- Move Validation (Color Coding).
- Win Validation.
- Score – Timer.

Game-Play Representation

* Main Menu

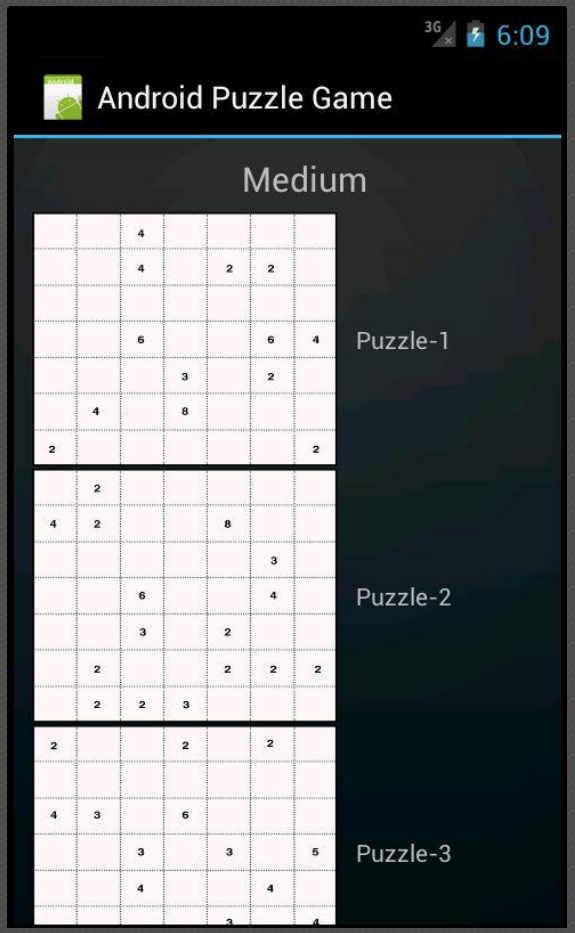
Game-Play Representation

* Difficulty Level Selector



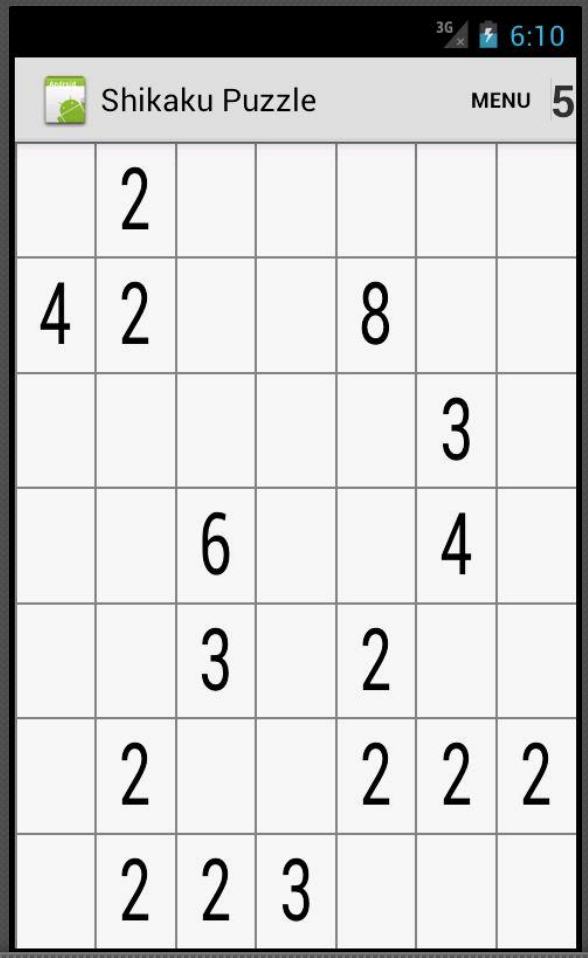
Game-Play Representation

* Puzzle Selector



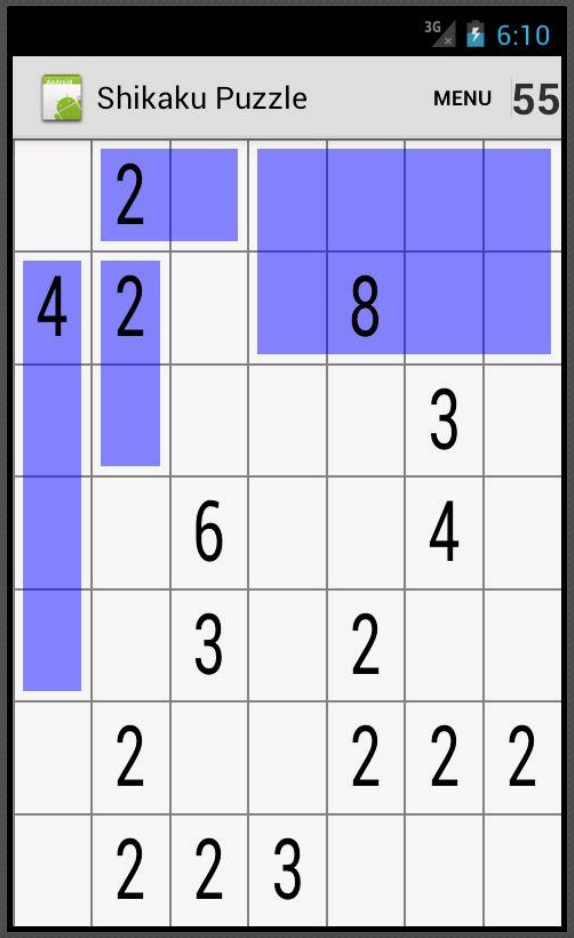
Game-Play Representation

* Grid Board



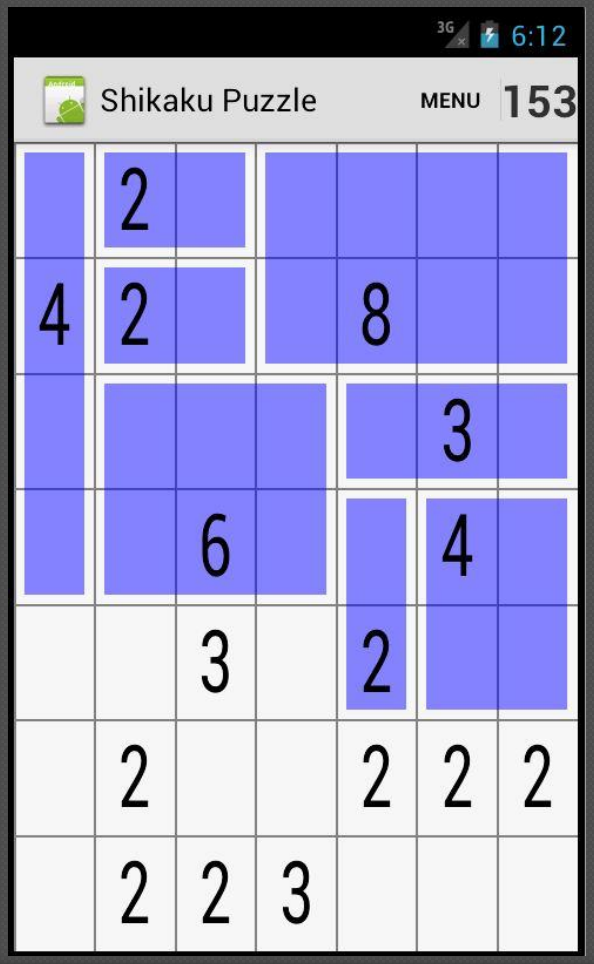
Game-Play Representation

* Section Selection (Select & Drag Functionality)



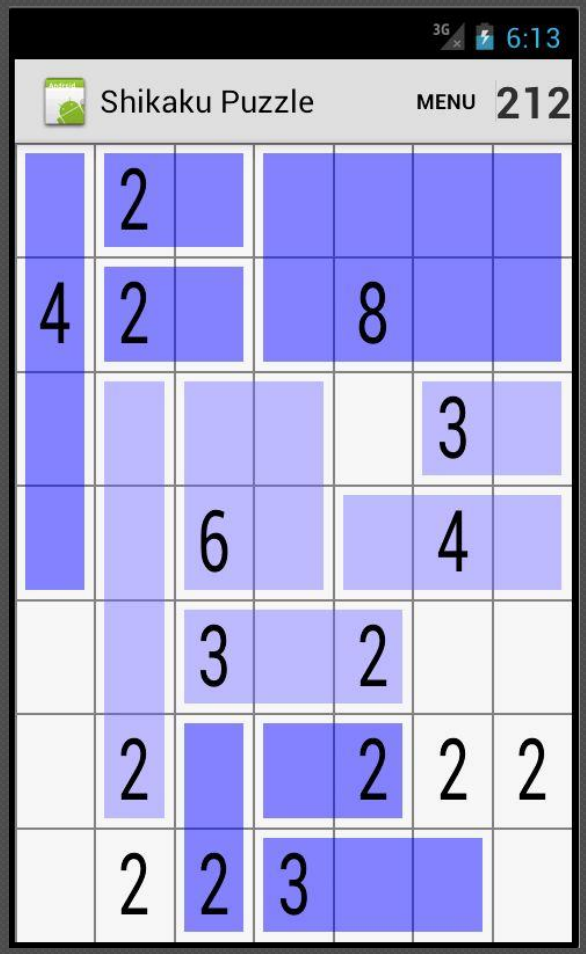
Game-Play Representation

* Cell Spacing



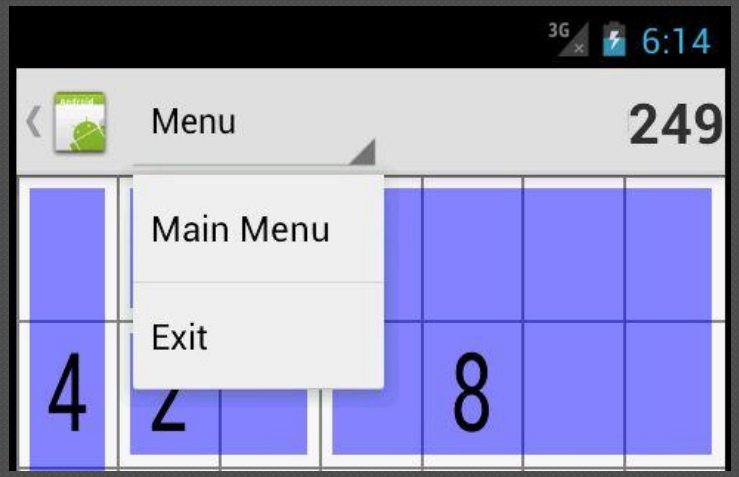
Game-Play Representation

* Move Validation (Section Color Coding)



Game-Play Representation

* In – Game Menu / Score - Timer

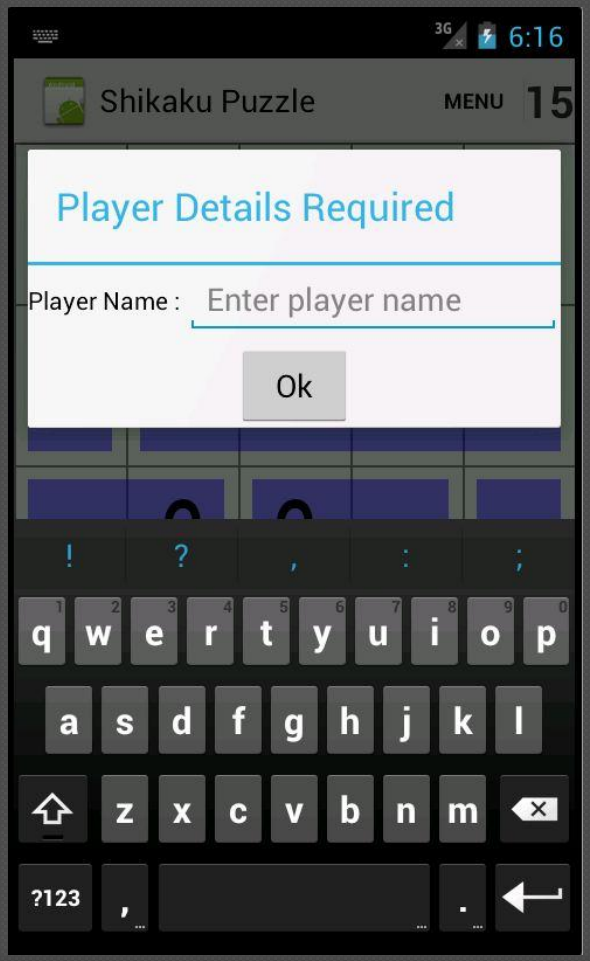


Game-Play Representation

* Win Validation

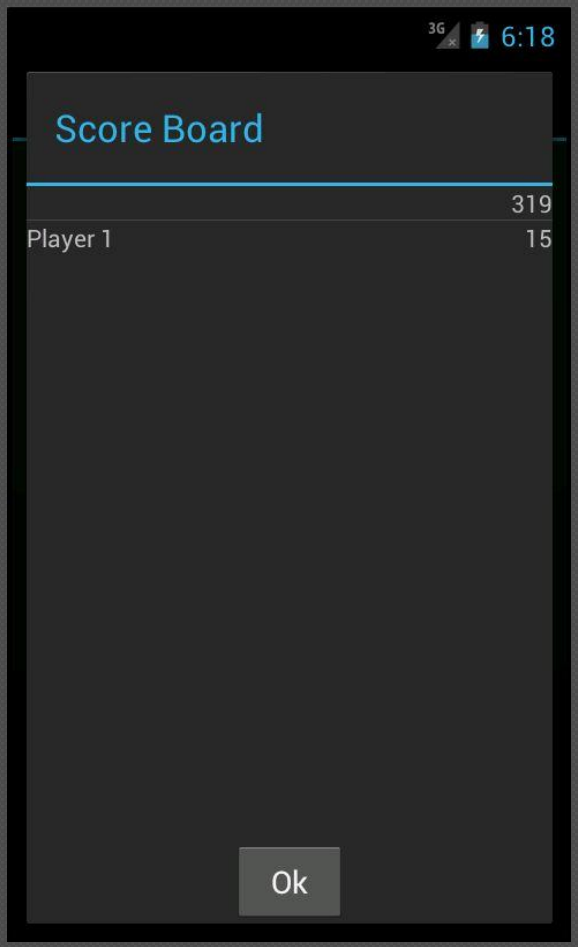
Game-Play Representation

* Player Details



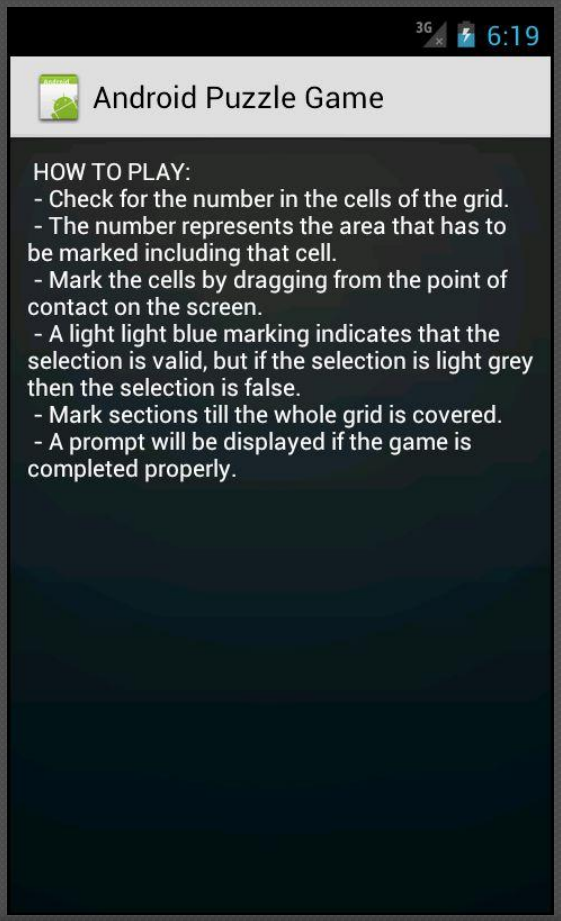
Game-Play Representation

* Score Board



Game-Play Representation

* About



Challenges

Challenges:

- Developing the User Interface without leaving out any crucial requirements.
- Implementing the Section Selection Functionality.
- Implementing a method to detect and avoid conflict between selections.
- Developing a method to provide section distinction.
- To implement a method to check the validity of a move.
- To develop an algorithm to detect the completion of the game and prompt the player.
- Developing a Score – Timer to keep track of the time taken to complete a game.

Further Improvements

Future Implementations:

- A "Solve" Functionality to automatically give the solution to a partially solved puzzle.
- A "Hint" Functionality to display the next prospective move to the player.
- A method to automatically generate a puzzle on the input of the grid size for the puzzle.

Project Demonstration

Questions

Thank You