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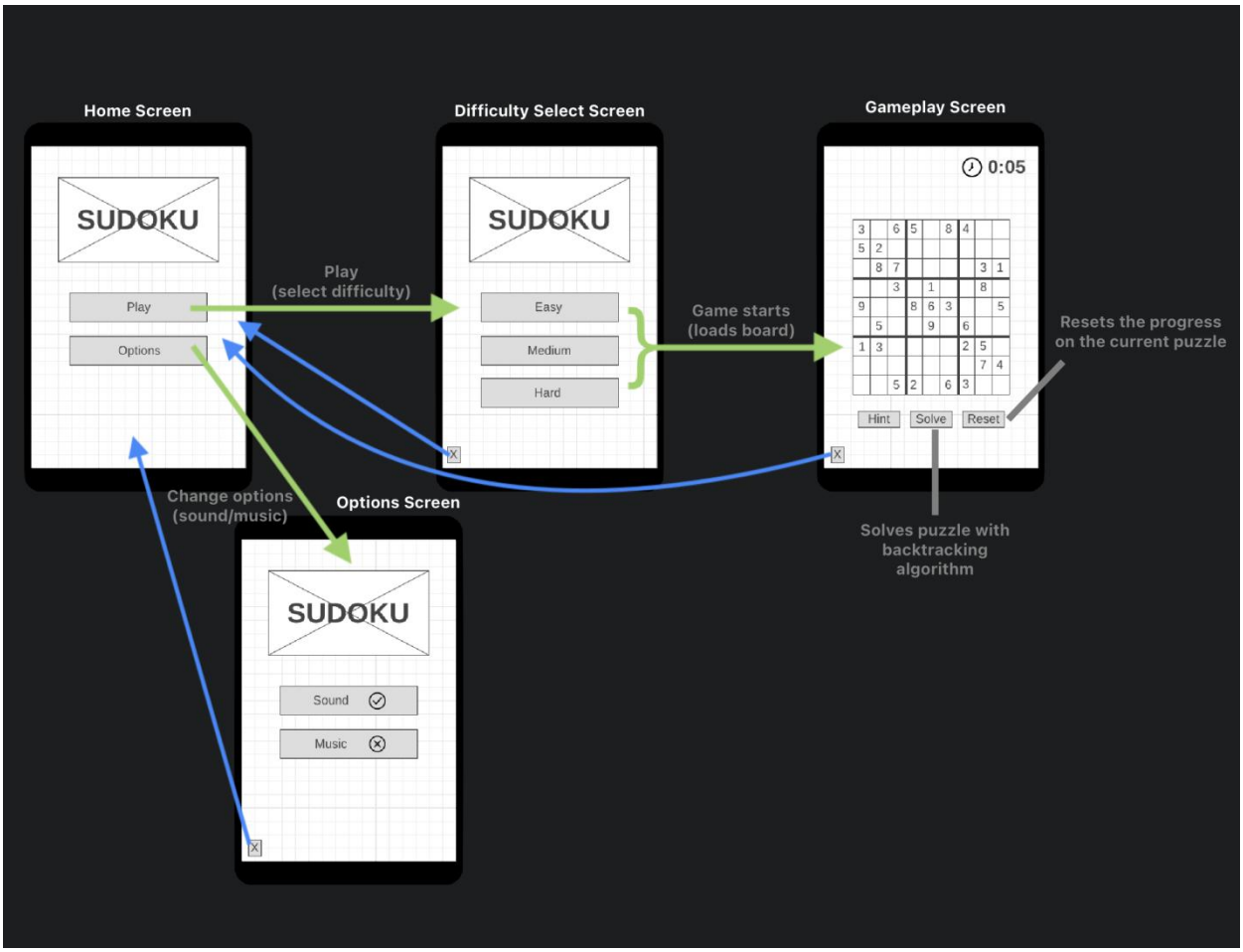
Project Title: Sudoku				
Project Description: An android app that features an interface for the user to play a game of sudoku. Featuring a user friendly menu with various playing difficulties and options. This app is aimed to heighten one's skill at the game, through a various of miscellaneous options like hints, timers, and of course good music. You can even visualize how the app solves the puzzle from scratch. Many options are available for puzzles, whether it'd be from a public repertoire, or even handcrafted by our very own puzzle generation algorithm. Our combination of tools makes this an app that anyone would enjoy from beginners trying out a new thing to veterans who have been number crunching for years.				

Requirements Definition:

- - On Launch, the user will hear good background music.
- - The app will display two options, which are play and options.
- - The user can choose to play a game, or go to the options menu.
- - The user can press the back button to go back to the main menu.
- - Upon selecting play, the user will be presented with a menu of difficulty levels. (easy, medium, hard)
- - After choosing a difficulty level, the user will be presented with a grid of 81 cells, a hint button, a solve button, a reset button, and a timer.
- - The timer will record the time it takes the user to solve the puzzle.
- - The user can select a cell to change the value of the cell to any number between 1 to 9.
- - The user can also clear a cell by pressing the clear button.
- - The user can select the hint button to reveal a random empty cell, the solve button to solve the puzzle, and the reset button to reset the puzzle.
- - If the user does a mistake, the app will highlight the cell with the color red, play a sound, and increment the mistakes counter by one.
- - Upon completion of the puzzle, a congratulatory message will be displayed, along with the time it took the user to solve the puzzle.
- - The user can select the options button to go to the options menu.
- - The user can disable the sounds and music through the options menu.
- - The user can enable the “Generate Puzzle” check box to generate a puzzle from scratch instead of loading a pre-generated puzzle.
- - The user can enable the “Visualize Algorithm” check box to visualize the algorithm solving the puzzle, using a backtracking algorithm.

User Interface:



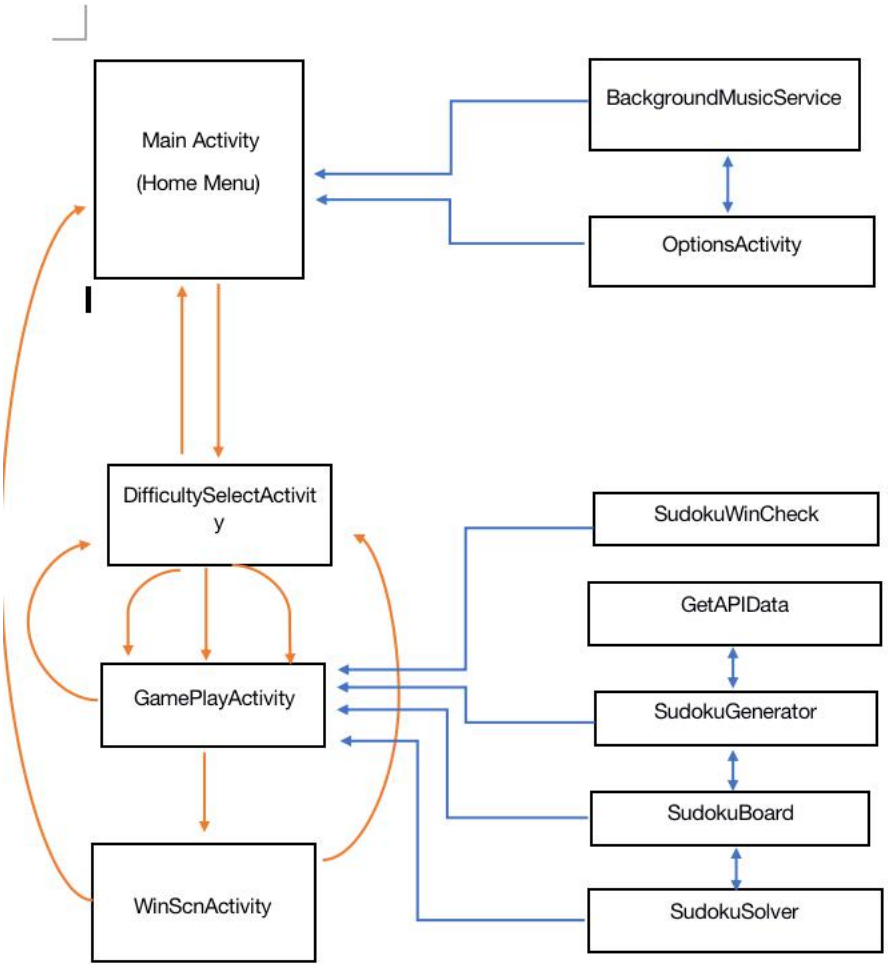
Technologies and Tools:

- Android Studio

Libraries/Dependencies:

- Contexts
- Graphics.Canvas, Graphics.Paint, Graphics.Rect
- Util.AttributeSet, Util.ArrayList
- Views
- Widget.Button

High Level View of Design:



Orange: user movement

Blue: dependencies