Team: Nir Boneh, Shirong Bai, Lili Ji Title: Tetris on Android

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Project Summary: Build a simple game of tetris on Android. Including features such as online and local high scores, music, sound effects, holding piece, soft drops and hard drops, and help screen.

Requirements:

No Business Requirements

User Requirements			
ID	Requirement	Topic Area	Priority
UR-001	User can click on Help and be sent to the help screen from the main menu	Navigation	High
UR-002	User can click on Highscores and be sent to the high score screen from the main menu	Navigation	High
UR-003	User can click on Play and be sent to the game screen from the main menu	Navigation	High
UR-004	User should be able to pause the game and continue the game while playing	In-Game	Critical
UR-005	If user makes the highscore after finish the game. The user should be to type in alias and be listed in the local or even online if he made it.	Post-Game	Medium
UR-006	When clicking falling	In-Game	High

	tetris piece, piece should rotate		
UR-007	When performing a quick swipe on tetris piece, it should hard-drop	In-Game	High
UR-008	When performing a slow drag on tetris piece, it should soft-drop.	In-Game	High
UR-009	When clicking on hold-piece section, the tetris piece will switch out.	In-Game	Medium
UR-010	Have a back button in most screens to be able to navigate back to the main menu	Navigation	High

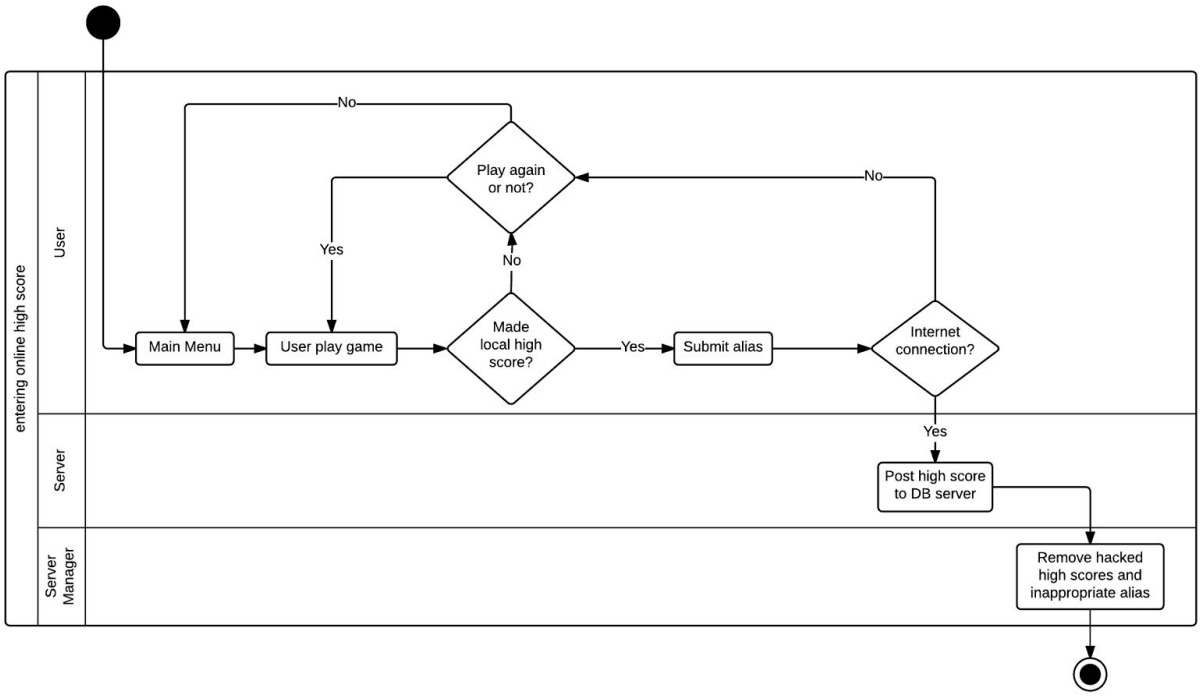
Functional Requirements			
ID	Requirement	Topic Area	Priority
FR-001	Current Level of game should dictate the speed of tetris piece falling	In-Game	High
FR-002	Settings such as effect and music volume should be saved for next use	Settings	Medium
FR-003	High scores will be ordered in descending score order and displayed to user in high score screen.	High Scores	High

FR-004	Level of game will increase based on lines cleared	In-Game	Medium
FR-005	When user loses the game by having putting a piece above the game board, send User to game over screen	Post-Game	Medium

Non-Functional Requirements			
ID	Requirement	Topic Area	Priority
NFR-001	Have a reliable online server to post and get high scores	Online	Medium
NFR-002	Speed of game should not be affected by frame rate of device	In-Game	Critical
NFR-003	Use a reliable online database to save high scores.	Online	Medium

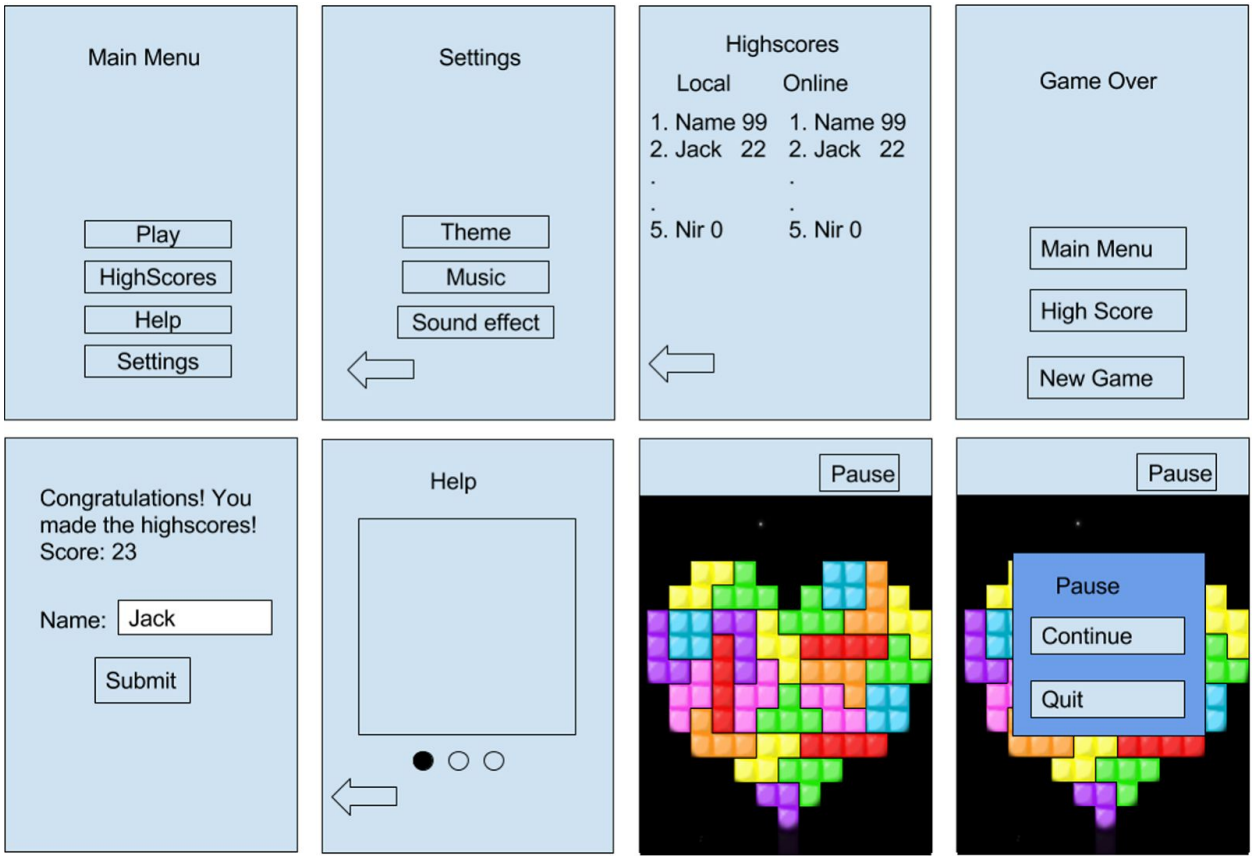
Use Case Diagram:

Activity diagram

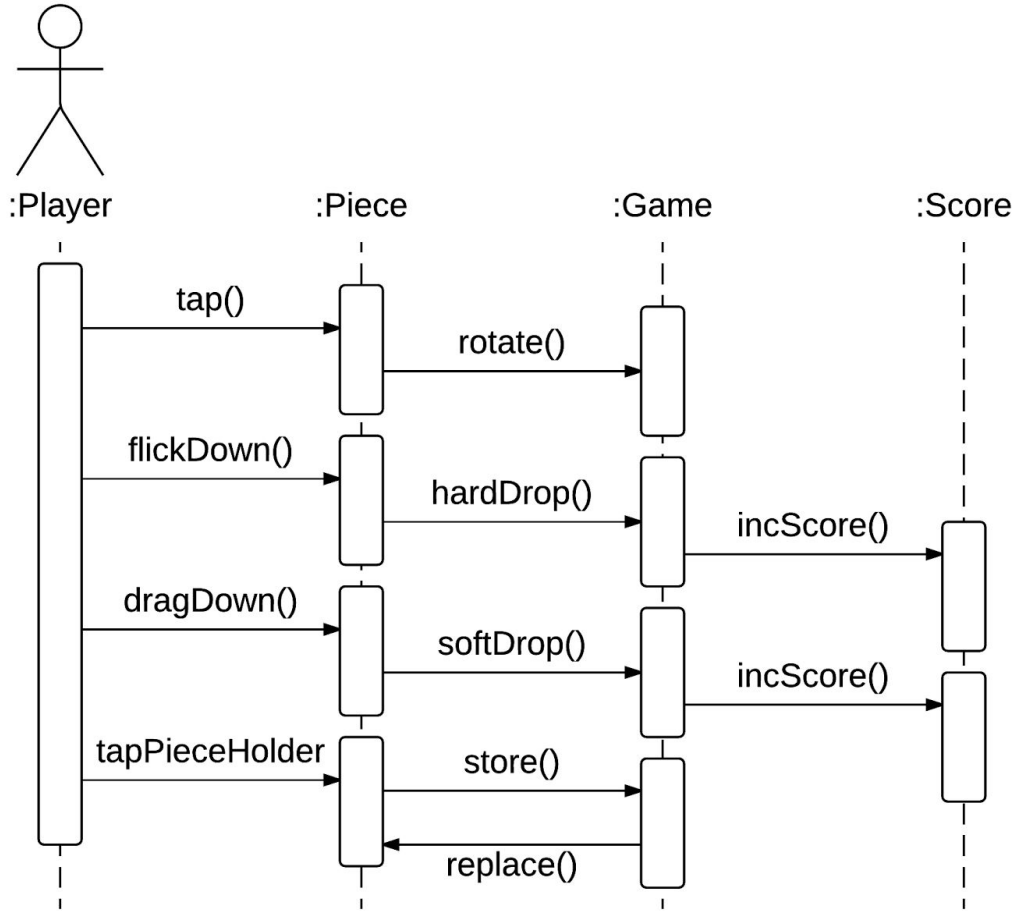


Data Storage: We will use google app engine with GQL db to store online highscores. Sqllite built into the phone for local highscores. For few values such as volume we will use androids sharedpreferences.

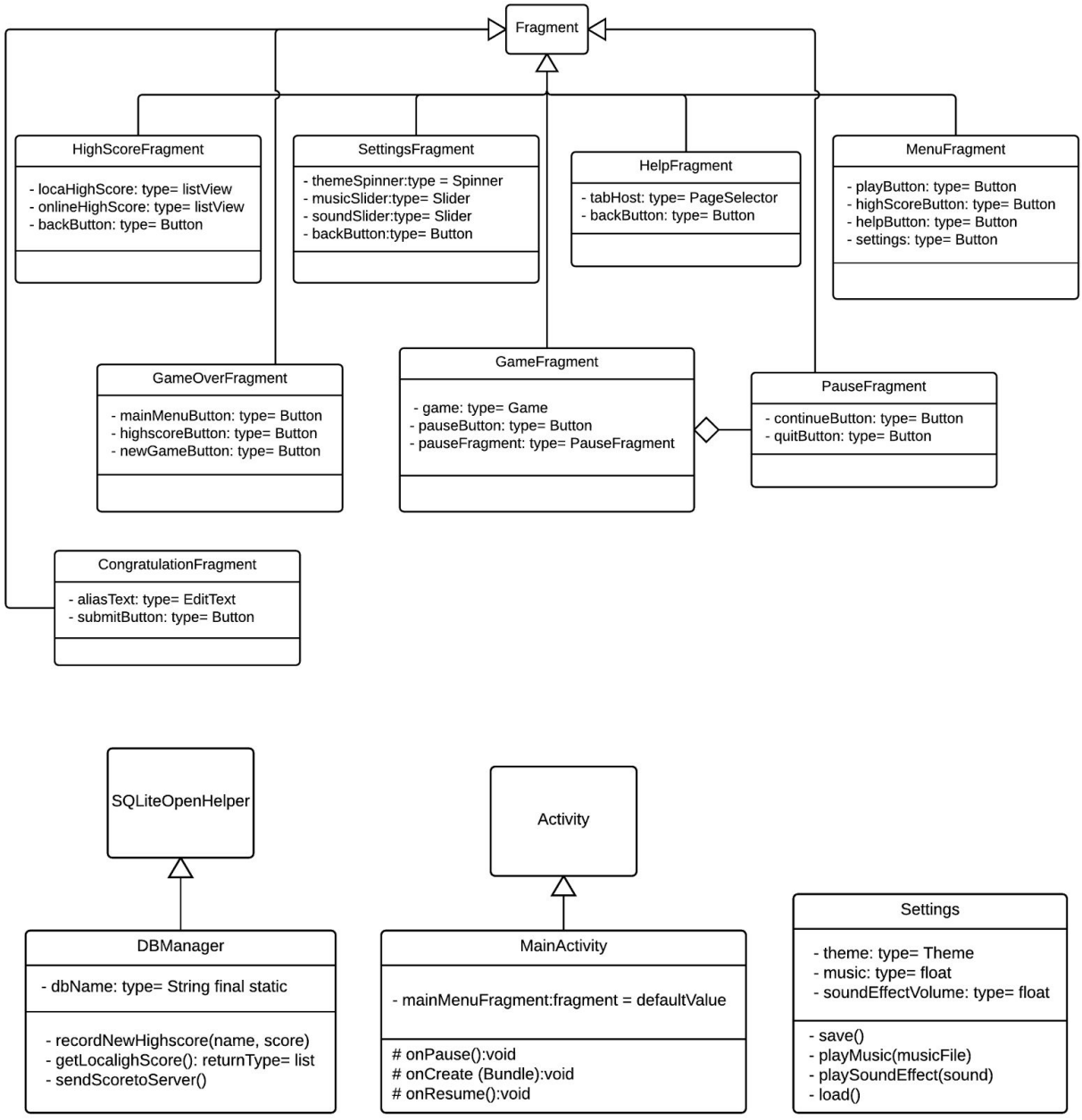
UI Mockups:

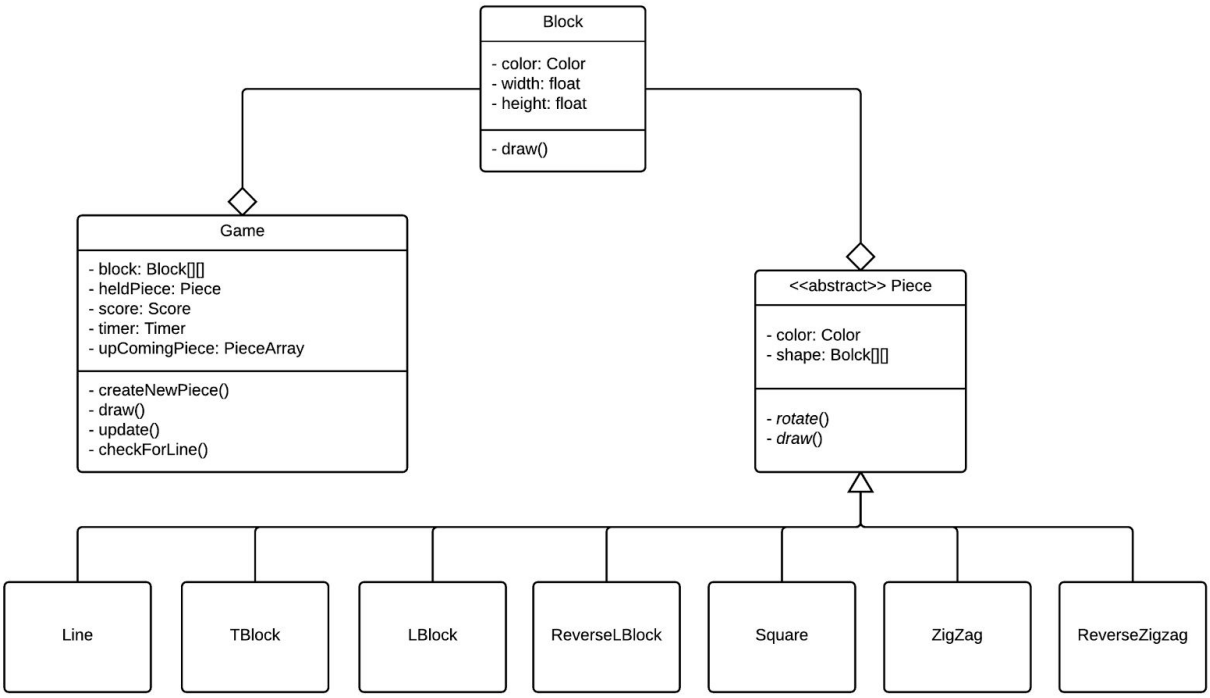

Main Menu
Play
HighScores
Help
Settings
Settings
Theme
Music
Sound effect
Highscores
Local
Online
1. Name 99
2. Jack 22
5. Nir 0
1. Name 99
2. Jack 22
5. Nir 0
Game Over
Main Menu
High Score
New Game
Congratulations! You made the highscores!
Score: 23
Name: Jack
Submit
Help
Pause
Pause
Pause
Continue
Quit

Sequence Diagram:



Class Diagrams:




Block
- color: Color
- width: float
- height: float
- draw()
Game
- block: Block[][]
- heldPiece: Piece
- score: Score
- timer: Timer
- upComingPiece: PieceArray
- createNewPiece()
- draw()
- update()
- checkForLine()
<<abstract>> Piece
- color: Color
- shape: Bolck[][]
- rotate()
- draw()
Line
TBlock
LBlock
ReverseLBlock
Square
ZigZag
ReverseZigzag