

Design Review: Line 'Em Up

Overall Description:

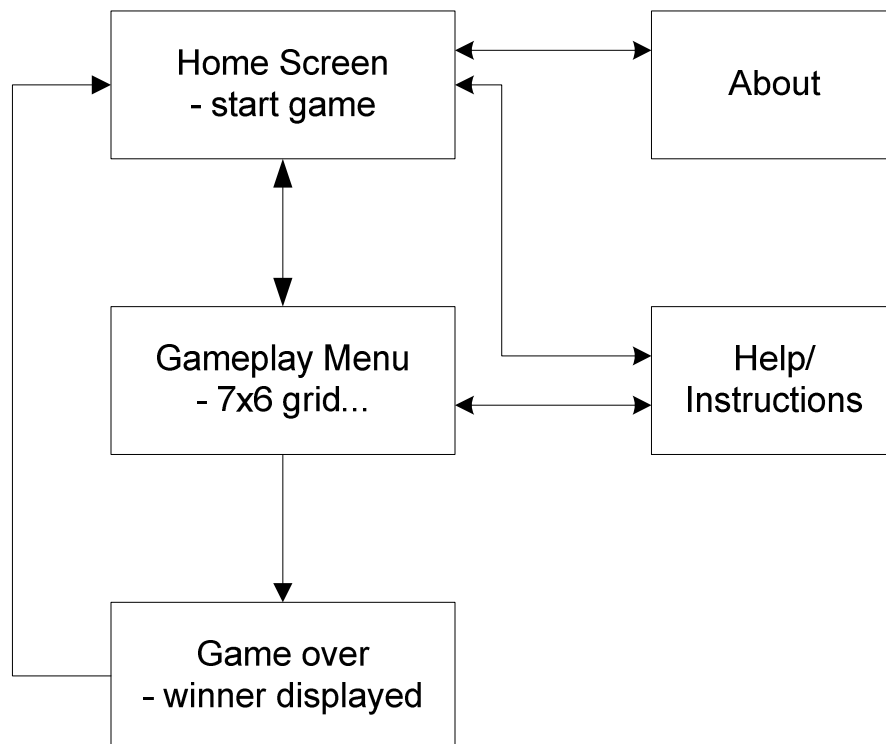
A digital version of the game known as "Connect Four" will be implemented as an application for the Android Operating System on smart phones and tablets.

Connect Four is a two-player game in which the players first choose a color and then take turns dropping coloured discs from the top into a seven-column, six-row vertically-suspended grid. The pieces fall straight down, occupying the next available space within the column. The object of the game is to connect four of one's own discs of the same color next to each other vertically, horizontally, or diagonally before your opponent (Wikipedia).

Program characteristic:

- The game will initially be setup to be played by 2 human players who will take turns using a single platform (an Android smartphone or tablet) to play a head to head game of connect four by physically passing the device back and forth between themselves.

Screen map Diagram:



Modules (CRC card model):

** FYI, the following paragraph is a little background knowledge taken from developer.android.com which can be of interest to reviewers which have limited Android experience:

An Android Activity is an application component that provides a screen with which users can interact in order to do something. Each activity is given a window in which to draw its user interface. An application usually consists of multiple activities that are loosely bound to each other. Typically, one activity in an application is specified as the "main" activity, which is presented to the user when launching the application for the first time. Each activity can then start another activity in order to perform different actions.

Activity Modules:

Class: MainActivity	Collaborators: - GameplayActivity - AboutActivity - HelpActivity
Responsibility: - First screen displayed to the user. - Options to start the collaborating activities	

Class: AboutActivity	Collaborators: - MainActivity
Responsibility: - Displays basic application information.	

Class: HelpActivity	Collaborators: - Gameplay Activity - MainActivity
Responsibility: - Instructions relating to game operation.	

Class: GameplayActivity	Collaborators:
Responsibility: <ul style="list-style-type: none"> - Displays the GameSurface 	

- MainActivity
- AboutActivity
- HelpActivity
- GameoverActivity
- GameSurface

Class: GameoverActivity	Collaborators:
Responsibility: <ul style="list-style-type: none"> - Displays the winner. 	

- Gameplay Activity

GameplayActivity Inner modules:

Class: GameSurface	Collaborators:
Responsibility: <ul style="list-style-type: none"> - Drawable surface displayed by the GameplayActivity. - Displays the Grid, the current Token and the player whose turn it is. - Detects input from the user and updates the token and grid (e.g. the placement of a token by the user). 	

- GameplayActivity
- Token
- Grid
- GameThread

Class: GameThread	Collaborators:
Responsibility: <ul style="list-style-type: none"> - Continuously redraws the updated GameSurface until it is exited. 	

- GameSurface

Class: Grid	Collaborators: - GameSurface
Responsibility: - Keeps track of the state of the game grid. - Checks if there is a winner following a move and ends the game if required.	

Class: Token	Collaborators: - GameSurface
Responsibility: - Tracks the position of the current token in play.	