Project Documentation

teamName.h

EC 327 - Introduction to Software Engineering

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Overview:

This Android application is a accelerometer based maze-escape game. The player begins far away from the exit of the maze and must successfully navigate a labyrinth of ‘black holes’ in order to escape alive. The game has three levels that get progressively harder. The player is guided through each maze using the accelerometer. The player will move according to the tilt of the phone and hopefully avoids the deadly black hole in the process.

GUI Front End:

There are several different GUI’s used by this application. This collection can be broken down into two main groups: XML based, and Android View class based. Beginning with the home-screen, it is XML based. It implements a RelativeLayout, with a colored background, one TextView to display the title of the game, one ImageView to display the game icon graphic, one Button to exit the application, and one Button to advance to the level select pop-up. The level select pop-up is also XML based. It implements a LinearLayout, a TextView to display the title of the list, and a ListView to display the available level options: easy, medium, and hard. Once a level is selected, the corresponding maze will be drawn using the View class native to Android. Each maze includes a Canvas drawing of a rectangle for the background, a Canvas drawing of rectangles for the borders, Canvas drawing of text for the points, a Canvas drawing of circles for the black holes, a Canvas drawing of text for the gravity inverters, a Canvas drawing of a circle for the maze escape, and a Canvas drawing of a circle for the player. If you lose the game by falling into a black hole, the loser XML will be pulled up on the screen. It implements a LinearLayout with a TextView to display the text “Game Over”, and Button to return the user to the home screen. If you win the game, the finish XML is pulled up. It implements a TextView with the text ‘Game Over’ and a Button that returns the user to the home screen.

Java Back End:

The are five classes that make-up the Java backend. The first of which is the called Homescreen. Homescreen generates the main XML and listens for the button press of the start or exit button. If the start button is clicked the an instance of the Gamelogic class is generated. The Gamelogic class creates an instance of the Acceleromaze class and passes it to an instance of the Gameboard class. It is within the Acceleromaze class that the game board layout for a specific maze difficulty is taken from the Mazegen class. The Acceleromaze class contains the move function that allows the player to move around the game board as well as a number of ‘get’ functions that allow the Gameboard class to access the private members of Acceleromaze. The Gameboard class generates all the graphics for each maze based off the information taken from Acceleromaze. It also listens for changes in the accelerometer sensor in order to move the player in the correct direction. Once the game is won or lost the Gameboard class generates the final or loser XML.