Unit 3 Status Report

Date: May 13, 2022
To: Mr. Fulk
From: Anish Lakkapragada, Hank Hsu, Abhishek Nambiar
Subject: Week 3 Status Report

Accomplishments:

All three of us (Hank, Anish, Abhishek) have been making progress on the respective classes that each of us are responsible for. Hank has finished the crucial differentiate method while Abhishek has written the FunctionsList class to give the functions (which are used as questions) in the game. Anish has written the GUI classes of Tile, TileManager, and the main Game class.

Anish, with assistance from Hank and Abhishek, has been able to get tiles, each containing a function, to appear for users and has implemented the functionality for users to move around with their WASD keys to select the correct derivatives of functions for different orders in the grid. He has also added the functionality of point managing into the game based on whether the derivative, for each of the orders, selected by the user was correct.

Hank struggled with differentiate (more in Problems section), and wasn't able to make much progress on a few niche issues, so he moved on to assisting on GUI as we felt it was a higher priority. He researched how JLabels and other components are added in the GUI and how to center and style them.

Abhishek has made a text file with functions that the game will use, and has also started to work on Javadoc comments.

Problems/Risks:

Hank tried to deal with sin and cos functions that include coefficients (ksin(kx)). He noticed more and more edge cases, such as

coefficients of 1 shouldn't be shown, and what to do with a negative coefficient (which requires inversing the current sign.) Due to the tedious nature of it, he decided to change to looking at GUI. He plans to implement this later, and for now we have avoided using coefficients on sin and cos for now.

Anish tried to get the grid to appear, but the grid and the text/function labels weren't able to appear at the same time. One always blocked the other from appearing. (Usually only the grid would appear, then when resizing the window, only the math function would appear). He realized that the graphics object of the JFrame that the Game class uses must be used to draw everything. If different graphics objects are used, then that causes the issues. He also decided to restructure the classes where both the Tile and TileManager classes would inherit from the JComponent class to be added to the Game class (subclass of a JFrame.)

Our project's current problems are that we need to polish it up and also implement the functionality to reupdate the GUI when the user has solved the current question. A current bug is that sometimes the last tile in the GUI is not rendered (no apparent reason why on some runs and not on others) until a key is pressed.

Next Steps:

Next week, as a group we will continue to debug and test for edge cases. After we get the game into a stable, mostly bug-free state, we will work on the art aspect. This includes beautifying our application with fonts/styling.

Hank will attempt to implement coefficients on sin and cos, if time allows. Anish will continue to work on finishing the functionality of the GUI to update when the user has solved the current question, while Abhishek beautifies our application with designed fonts and font sizes.