**15112 Final Project Proposal**

***Project Description:***

The project is going to be a simplified version of the arcade game Pac-man. The game will only be 1 level and the ghosts will only be in one mode for the whole level; “chase”. The user will be the Pac-man character and the aim of the game is for the user to collect all the dots on the board before the character loses all 3 lives that they start the level with. The character losses a life every time it comes in contact with 1 of the 4 ghosts in the game. The 4 ghosts each moves based on their own AI.

***Libraries and Features:***

The game will be implemented using the programming language python. The modules, tkinter and pygame are imported and will be used for the GUI, background music, sound effects, among other things. Along with the python file, images and sound files are needed to make the program work.

***Description of User Interface:***

When the code is executed it loads a welcome window which is created using tkinter. On the welcome window there will be the following buttons: Start Game, High Scores and How to play. The “High Scores” button will open another window using tkinter that will show the top 5 scores achieved so far. The “How to play” button will create another window using tkinter that will explain the to the user how to move Pac-man and how to pause the game. The “Start Game” button will close the current window and load the game window which is created using pygame.

The user will be able to move the Pac-man character using either the arrow keys or the WASD keys. To pause the game the user could use the 3 following keys: the space bar, the p button or the esc button.

***1st Milestone set of Features:***

* A basic welcome window with the 3 buttons
  + The How to play and high Score buttons will open a blank window of a fix size and you could only open one of each at the same time
  + The start game button will close current window and start the game window
* The game features:
  + Pac-man will be able to move using the arrow keys or the WASD keys
  + Pac-man movement will be animated
  + The ghosts will all be moving using the same AI (the red ghost / “Blinky”)
  + The ghosts will be animated
  + The walls / boundaries will be implemented
  + The food / dots will be placed on the board
  + Ability for the Pac-man to collect (go over) the food (dots) to collect points and the food (dots) being removed from the board (game).
  + Pac-man and the ghost will not be able to move over the walls / boundaries
  + Ability to pause the game

***Final Milestone set of Features:***

* Basic welcome window:
  + Will have background music
  + Will maybe have an animated background
  + The “How to play” window will be completed
  + The “High Scores” window will be completed
* The game features:
  + The AI for the 3 other ghost: “pinky”, “inky” and “Clyde”
  + Sound effects and background music
  + Displaying Pac-man lives and implementing the lives into the game to allow the person to lose.
  + The collision between Pac-man and the ghosts
  + The animation of Pac-man when he loses a life
  + Calculating the score and displaying the current score on the window
  + Saving the final score at the end of the level