AH Computing Science
Project Proposal

Idea:

- This project will be on a game called Tetris. This game is about stacking blocks to create a full horizontal line and get points, the game gets harder as you continue as the blocks move faster towards the bottom of the window, giving you less time to make a decision on how to rotate and place the block. You lose when the blocks make it to the top of the screen and there's no more space. This game will be modelled to be similar to the original but some things may be taken out to avoid copyright.

Target Audience:

- Main Age & Gender Range: TO BE FILLED IN
- Interests:
- Other:
    - You must own a computer to play this game
    - You must be semi proficient with computers in order to install python due to the game being programmed in the language

Requirements:

Input Validation:

- The player can use the up key to rotate the blocks round, the left and right arrow keys to move the blocks left and right.
- The scoreboard will only allow alphabetical characters, the enter and backspace key and a maximum of 3 characters should be inputted
- Mouse input is required for the menus, of which only the left click is validated
- Files will be available for the program to take as parameters and modify the values, the values should also be validated

Reading & Modifying Stored Data:

- This program will only store the top INSERT NUMBER scores into a text file which will be used to construct a scoreboard. The top INSERT NUMBER scores will also be saved into the same file again. A text file will also be used to store the state of settings

Sorting Algorithms:

- A standard algorithm will be used to sort the high scores before they are written to a file.

An Array of Objects:

- An array of objects will be used to store the score data & The GUI elements whilst the data is being manipulated using code.

Research

Feasibility Review:

Technical Study:

- This game is required to be object oriented to cut down on implementation time and to meet some requirements set by the SQA. The Python programming language is used for this purpose due to it already being object oriented, easy to obtain and install, implementation time will be cut down due to me already being proficient in the language as well.

- This game will require a GUI, for this I have chosen to use the python library, Pygame. This requires Pip (A python packaging installer). This is feasible due to Pip coming with any stable release of Python and installing Pygame is easy due to it being a one line command in the terminal.

- In order to fulfil one of the requirements the SQA has given, I will be using pyodbc for my sql query to a database. This is feasible due to the installation only taking a one line command in the terminal.

- I will require documentation for how to use the Pygame library efficiently. This is feasible due to many websites detailing the many methods and classes that are provided with Pygame. The documentation with which I will be referencing will be in the Pygame website.

Economic Study:

- This project has no cost attached to the development of this program. All the software used is free and the purchase of hardware is not required, a licence is also not required in the creation of this project.

Legal Study:

Data Protection:

- Data Being Collected:
    - Highscores
    - Player Names (3 Characters Maximum)

- Copyright
    - The copyright for the original depiction of this game is held by The Tetris Company, This could be a problem. I will need to use resources that are publicly available in order to prevent copyright infringement.

    - But due to this project not being a commercial product, this is not applicable to myself as there is no monetary gain involved, however, I will still follow these guidelines to the best of my ability.

- Schedule:
    - This project is complex enough to be created within the timeframe allowed, including holidays and unforeseen events.

Sample Survey For Analysis

Tetris End User Survey

Age & Gender: _____

Have you heard of Tetris Before	Yes	No	Don’t Know
Do you know how to play Tetris	Yes	No	Don’t Know
Do you Often Play Video games	Yes	No	Don’t Know

Would you Expect Tetris to have a highscore table	Yes	No	Don’t Know
If Yes, how many scores would be displayed	5	10	Other _____
Would you expect Tetris to have background music	Yes	No	Don’t Know

What Age range would be fitting for this game

_____

How many devices do you own

_____

What type of devices do you own

_____

What is the primary device you use

_____

What device would you play this game on

_____

Is there anything else you would like to see in Tetris?

Survey Results Given in Appendix A For Further Reading

Analysis of the Survey Results

Age
- Placeholder

Gender
- Placeholder

UML Case Diagram