# CPSC 386: Introduction to Game Design and Production - Spring 2019

Project One, **Space Invaders,** due Wednesday, 20 Feb 2019 (by 1130)

In this assignment, you will create the **Space Invaders** game, based on the Alien Invasions! code from Project One. The image resources you will need (ship, ship animation destruction, bunker, different types of aliens, alien animation destruction, and ufo destruction) will all have to be created using an Image editing tool such as Inkscape or Gimp. The audio resources you will need can be captured using an audio editor such as Audacity from an online version of Space Invaders.
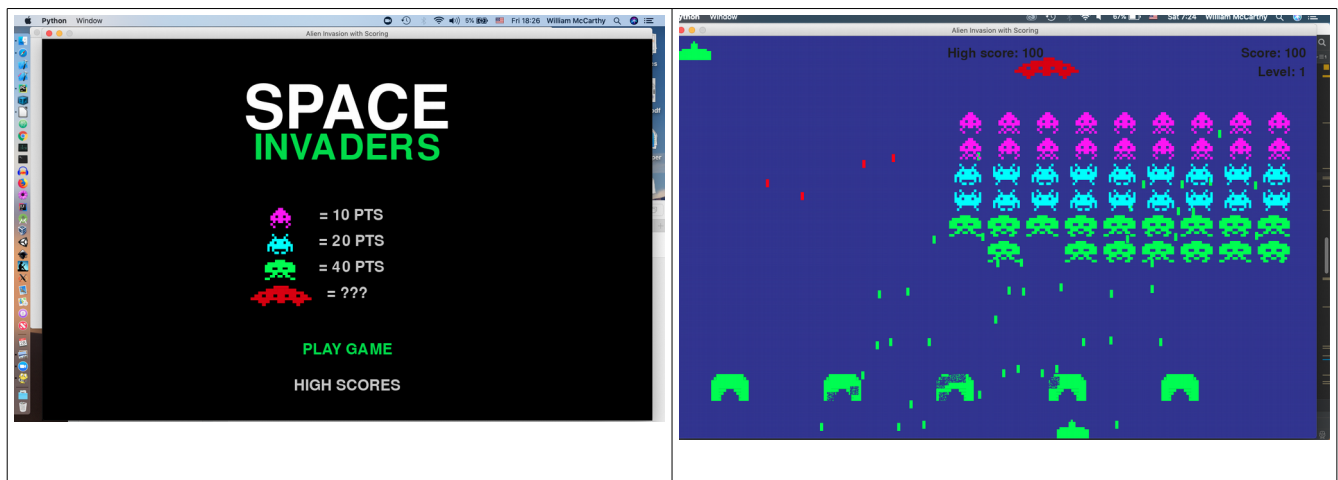
Classic Space Invaders has several differences from the Alien Invasions! Game. You will need to complete the following:

1. You will need PyCharm, Pygame, and Python 3 installed on your computer.

2. Using classic Space Invaders as a guide, and using an Image editor such as Inkscape or Gimp, create the four types of aliens shown above, the traditional Space Invaders ship, and the bunkers to hide behind.

Figure 17:1: The pygame Hello World program

3. The aliens must include a simple, slow, two-state animation while they are moving (it looks better if alternating aliens are synchronized). Aliens must have a different image when they explode (could show a simple, fast animation as well).

4. A UFO should move across the screen at random intervals. It makes a continuous oscillating sound as it moves. If it is destroyed, it shows its (random) value instead of an explosion.
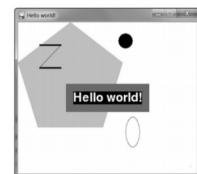
5. The ship must have a fast. animated explosion (8-12 frames) when it is destroyed. Be sure to move the pixels of the exploding parts around from frame to frame. (Note: the ship we used in Alien Invasions! Is not the same as that used in Classic Space Invaders.)

6. Create a start screen, that shows the name of the game (in white and green), the aliens and their values, and the menus for Play Game and High Scores. The start screen should show at the beginning of each game, including if you have just lost a game.

7. Add lasers to the aliens, so they can shoot back at the ship. Use a random number generator and a timer (pygame.time.get_ticks()) so they don't shoot too often.

8. Add bunkers to the game that the ship can hide behind. The bunker can be damaged by both the ship's and aliens' lasers. Use a random number generator to set the bunker's pixels to transparent when a laser strikes a part of the bunker to avoid a bite-out-of-a-sandwich look. Use the Python Imaging Library to set the pixels.

9. Push the contents of your project to a new GitHub repository using a git client (e.g., the git command-line client, GitHub Desktop, or GitHub for Atom). Do not submit files using drag-and-drop onto the repository web page, and do not push this assignment to the same repository as your previous homework assignments.

Submission

Turn in the code for this homework by uploading all of the Python source files you created, the images directory, and the sounds directory to a single public repository on GitHub. While you may discuss this homework assignment with other students. Work you submit must have been completed on your own.

To complete your submission, print the following sheet, fill out the spaces below, and submit it to the professor in class by the deadline. Failure to follow the instructions exactly will incur a **10%** penalty on the grade for this assignment.

CPSC 386 Project One, due Wednesday, 20 Feb 2019 (at 1130)

Your name _____ Robert Rivas _____

Repository `https://github.com/`_____ RobertRivas _____/_____ cpsc_386_project_1 _____

Verify each of the following items and place a checkmark in the correct column. Each item incorrectly marked will incur a 5% penalty on the grade for this assignment.

Completed	Not Completed	SPACE INVADERS
☐	☑	The game has a startup screen that shows the name of the game, the values and images of the aliens, and has a Play Game and High Scores menu.
☐	☑	The high scores are stored on disk, and are displayed when the menu is selected.
☑	☐	The game has three types of ~~movable aliens,~~ created using a pixel editor.
☐	☑	A UFO alien moves across the screen at random, infrequent intervals. It was created using a pixel editor, and it shows its value when it is destroyed.
☑	☐	The ship was created using a pixel editor. ~~It also has an animated (8-12 pixel frame) for destruction.~~
☐	☑	The aliens have simple, two-frame animations for movement. They also have a simple (3-4 frame) animation for destruction.
☐	☑	The aliens can shoot lasers back at the ship at infrequent, random intervals. Use a random number generator and pygame.time.get_ticks().
☐	☑	Bunkers allow the ship to hide from the aliens' lasers, but they are damaged by aliens' or ship's lasers. Use the Python Imaging Library for pixel manipulation.
☐	☑	Ominous background music becomes faster as the number of aliens decrease.
☑	☐	Pycharm IDE shows green checkmarks for <u>every</u> Python source file.
☑	☐	Project directory pushed to new GitHub repository listed above
☑	☐	Project directory has been pushed using a GitHub client, not by manually dragging-and-dropping files onto the GitHub web page.

Comments on your submission

_____ Music starts up on 3rd play for some reason _____

_____

_____