**Space Invaders – Alien Infestation**

This assignment opened up a lot of space of imagination and it took me a while to finally just let it go and finally hand it in, I had way too much fun with this. I really wanted to recreate a portion of the Mother/Earthbound Zero game, but I will save that for the project. For this game I decided to recreate Space Invaders to a certain degree, not recreate the entire game. I used Dr. Green’s skeleton code for Lab 4 to start off.

**Game Design**

# Goal

Kill all bugs and get to the 50th round without letting them get past you.

# Controls

Left – Move Left

Right – Move Right

Spacebar – Shoot

# Changes from Lab 4 to Alien Infestation

* Changed rocket speed to -300 from -60
* Changed monster speed to -50 from -40
* Now can only fire 1 rocket at a time.
* Monsters move closer every time they collide with the wall
* Extra monsters are spawned
* Score has been added
* Added rounds
* Music plays during the game

# Future Additions:

* Four new monsters
* Power-ups
  + Remove rocket fire restriction
  + Increase rocket speed some more
  + Decrease mob speed
  + Freeze a couple mobs
* SFX to rocket shots and collisions against bugs
* Oscillation functions to monsters (they can dodge your rockets)
* Difficulty modes
  + Possibly allow users to choose mob speed
* Adding lives

# Comments

There’s a single glitch I purposely left in there: if monster is 50 pixels away from your lane, your rocket will not hit it, forcing a game over. I played round 50, and a few mobs are dangerously close to you, but it is still winnable. In the code, you’ll notice that the Y position of the player sprite is at 550. The rocket spawns in the 500 zone, effectively ignoring any mob inside that zone.

The speed at which the game plays is slow enough for all levels of players to beat, but fast enough to prevent complete boredom. The addition of difficulty modes will allow hardcore players to find some fun in the game, however small it may be. Instructions will also be added at the beginning of the game to teach people how to play.

There are plenty of coding challenges to overcome in the making of this game:

* Allowing only a single rocket to be fired (Medium)
* Spawning multiple monsters (Easy-Medium)
* Spawning monsters in random X locations and the right Y zones according to the round (Hard)
* Getting monsters to move down 50 pixels after colliding with a wall (Easy)
* Forcing the program to work for almost infinite amount of levels (Very Hard)
  + Note: If you put the variable FinalRound to 100, beating this game is impossible because the canvas is not big enough. In theory, making the canvas bigger will allow more monsters, but how big is too big? If I increase the canvas size, it would take forever for the missile to hit the monster in the first round. I’d have to spawn more than 5 monsters in a single row, to about 20-30 per row in order to go over 100 rounds.
* Forcing the text to center and to adapt to the window being resized. (Easy)

I learned a lot from this assignment and I’m very excited to continue working with HTML5. JavaScript might indeed be my new favourite language. This is what I will be handing in as the game. All the future additions will not accompany this hand-in. Give Dr. Green my regards for such a fun assignment.