CA2 Programming Assignment

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Some Key Features

I added the chance of enemy shooting back, at you when you shoot at them (SPACE), to spice the game up. As well as adding sound effects and images. Every time the enemies move down their height (when they hit a wall) , the game speeds up a small amount, but is noticeable after a few seconds. When you collide with an enemy or get hit by one of their bullets, the game ends displaying your score (my highest is 655). Movement you can hold the keys for moving and shooting; but there is a 1 second delay between shootings. When the game is started, the enemies don't move for 3 seconds, after this starting period, they move every second and a half(this time reduces over time).

Breakdown

Space Invaders class

- __init__()
  - Initialises pygame itself along with many other self attributes needed to run the game
  - Everything is ran from this class
- Rungame()
  - While True, the game will be running, constantly drawing enemies, the player, and bullets. Also checking for window boundaries, collision and keeping score.
  - Other objects, class attributes and class methods are called in this function
  - Everything constantly being updated by flip()
- Endgame()
  - When your spaceship is hit by an enemy bullet (which is shot at random based on when you shoot; hit SPACE) , or if an enemy reaches bottom and collides with you, the game stops and your score is displayed on screen.

Player class

- __init__()
  - Variables such as x, y, player speed and player view are initialised
- getXPos()
  - returns players current X coordinate
- getYPos()
  - returns players current Y coordinate
- Movement handler
  - These functions are called from the rungame() function. If left arrow is pressed go left the amount of player speed. Same goes for move right.
- Enemycollision()
  - Checking if enemy and player collide – no bullets involved

Background class

- This is just a class for setting up the star background

Bullet class

- __init__()
  - Making necessary variables
- Draw bullets()
  - For every bullet in bulletlist, blit it to the screen at given coordinates
  - If a bullet reaches top of the screen (or bottom in the case its an enemy bullet) delete it
- Collision1()
  - Detection between player bullets and current enemies on screen
  - If there is a collision delete the bullet and enemy involved
- Collision2()
  - Collision between enemy bullets and you the player
  - If collision occurs delete bullet, but also end the game as you have died. Function returns True if hit, ending the game is handled in the Space Invader Class

Enemy class

- __init__()
  - Making necessary variables, enemies don't move for 3 seconds at start of game, then move every second and a half after this
- Drawenemies()
  - For every enemy in the list, blit to the screen
  - If the necessary amount of time has passed move all the enemies on screen
  - This time reduces over the duration of the game, to speed up the game and make it harder
  - If enemies hit left or right wall move them down the screen one height of themselves
- Moveenemiesdown()
  - Move enemies down the screen when they hit the wall
  - Call to increase speed function
  - Call to add more enemies function
- Increasespeed()
  - Make the duration between enemy movement smaller, pacing up the game
- Addenemies()
  - When enemies move down the screen, add another row at top of screen.