My Invaders Game

Week 1

This week, we are going to build a simple game using object-oriented programming techniques with Python

Import Pygame

First, we need to import the pygame module

```
import pygame
```

Create Player Class

We need to create a class to represent the player. We use the __init__() constructor to initialise all our variables and load the rocket.png image.

```
class Rocket():

    def __init__(self, screen):

        self.screen = screen

        self.image = pygame.image.load('rocket.png')

        self.rect = self.image.get_rect()

        self.screen_rect = screen.get_rect()

        self.rect.centerx = self.screen_rect.centerx

        self.rect.bottom = self.screen_rect.bottom
```

We also need a method that will draw the player's ship – the rocket – on the screen.

```
    def draw(self):

        self.screen.blit(self.image, self.rect)
```

Create Main Program

Now we need to create the main program. First we initialise pygame and create a screen.

```
pygame.init()

screen = pygame.display.set_mode((800, 600))
```

Create a rocket object from the class Rocket. We pass our "screen" we created above to the Rocket class.

```
rocket = Rocket(screen)
```

Load our background image

```
background = pygame.image.load("bg.jpg")
```

Create our clock so the game runs at a specific speed

```
clock = pygame.time.Clock()
```

Turn on keyboard repeat, so the rocket continues to move if you hold down the key

```
pygame.key.set_repeat(1, 25)
```

Initialise our running variable to 1 which means the game is running

```
running = 1
```

Create the Game Loop

Here we need to create a while loop to keep the game running. We'll run the program until the variable running = 0. We'll set the clock to 25 which means that for every second 25 frames should pass.

```
while running:
    clock.tick(25)
    screen.blit(background, (0, 0))
```

Next, we need an event handler that will check for key presses. We want to monitor the left and right arrow keys.

```
    for event in pygame.event.get():
        if event.type == pygame.QUIT:
            running = 0
        elif event.type == pygame.KEYDOWN:
            if event.key == pygame.K_RIGHT:
                rocket.rect.centerx += 10
            if event.key == pygame.K_LEFT:
                rocket.rect.centerx -= 10
```

Now, we can draw our rocket on the screen

```
        rocket.draw()
```

Then update the screen

```
        pygame.display.update()
```

Run the program

When you run the program, you'll be able to move your ship left and right.