import math

import random

import pygame

from pygame import mixer

# Intialize the pygame

pygame.init()

# create the screen

screen = pygame.display.set\_mode((800, 600))

# Background

background = pygame.image.load('background.png')

# Sound

mixer.music.load("background.wav")

mixer.music.play(-1)

# Caption and Icon

pygame.display.set\_caption("Space Invader")

icon = pygame.image.load('ufo.png')

pygame.display.set\_icon(icon)

# Player

playerImg = pygame.image.load('player.png')

playerX = 370

playerY = 480

playerX\_change = 0

# Enemy

enemyImg = []

enemyX = []

enemyY = []

enemyX\_change = []

enemyY\_change = []

num\_of\_enemies = 6

for i in range(num\_of\_enemies):

enemyImg.append(pygame.image.load('enemy.png'))

enemyX.append(random.randint(0, 736))

enemyY.append(random.randint(50, 150))

enemyX\_change.append(4)

enemyY\_change.append(40)

# Bullet

# Ready - You can't see the bullet on the screen

# Fire - The bullet is currently moving

bulletImg = pygame.image.load('bullet.png')

bulletX = 0

bulletY = 480

bulletX\_change = 0

bulletY\_change = 10

bullet\_state = "ready"

# Score

score\_value = 0

font = pygame.font.Font('freesansbold.ttf', 32)

textX = 10

testY = 10

# Game Over

over\_font = pygame.font.Font('freesansbold.ttf', 64)

def show\_score(x, y):

score = font.render("Score : " + str(score\_value), True, (255, 255, 255))

screen.blit(score, (x, y))

def game\_over\_text():

over\_text = over\_font.render("GAME OVER", True, (255, 255, 255))

screen.blit(over\_text, (200, 250))

def player(x, y):

screen.blit(playerImg, (x, y))

def enemy(x, y, i):

screen.blit(enemyImg[i], (x, y))

def fire\_bullet(x, y):

global bullet\_state

bullet\_state = "fire"

screen.blit(bulletImg, (x + 16, y + 10))

def isCollision(enemyX, enemyY, bulletX, bulletY):

distance = math.sqrt(math.pow(enemyX - bulletX, 2) + (math.pow(enemyY - bulletY, 2)))

if distance < 27:

return True

else:

return False

# Game Loop

running = True

while running:

# RGB = Red, Green, Blue

screen.fill((0, 0, 0))

# Background Image

screen.blit(background, (0, 0))

for event in pygame.event.get():

if event.type == pygame.QUIT:

running = False

# if keystroke is pressed check whether its right or left

if event.type == pygame.KEYDOWN:

if event.key == pygame.K\_LEFT:

playerX\_change = -5

if event.key == pygame.K\_RIGHT:

playerX\_change = 5

if event.key == pygame.K\_SPACE:

if bullet\_state is "ready":

bulletSound = mixer.Sound("laser.wav")

bulletSound.play()

# Get the current x cordinate of the spaceship

bulletX = playerX

fire\_bullet(bulletX, bulletY)

if event.type == pygame.KEYUP:

if event.key == pygame.K\_LEFT or event.key == pygame.K\_RIGHT:

playerX\_change = 0

# 5 = 5 + -0.1 -> 5 = 5 - 0.1

# 5 = 5 + 0.1

playerX += playerX\_change

if playerX <= 0:

playerX = 0

elif playerX >= 736:

playerX = 736

# Enemy Movement

for i in range(num\_of\_enemies):

# Game Over

if enemyY[i] > 440:

for j in range(num\_of\_enemies):

enemyY[j] = 2000

game\_over\_text()

break

enemyX[i] += enemyX\_change[i]

if enemyX[i] <= 0:

enemyX\_change[i] = 4

enemyY[i] += enemyY\_change[i]

elif enemyX[i] >= 736:

enemyX\_change[i] = -4

enemyY[i] += enemyY\_change[i]

# Collision

collision = isCollision(enemyX[i], enemyY[i], bulletX, bulletY)

if collision:

explosionSound = mixer.Sound("explosion.wav")

explosionSound.play()

bulletY = 480

bullet\_state = "ready"

score\_value += 1

enemyX[i] = random.randint(0, 736)

enemyY[i] = random.randint(50, 150)

enemy(enemyX[i], enemyY[i], i)

# Bullet Movement

if bulletY <= 0:

bulletY = 480

bullet\_state = "ready"

if bullet\_state is "fire":

fire\_bullet(bulletX, bulletY)

bulletY -= bulletY\_change

player(playerX, playerY)

show\_score(textX, testY)

pygame.display.update()