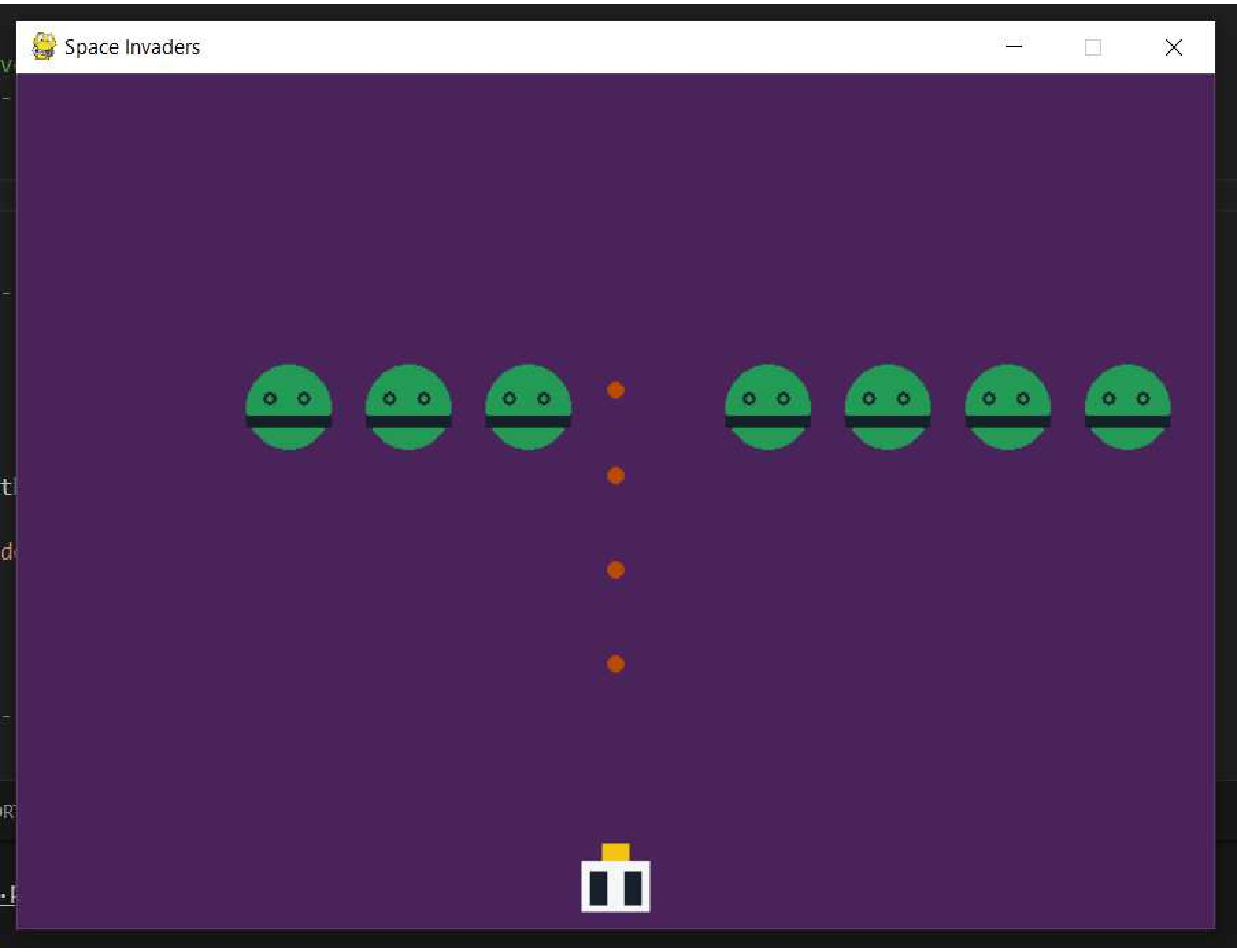
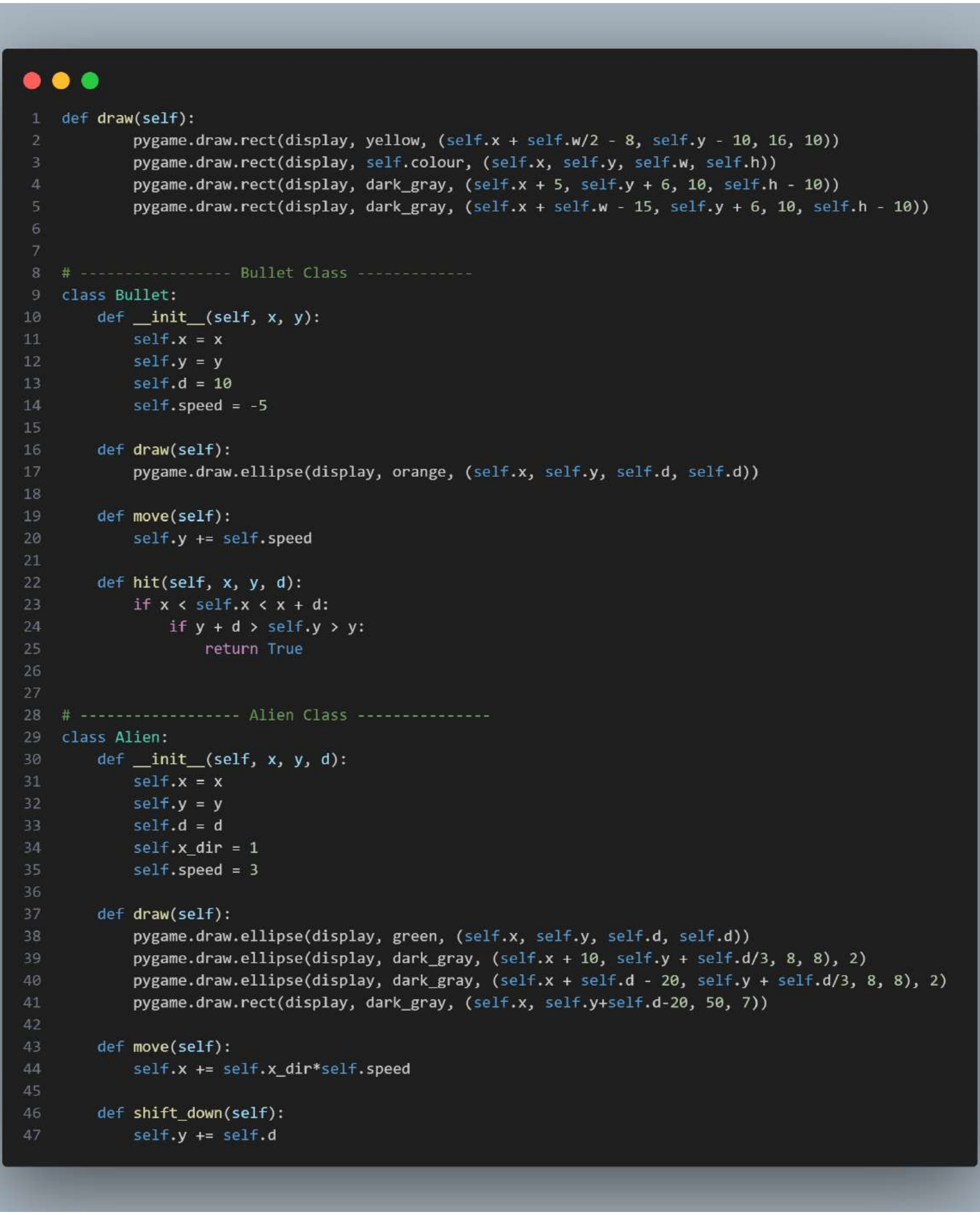
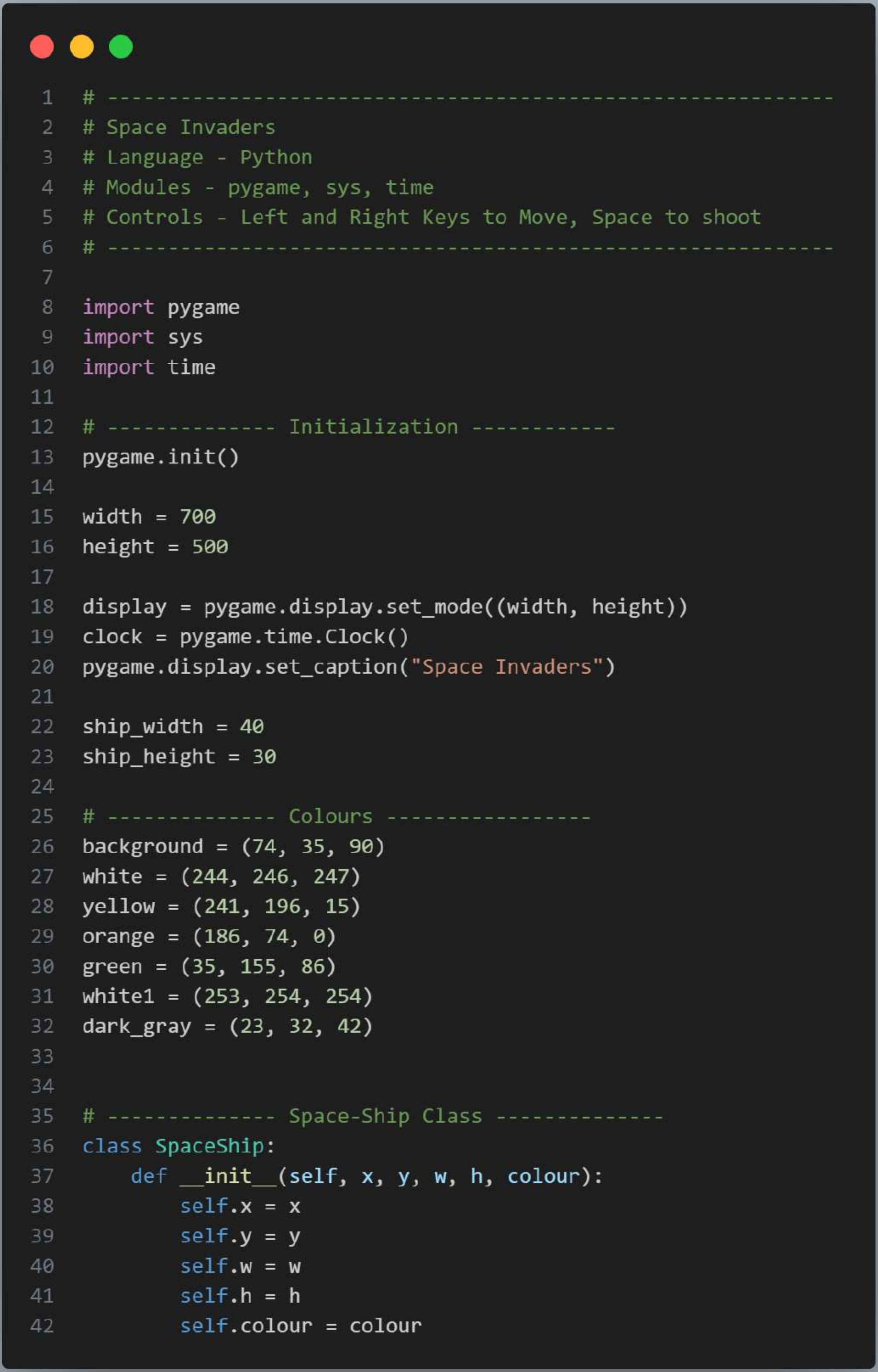
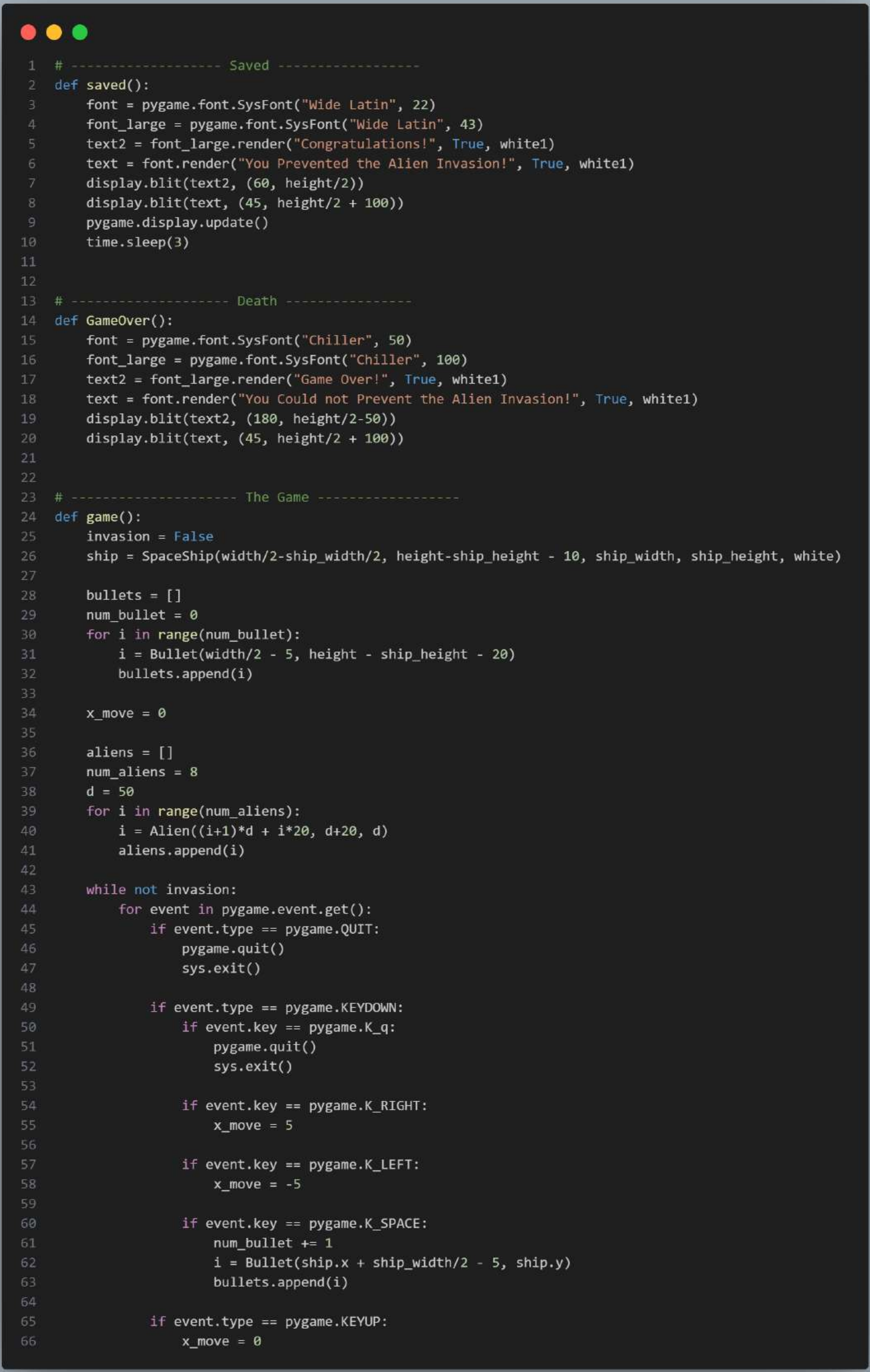

Space Invaders



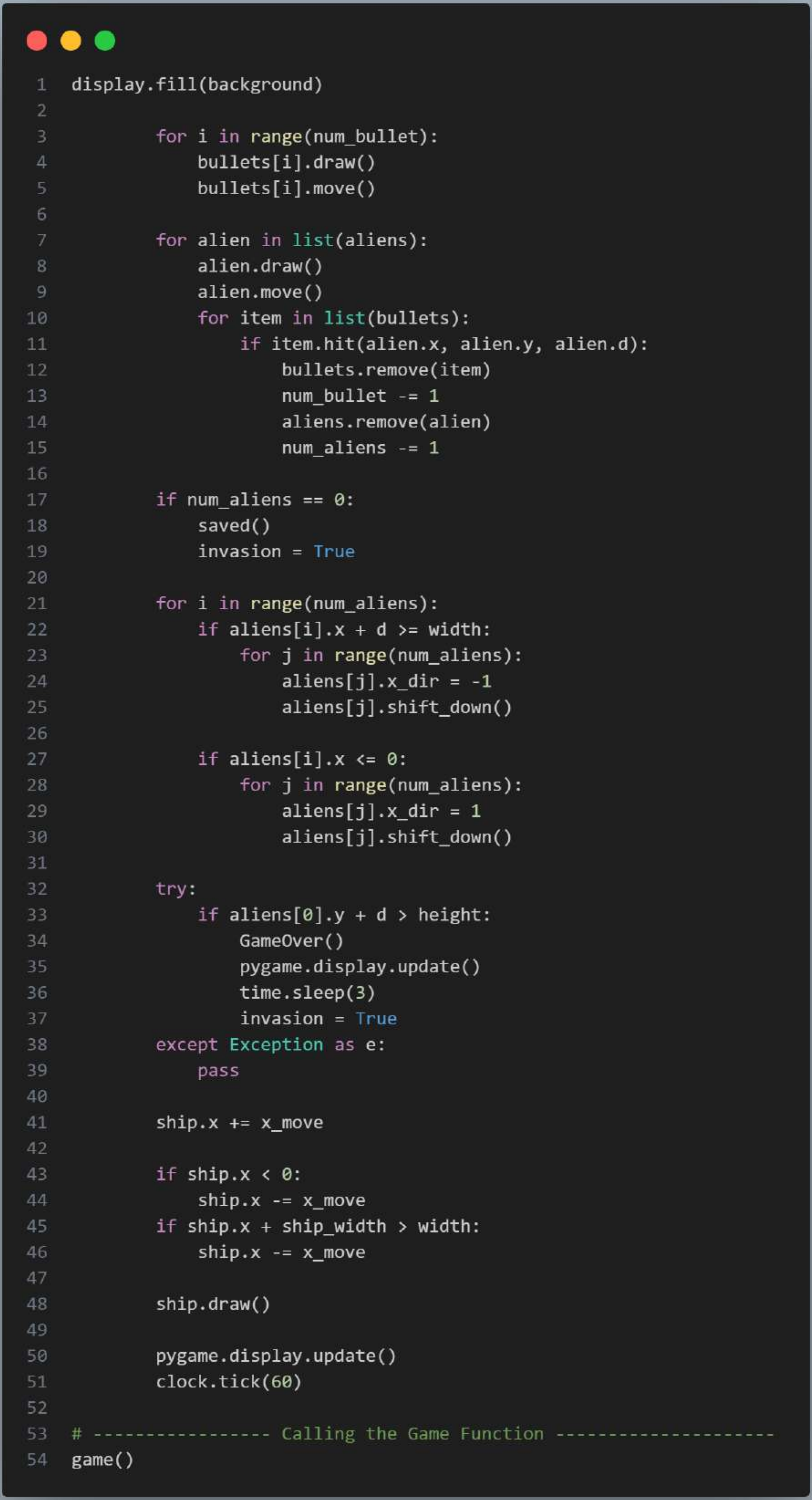
```
def draw(self):
        pygame.draw.rect(display, yellow, (self.x + self.w/2 - 8, self.y - 10, 16, 10))
        pygame.draw.rect(display, self.colour, (self.x, self.y, self.w, self.h))
        pygame.draw.rect(display, dark_gray, (self.x + 5, self.y + 6, 10, self.h - 10))
        pygame.draw.rect(display, dark_gray, (self.x + self.w - 15, self.y + 6, 10, self.h - 10))


# ----------------- Bullet Class -------------
class Bullet:
    def __init__(self, x, y):
        self.x = x
        self.y = y
        self.d = 10
        self.speed = -5

    def draw(self):
        pygame.draw.ellipse(display, orange, (self.x, self.y, self.d, self.d))

    def move(self):
        self.y += self.speed

    def hit(self, x, y, d):
        if x < self.x < x + d:
            if y + d > self.y > y:
                return True


# ------------------ Alien Class ---------------
class Alien:
    def __init__(self, x, y, d):
        self.x = x
        self.y = y
        self.d = d
        self.x_dir = 1
        self.speed = 3

    def draw(self):
        pygame.draw.ellipse(display, green, (self.x, self.y, self.d, self.d))
        pygame.draw.ellipse(display, dark_gray, (self.x + 10, self.y + self.d/3, 8, 8), 2)
        pygame.draw.ellipse(display, dark_gray, (self.x + self.d - 20, self.y + self.d/3, 8, 8), 2)
        pygame.draw.rect(display, dark_gray, (self.x, self.y+self.d-20, 50, 7))

    def move(self):
        self.x += self.x_dir*self.speed

    def shift_down(self):
        self.y += self.d
```



```python
# ------------------------------------------------------------
# Space Invaders
# Language - Python
# Modules - pygame, sys, time
# Controls - Left and Right Keys to Move, Space to shoot
# ------------------------------------------------------------

import pygame
import sys
import time

# -------------- Initialization ------------
pygame.init()

width = 700
height = 500

display = pygame.display.set_mode((width, height))
clock = pygame.time.Clock()
pygame.display.set_caption("Space Invaders")

ship_width = 40
ship_height = 30

# -------------- Colours -----------------
background = (74, 35, 90)
white = (244, 246, 247)
yellow = (241, 196, 15)
orange = (186, 74, 0)
green = (35, 155, 86)
white1 = (253, 254, 254)
dark_gray = (23, 32, 42)


# -------------- Space-Ship Class --------------
class SpaceShip:
    def __init__(self, x, y, w, h, colour):
        self.x = x
        self.y = y
        self.w = w
        self.h = h
        self.colour = colour
```



```python
# ------------------- Saved ------------------
def saved():
    font = pygame.font.SysFont("Wide Latin", 22)
    font_large = pygame.font.SysFont("Wide Latin", 43)
    text2 = font_large.render("Congratulations!", True, white1)
    text = font.render("You Prevented the Alien Invasion!", True, white1)
    display.blit(text2, (60, height/2))
    display.blit(text, (45, height/2 + 100))
    pygame.display.update()
    time.sleep(3)


# -------------------- Death ----------------
def GameOver():
    font = pygame.font.SysFont("Chiller", 50)
    font_large = pygame.font.SysFont("Chiller", 100)
    text2 = font_large.render("Game Over!", True, white1)
    text = font.render("You Could not Prevent the Alien Invasion!", True, white1)
    display.blit(text2, (180, height/2-50))
    display.blit(text, (45, height/2 + 100))


# --------------------- The Game ------------------
def game():
    invasion = False
    ship = SpaceShip(width/2-ship_width/2, height-ship_height - 10, ship_width, ship_height, white)

    bullets = []
    num_bullet = 0
    for i in range(num_bullet):
        i = Bullet(width/2 - 5, height - ship_height - 20)
        bullets.append(i)

    x_move = 0

    aliens = []
    num_aliens = 8
    d = 50
    for i in range(num_aliens):
        i = Alien((i+1)*d + i*20, d+20, d)
        aliens.append(i)

    while not invasion:
        for event in pygame.event.get():
            if event.type == pygame.QUIT:
                pygame.quit()
                sys.exit()

            if event.type == pygame.KEYDOWN:
                if event.key == pygame.K_q:
                    pygame.quit()
                    sys.exit()

                if event.key == pygame.K_RIGHT:
                    x_move = 5

                if event.key == pygame.K_LEFT:
                    x_move = -5

                if event.key == pygame.K_SPACE:
                    num_bullet += 1
                    i = Bullet(ship.x + ship_width/2 - 5, ship.y)
                    bullets.append(i)

            if event.type == pygame.KEYUP:
                x_move = 0
```



```
display.fill(background)

        for i in range(num_bullet):
            bullets[i].draw()
            bullets[i].move()

        for alien in list(aliens):
            alien.draw()
            alien.move()
            for item in list(bullets):
                if item.hit(alien.x, alien.y, alien.d):
                    bullets.remove(item)
                    num_bullet -= 1
                    aliens.remove(alien)
                    num_aliens -= 1

        if num_aliens == 0:
            saved()
            invasion = True

        for i in range(num_aliens):
            if aliens[i].x + d >= width:
                for j in range(num_aliens):
                    aliens[j].x_dir = -1
                    aliens[j].shift_down()

            if aliens[i].x <= 0:
                for j in range(num_aliens):
                    aliens[j].x_dir = 1
                    aliens[j].shift_down()

        try:
            if aliens[0].y + d > height:
                GameOver()
                pygame.display.update()
                time.sleep(3)
                invasion = True
        except Exception as e:
            pass

        ship.x += x_move

        if ship.x < 0:
            ship.x -= x_move
        if ship.x + ship_width > width:
            ship.x -= x_move

        ship.draw()

        pygame.display.update()
        clock.tick(60)

# ---------------- Calling the Game Function --------------------
game()
```