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Assignment Cover Letter
(Individual/Group* Work)

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Course Code : Course Name : COMP6056

Class : L1AC

Name of Lecturer(s) : Jude Joseph Lamug Martinez

Major : Computer Science

Title of Assignment : Dodge Game
(if any)

Type of Assignment : Final Project

Submission Pattern :

Due Date : 13/01/2021

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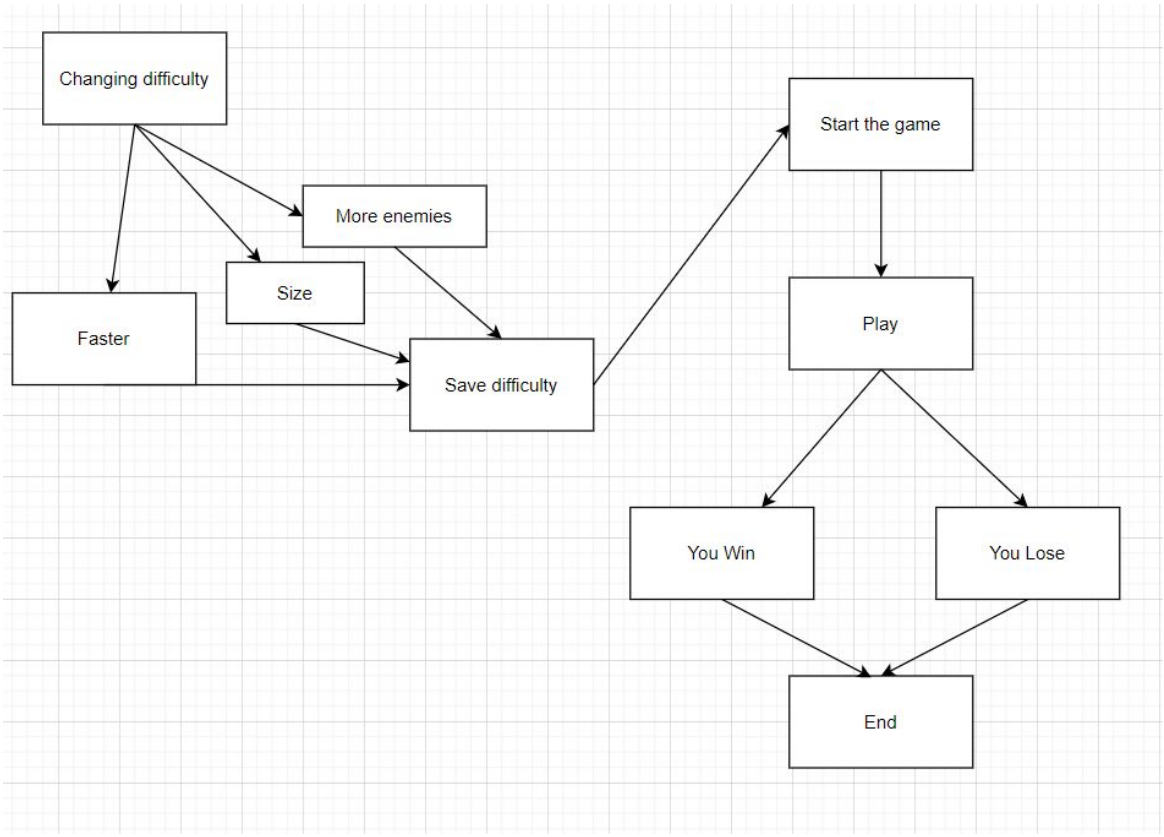
“Dodge Game”
Name: Rendy Divian
ID: 2440096755

Project Specification

This is a python based application to let people have some fun and be able to challenge themself when they have some free time, or just feeling bored. The theme of the game is dodging. They would have to go from the starting square to the ending square while evading a few fireballs or more depending on how much is added.

Implementation



Users can start the game and play the game right away but if they want it to be more difficult, they will have to change or add the difficulty in the program. Once play, they either get hit by the fireball and lose or touch the ending square and win the game where the game will end and close.

Game Appearance

Start of the game

Win screen

Lose screen

How the game works

```
import pygame, sys, random, time, math
from pygame.locals import*

pygame.init()

#Colors
BLUE = (0, 0, 255)
BLACK = (0, 0, 0)
WHITE = (255, 255, 255)
RED = (255, 0, 0)
GREEN = (0, 255, 0)
YELLOW = (255, 255, 0)
GRAY = (128, 128, 128)

screenx = 1000
screeny = 600

windowSurface = pygame.display.set_mode((screenx, screeny), 0, 0)

#The pictures used (person and green squares)
person1 = pygame.image.load("mc.bmp")
personpic = pygame.transform.scale(person1, (40, 50))
personpic.convert()

startpoint = pygame.image.load("starting.bmp")
greenImage1 = pygame.transform.scale(startpoint, (100, 100))
greenImage1.convert()

endpoint = pygame.image.load("ending.bmp")
greenImage2 = pygame.transform.scale(endpoint, (70, 70))
greenImage2.convert()
```

Some color codes that could be used to change background, text, border and transparency for the images used. The screen is set up as width is 600 and length 1000. The images were converted to bmp because it was said that it is a lot better to use bmp for pygames. The convert() makes it more smooth for pixels to appear. Also, you can change the size of the person and squares.

```
# Sets the position of the green squares
# Position in x and y coordinates (x=left, right and y=up, down)
# Starting square
greenRectA = greenImage1.get_rect()
greenRectA.centerx = 50
greenRectA.centery = 550

# Finishing square
greenRectB = greenImage2.get_rect()
greenRectB.centerx = 950
greenRectB.centery = 50

fireballpic = pygame.image.load("fireballicon.bmp")
fireball = pygame.transform.scale(fireballpic, (60, 60))
fireball.set_colorkey(WHITE) #To make the fireball background transparent
fireball.convert()

class Aperson():
    def __init__(self, Image):
        self.speed = 5
        self.directionx = 0
        self.directiony = 0
        self.image = Image
        self.rect = self.image.get_rect()

    def move(self):
        self.rect.centerx = self.rect.centerx + self.speed * self.directionx
        self.rect.centery = self.rect.centery + self.speed * self.directiony
```

This part is mainly where most things are positioned using rect. The starting square is set to the bottom left and the end square at top right. Character is given movement. The fireball like the above image can change size and colorkey to erase the white background.

```
hero = Aperson(personpic)
#Sets the position of the player
hero.rect.centerx = greenRectA.centerx
hero.rect.centery = greenRectA.centery
#Sets the speed of the player
hero.speed = 7

# Sets number of enemies
numberfireball = 3
enemy = [Aperson(fireball) for i in range(0, numberfireball)]
#Centerx and centery is the position
#Directionx and directiony show which way the enemy is moving
#Directionx=1 is right, -1 is left, directiony=1 is down, -1 is up
#One enemy
enemy[0].rect.centerx = 500
enemy[0].rect.centery = 0
enemy[0].directionx = 0
enemy[0].directiony = -1
enemy[0].speed = 10
#Second enemy
enemy[1].rect.centerx = 0
enemy[1].rect.centery = 350
enemy[1].directionx = 1
enemy[1].directiony = 0
enemy[1].speed = 6
#Third Enemy
enemy[2].rect.centerx = 300
enemy[2].rect.centery = 250
enemy[2].directionx = 0
enemy[2].directiony = 1
enemy[2].speed = 6
# Change number up above and add another enemy section to create more enemies
```

The person is set to the starting square and speed can be changed. Number of fireballs can be increased or decreased but you will have to delete or add more enemies. Also, the enemy position when they spawn and their speed can be changed.

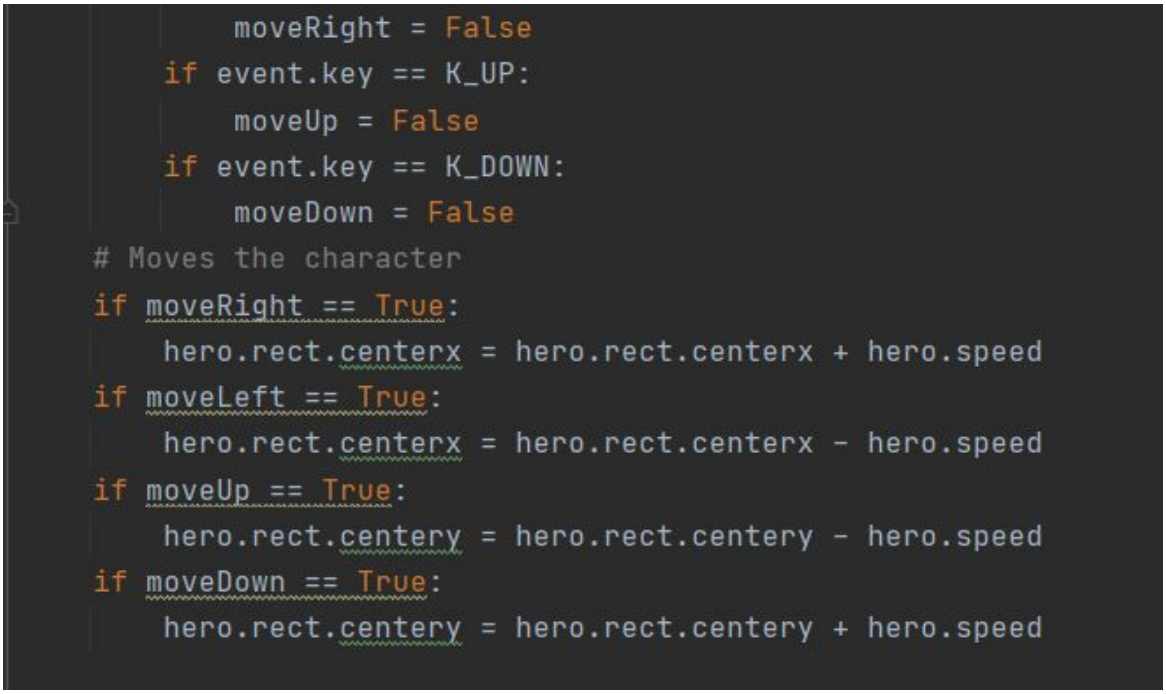
```
pygame.display.set_caption('Dodge Game')

moveRight = False
moveLeft = False
moveUp = False
moveDown = False

gameOver = False

pygame.display.update()

while gameOver == False:
    for event in pygame.event.get():
        if event.type == QUIT:
            pygame.quit()
            sys.exit()
    # Checks when the arrow keys or escape are pressed
    if event.type == KEYDOWN:
        if event.key == K_ESCAPE:
            gameOver = True
        if event.key == K_LEFT:
            moveLeft = True
        if event.key == K_RIGHT:
            moveRight = True
        if event.key == K_UP:
            moveUp = True
        if event.key == K_DOWN:
            moveDown = True
    # Checks when they are released
    if event.type == KEYUP:
        if event.key == K_LEFT:
            moveLeft = False
```



```
            moveRight = False
        if event.key == K_UP:
            moveUp = False
        if event.key == K_DOWN:
            moveDown = False
    # Moves the character
    if moveRight == True:
        hero.rect.centerx = hero.rect.centerx + hero.speed
    if moveLeft == True:
        hero.rect.centerx = hero.rect.centerx - hero.speed
    if moveUp == True:
        hero.rect.centery = hero.rect.centery - hero.speed
    if moveDown == True:
        hero.rect.centery = hero.rect.centery + hero.speed
```

These two pictures are movement keys for the character. The top is just a display for the game name when started.

```
    #Blocks the player from going off the screen
    if hero.rect.centerx < 0:
        hero.rect.centerx = 0
    if hero.rect.centerx > screenx:
        hero.rect.centerx = screenx
    if hero.rect.centery < 0:
        hero.rect.centery = 0
    if hero.rect.centery > screeny:
        hero.rect.centery = screeny

    windowSurface.fill(GRAY)
    #Blocks the enemy
    windowSurface.blit(greenImage1, greenRectA)
    windowSurface.blit(greenImage2, greenRectB)
    windowSurface.blit(hero.image, hero.rect)
    for i in range(0, numberfireball):
        windowSurface.blit(enemy[i].image, enemy[i].rect)
        enemy[i].move()
        if enemy[i].rect.centery < 0:
            enemy[i].directiony = 1
        if enemy[i].rect.centery > screeny:
            enemy[i].directiony = -1
        if enemy[i].rect.centerx < 0:
            enemy[i].directionx = 1
        if enemy[i].rect.centerx > screenx:
            enemy[i].directionx = -1
```

In here the player will bounce back if added and for the enemies they will loop around the path they are moving.

```
        #Checks when you collide with an enemy and says that you lost
        if enemy[i].rect.colliderect(hero.rect):
            bigFont = pygame.font.SysFont('arial', 60)
            myMessage = bigFont.render('You lost!', True, RED, BLACK)
            myMessageRect = myMessage.get_rect()
            myMessageRect.centerx = screenx / 2
            myMessageRect.centery = screeny / 2
            windowSurface.blit(myMessage, myMessageRect)
            pygame.display.update()
            time.sleep(1.5)
            gameOver = True

    #Checks when you collide with the ending square and says that you won
    if hero.rect.colliderect(greenRectB):
        bigFont = pygame.font.SysFont('arial', 60)
        myMessage = bigFont.render('You won!', True, YELLOW, BLACK)
        myMessage.set_colorkey(BLACK)
        myMessageRect = myMessage.get_rect()
        myMessageRect.centerx = screenx / 2
        myMessageRect.centery = screeny / 2
        windowSurface.blit(myMessage, myMessageRect)
        pygame.display.update()
        time.sleep(1.5)
        gameOver = True

    pygame.display.update()
    time.sleep(0.02)

pygame.quit()
```

Just the text saying you won or you lost, they are positioned to the middle from the division by two. And there will be a short delay before the game quits.

Project Link

https://github.com/RendyDivian/Final-Project

Source and Reference

- Fireball - https://pngimg.com/download/63945
- Person - https://dlpng.com/png/1294687
- Pygame tutorials - https://www.youtube.com/watch?v=1aGuhUFwvXA&list=PLzMcBGfZo4-lp3jAExUCewBfMx3UZFkh5&index=7

- Pygame documentation - https://www.pygame.org/docs/ref/rect.html
- https://htmlcolorcodes.com/