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ELECTRONICS#2 PROJECT REPORT

Car Race Game by using Python

I made car race game with Python. First of all, I will explan how Python works:

- The Python language is a good choice for beginners because it is easy to learn and programs can be written quickly using it.
- Python is interpreted-based. The other languades has compiled-based. So Python is different language from others.
- A compiler is a program that translates a high-level language program into a separate machine language program. The machine language program can then be executed any time it is needed.
- Python language uses an interpreter, that is a program that both translates and executes the instructions in a high-level language program.
- As the interpreter reads each individual instruction in the program, it converts it to machine language instructions and then immediately executes them. This process repeats for every instruction in the program so depending on that Python is less quick than others.
- However, in the Python you can do something by using less codes eventhough the program is slow.

Secondly, I will explain my game and my codes :

Before the explanation I must say that : I used three libraries for this game:

Pygame

Random

Time

I used Spyder IDE for Python. Firstly, I created game screen (800 , 600) and then found same pictures and the music to use at this screen. I transfered these pictures and music to the file which python file is in it. If I did not do that, the program cannot see the our pictures. Then I created, game_loop() function. This function is the main function. In this function, I set our car's locations, other car's locations (these are random), obstacle's speed, obstacle width, obstacle height, obstacle start point that mean is x and y axis and I set this program enter loop. In this loop, I set direction keys to go left and right and also make fast and slow. On the other hand, I have crash() function. This function shows 'You Crashed' when you have accident corner or other cars. In this functionn I call another function that name is message_display ('You Crashed'). In this function I set font and size and how it comes to the screen. Then, I have obstacle() function that calls random pictures. I can say, this is the summary of care race game codes. I will give my codes at below :

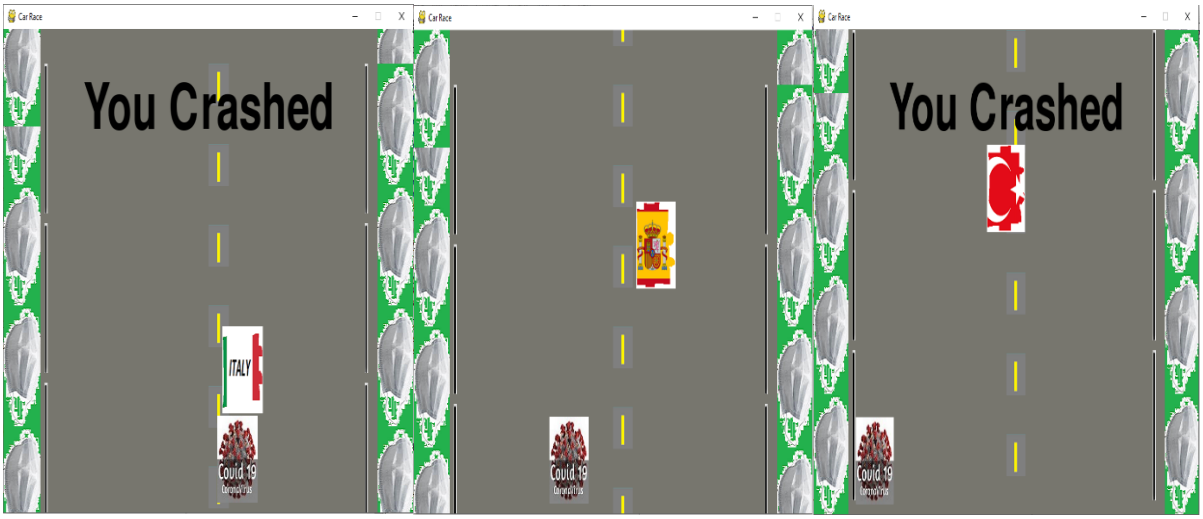
```
import pygame
import time
import random
pygame.init()
gray=(119,118,110)
black=(0,0,0)
pygame.mixer.music.load('olurum-turkiyem.wav')

display_width=800
display_height=600
gamedisplays=pygame.display.set_mode((display_width,display_height))
pygame.display.set_caption("Car Race")
clock=pygame.time.Clock()
car_image=pygame.image.load('indir.jpg')
backgroundpic=pygame.image.load('maske.jpg')
yellow_strip=pygame.image.load('yellow strip.jpg')
strip=pygame.image.load('siyah_cizgi.jpg')
car_width=79

def text_objects(text,font):
    textsurface=font.render(text,True,black)
    return textsurface,textsurface.get_rect()

def message_display(text):
    largetext=pygame.font.Font("freesansbold.ttf",80)
    textsurf,textrect=text_objects(text,largetext)
    textrect.center=((display_width/2),(100))
    gamedisplays.blit(textsurf,textrect)
    pygame.display.update()
    time.sleep(3) # after crahs you need to wait 3 seconds
    game_loop()

def obstacle(obs_startx,obs_starty,obs):
    if obs==0:
        obs_pic=pygame.image.load('Bayrak3.jpg')
    elif obs==1:
        obs_pic=pygame.image.load('Bayrak2.jpg')
    elif obs==2:
        obs_pic=pygame.image.load('Bayrak1.jpg')
    elif obs==3:
        obs_pic=pygame.image.load('Bayrak4.jpg')
    elif obs==4:
        obs_pic=pygame.image.load('Bayrak5.jpg')
    elif obs==5:
        obs_pic=pygame.image.load('Bayrak6.jpg')
    elif obs==6:
        obs_pic=pygame.image.load('Bayrak7.jpg')
    gamedisplays.blit(obs_pic,(obs_startx,obs_starty))
def crash():
        message_display('You Crashed')
def car(x,y):
    gamedisplays.blit(car_image,(x,y))
```

```
def game_loop():
    x=(display_width*0.39)
    y=(display_height*0.8)
    x_change=0
    obstacle_speed=9
    obs=0
   # y_change=0
    obs_startx=random.randrange(100,630)
    obs_starty=-750
    obs_width=79
    obs_height=108
    y2=7


    bumped=False
    while not bumped :#True
        for event in pygame.event.get():
            if event.type==pygame.QUIT:
                pygame.quit()
                quit()
        if event.type==pygame.KEYDOWN: # if you press the key
            if event.key==pygame.K_a:
                obstacle_speed=15
            if event.key==pygame.K_b:
                obstacle_speed=3
            if event.key==pygame.K_LEFT:
                x_change=-5
            if event.key==pygame.K_RIGHT:
                x_change=5
        if event.type==pygame.KEYUP: # if you are not pressing anymore
         #   if event.key==pygame.K_LEFT:
          #      x_change=-5
           # if event.key==pygame.K_RIGHT:
            #    x_change=5
            if event.key==pygame.K_LEFT or event.key==pygame.K_RIGHT :

                x_change=0

        x = x + x_change
        gamedisplays.fill(gray)
        rel_y=y2%backgroundpic.get_rect().width
        gamedisplays.blit(backgroundpic,(0,rel_y-backgroundpic.get_rect().width))
        gamedisplays.blit(backgroundpic,(730,rel_y-backgroundpic.get_rect().width))
        if rel_y<800:
            gamedisplays.blit(backgroundpic,(0,rel_y))
            gamedisplays.blit(backgroundpic,(0,rel_y+300))
            gamedisplays.blit(backgroundpic,(0,rel_y+450))
            gamedisplays.blit(backgroundpic,(0,rel_y+150))
            gamedisplays.blit(backgroundpic,(730,rel_y))
            gamedisplays.blit(backgroundpic,(730,rel_y+300))
            gamedisplays.blit(backgroundpic,(730,rel_y+450))
            gamedisplays.blit(backgroundpic,(730,rel_y+150))
            gamedisplays.blit(yellow_strip,(400,rel_y))
            gamedisplays.blit(yellow_strip,(400,rel_y+100))
            gamedisplays.blit(yellow_strip,(400,rel_y+200))
            gamedisplays.blit(yellow_strip,(400,rel_y+300))
            gamedisplays.blit(yellow_strip,(400,rel_y+400))
            gamedisplays.blit(yellow_strip,(400,rel_y+500))
            gamedisplays.blit(yellow_strip,(400,rel_y-100))
            gamedisplays.blit(strip,(80,rel_y+198))
            gamedisplays.blit(strip,(80,rel_y+396))
            gamedisplays.blit(strip,(80,rel_y))
            gamedisplays.blit(strip,(705,rel_y+198))
            gamedisplays.blit(strip,(705,rel_y+396))
            gamedisplays.blit(strip,(705,rel_y))
        y2+=obstacle_speed
        gamedisplays.blit(backgroundpic,(0,rel_y-backgroundpic.get_rect().width))
        #background()
        obs_starty-=(obstacle_speed/4)
        obstacle(obs_startx,obs_starty,obs)
        obs_starty= obs_starty+obstacle_speed
        car(x,y)
```

```
        if x>705-car_width or x<90:
            crash()
        if obs_starty>display_height:
            obs_starty=0-obs_height
            obs_startx=random.randrange(100,(display_width-179))
            obs=random.randrange(0,7)
            if obs==5:
                pygame.mixer.music.play(-1)
                obstacle_speed=4
            if obs!=5:
                pygame.mixer.music.stop()
                obstacle_speed=9

        if y<obs_starty+obs_height:
            if x>obs_startx and x < obs_startx + obs_width or x+car_width > obs_startx and x+car_width < obs_startx+obs_width:
                crash()
        pygame.display.update()
        clock.tick(60)
game_loop()
pygame.quit()
quit()
```

As I say before your picture files, music file and your .py file need to be in the same file like that :

These are gameplay screenshots:



As a result, I learned how to Python works, how can i code games by using Python, pygame libraries. I got lots of problem when I am coding and I overcame all of these by searching. I did not do similar car race game I tried change most of things and this was so beneficial for me I develeped my coding skill.