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FLAPPY BIRD GAME AUTOMATION USING PYGAME

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Abstract:
The world now works on internet as we know. This an age of technology and all we do learn and grow on the daily basis. Now as we know coding is one of the biggest part of our technology and it has brought up an revolution in the world. Through coding we can almost do anything, we have achived the impposible with the help of things like machine learning and artificial intelligence. Now except for the growing technologies we also need to relax and find time to entertain ourselves. So there is no way that we are going to forget the power of programming here. As the world growing we are creating new ways to enjoy our time while working. Gaming is a big part of that enjoying time. Gaming has been revolutionized completely throughout years. We have developed from making 2 mb games to make games that are 500 gb and have better graphics then real life. Gaming development is a big branch of programing sector and it's been there for a long time.

Keywords:
Pygame, python, ML, AI

1. Introduction:

Py--game use a simple direct Media Layer library,wiith the intentiion of alowing real time computer type game development with out the low level mechanics and the derivatives of the C programming language . This is based by the assumptionn that the most expensive functions inside games can be abstracted from the game logic, making it possible to use a programming language to create a well structured game (language like Python). [1,2,3]Other feaatures is that SDL do have include collision detection, vector math, MIDI support, camera,pixel-array manipulation,2D sprite scene graph management,filtering,transformations, drawing and advanced freetype font support. All the files using Pygame can run on tablets and Android phones and with the use of Pygame Subset for Android . keyboard, Sound, accelerometer and vibrationare supported on any type of Android. Now I have created a game with the help of pygame module which is obiously used for the game development with the help of python. I had to learn pygame library on my own and then learn to create some basic codes from different sources through internet and finally I have the game which is now completed and anyone with the files and tools in there respectiv device can play it without any doubt. Its not with the best graphics but I have make sure to learn through this project that what kind of things should be in our mind while creating a game and what kind of measure we should take while making a game. It took little bit of editing of pictures and graphics other then the obious coding part.

2. Methodology:

The basic idea of the project was to learn that how does the things looks while dealing with game development. As I am the only person in my group it took a lot of time and effort to complete this and it do not look that great but it was worth it. Lets go throught the complete project step by step :
IDEA: The idea was to creat a game flappy bird which is like an android game works on a tap system (Space bar system in PC) and to get the max scores while douging all the obstacles that comes in its way. The overvies of the idea lookes like this:

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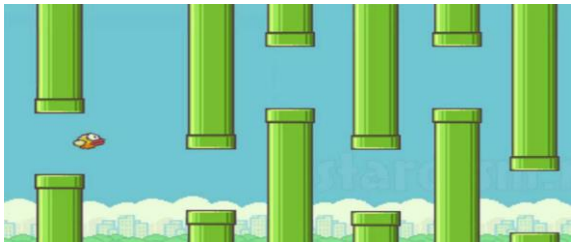

As we can see the frame of the idea in the picture now the problem was to get this game through the programming and in my case Python. Cause I have specialization in python only. So I started the research that how I can get it through python. While researching I stumbled up in a library called pygame and stared to learn it as it allows you to create games through python and it's a very good tool to work with.

2.1. The implementation:

After starting to working with Pygame It took me quite a while to get the hang of it. After understating it as much as I could have I started to make an overall plan to create the game and the measures and things i will be going to need.[4,5,6] So started to write the code and thankfully i found some documentation related to the same type of game through an open source organization which did helped me a lot. And after going over those i finally got the hook of it and implemented the code. [7].I did took more time than expected cause it was my first time creating a game through this library. Now we will go it technical details of the code below.

Code:

```
# Global Variables for the game
FPS = 32
SCREENWIDTH = 289
SCREENHEIGHT = 511
SCREEN = pygame.display.set_mode((SCREENWIDTH, SCREENHEIGHT))
GROUNDY = SCREENHEIGHT * 0.8
GAME_SPRITES = {}
GAME_SOUNDS = {}
PLAYER = 'gallery/sprites/bird.png'
BACKGROUND = 'gallery/sprites/background.png'
PIPE = 'gallery/sprites/pipe.png'
```

```
if __name__ == "__main__":
    # This will be the main point from where our game will start
    pygame.init() # Initialize all pygame's modules
    FPSCLOCK = pygame.time.Clock()
    pygame.display.set_caption('Flappy Bird by Sagar')
    GAME_SPRITES['numbers'] = (
        pygame.image.load('gallery/sprites/0.png').convert_alpha(),
        pygame.image.load('gallery/sprites/1.png').convert_alpha(),
        pygame.image.load('gallery/sprites/2.png').convert_alpha(),
        pygame.image.load('gallery/sprites/3.png').convert_alpha(),
        pygame.image.load('gallery/sprites/4.png').convert_alpha(),
        pygame.image.load('gallery/sprites/5.png').convert_alpha(),
        pygame.image.load('gallery/sprites/6.png').convert_alpha(),
        pygame.image.load('gallery/sprites/7.png').convert_alpha(),
        pygame.image.load('gallery/sprites/8.png').convert_alpha(),
        pygame.image.load('gallery/sprites/9.png').convert_alpha(),
    )

    GAME_SPRITES['message'] =pygame.image.load('gallery/sprites/message.png').convert_alpha()
    GAME_SPRITES['base'] =pygame.image.load('gallery/sprites/base.png').convert_alpha()
    GAME_SPRITES['pipe'] =(pygame.transform.rotate(pygame.image.load( PIPE).convert_alpha(), 180),
    pygame.image.load(PIPE).convert_alpha()
    )

    # Game sounds
    GAME_SOUNDS['die'] = pygame.mixer.Sound('gallery/audio/die.wav')
    GAME_SOUNDS['hit'] = pygame.mixer.Sound('gallery/audio/hit.wav')
    GAME_SOUNDS['point'] = pygame.mixer.Sound('gallery/audio/point.wav')
```

3. Conclusion and Future scope:

In future I want to work in app development using languages like C++ and become a full time programmer. I am learning DBMS and API testing through POSTMAN API and this is the part of web testing development. Now if I am talking about this project completely then I want to make it much

looking then now and want to add many more features and stages which will take a lot of coding and time obviously but I am getting the hang of it so its not going to be that hard for me. As I mentioned that I am learning C++ and either going on app development and complete SD role so gaming development can be a great option that I have ahead in my career.

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