Super Hero

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Abstract

- Our team chose to create a game with all the basic elements (a character, score, movements in objects , hurdles and music) that any usual game have using Pygame. In this project we focused on two major aspects other than completing it to get a desired output. They are Implementing the things we learnt in the course into this and exploring the features of the pygame by understanding its commands and instructions. We tried to implement the programing paradigms of python to the maximum extent we can. We accessed the control keys of our keyboard to play the game. The game is designed with 4 major hurdles. They are dragons with fire balls, gunmen with guns and bullets, cactus with thorns and the moving logs. If our superhero encounters any of these the game ends and you lose. To win the game one must collect all the coins and reach the flag in top right corner crossing all the obstacles in the way. The images that are used on screen were taken from the internet while the logs are drawn and programmed to merge and diverge from time to time. The music plays from the start to the end to give player an edge of experience while playing. In our project we wrote the code I rounds instead of dividing into parts so that each one of us knows every line of the code.

Introduction

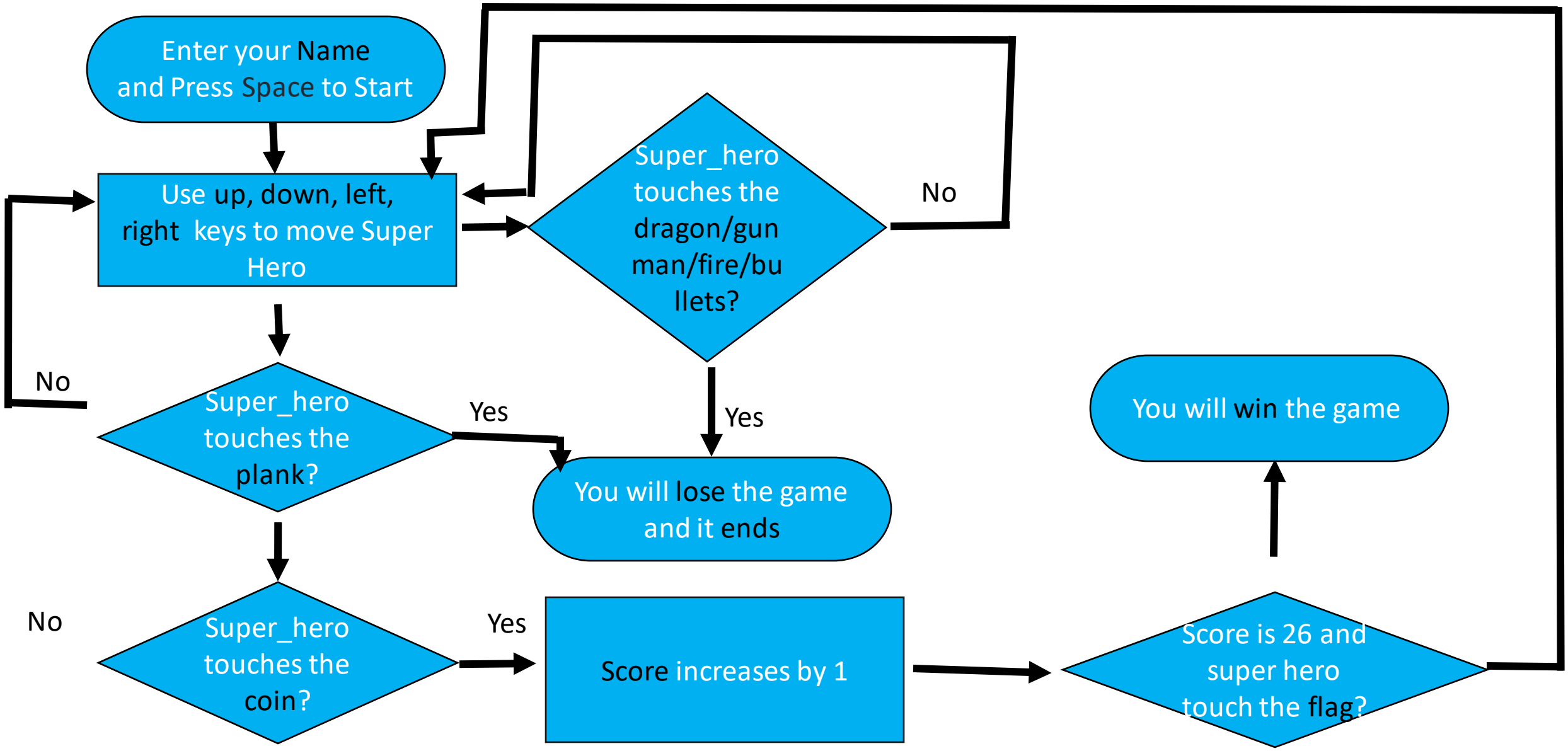
- The topic we chose to do our project is pygame to develop a game. We used basic Png images (size of 12 to 100 pixels) and sound files for the features in our project. Our major aim is to explore the features of pygame and implement the things we learnt in python course. In the fast-growing field of software engineering and development and even more rapidly developing gaming sector, The future is hard to predict. A game is just more than any software as it has to provide content that is more enjoyable and fun. Th e game we designed is a single player and single level game with our super hero (character) to go through the obstacles and reach its destination as per instructions that are mentioned.

System requirements

- 1. Operating System : Windows 10 or any Linux distro.
- 2. Python3
- 3. Pygame
- 4. Any Text editor or IDE (pycharm/vscode)

- Instructions for Installing Pygame :
- For Windows : Run the command 'pip install pygame'.
- For Debian/Ubuntu/Mint : Run the command 'sudo apt-get install python3-pygame'.
- Note : If you are using Pycharm IDE you can download the pycharm package.

Flowchart


Enter your Name and Press Space to Start
Use up, down, left, right keys to move Super Hero
Super_hero touches the dragon/gun man/fire/bullets?
No
Yes
Super_hero touches the plank?
No
Yes
You will lose the game and it ends
Super_hero touches the coin?
No
Yes
Score increases by 1
Score is 26 and super hero touch the flag?
You will win the game

Demonstration

- This game starts with an opening screen which consists of the instruction to start the game and logo of our game. Here we have enabled the option of user input which takes our name and stores it, for displaying it later. It has a background sound and background color which suits the logo of our icon.
- After following the instruction to start the game, it displays the second screen where our game starts. It consists of the following: Our game icon, which is at bottom left of the screen, moving planks, two dragons which breathe out fire, gunmen who fires bullets, cactus, coins and a flag. A background sound has been given which runs through the entire game. The main task of the player is to collect all coins without touching the moving planks/cactus/fire/bullets/gunmen/dragon. The game completes if the player collects all the coins and conquers the flag. The player loses if he touches any one of the obstacles mentioned above. The moving planks makes it a little difficult for the player to collect the coins. The coins blink continuously and the score is mentioned on the top left corner of the screen which increments as the player collects the coins.

- There are two more screens which displays depending on the course of the game. One of them is the win screen which displays if the player wins the game and a lost screen which has the same functionality as the win screen. If the player loses the score will be displayed along with the user's name and a message. A crying emoji also appears on the screen with a suitable background music. If the player wins the game. If the player wins the game a suitable message will appear along with a proper background music.
- We have implemented a class which includes everything from images to music. It has a constructor and four different methods for functioning of the program. The first method is responsible for displaying the screen, changing the colors, displaying the icons and moving them. It also consists of the music element and keeping track of the score. The main function of this method is to move the super hero and implementing the conditions for losing and winning the game. It also implements the change of the screen depending upon the condition of the game. The second, third and fourth methods are for functioning of the lost screen, win screen and front screen respectively.

Future aspects

- Creating further difficulties like moving the logs vertically and horizontally.
- Giving armor and bullets to our superhero
- Running the game infinitely with some powerups and added obstacles.

References

- www.pygame.org
- https://realpython.com/pygame-a-primer/
- https://youtu.be/FfWpgLFMI7w
- https://www.flaticon.com/
- https://www.pngwing.com/
- https://freesound.org/

- Github link: https://github.com/python-project-iiitb/super_hero.py