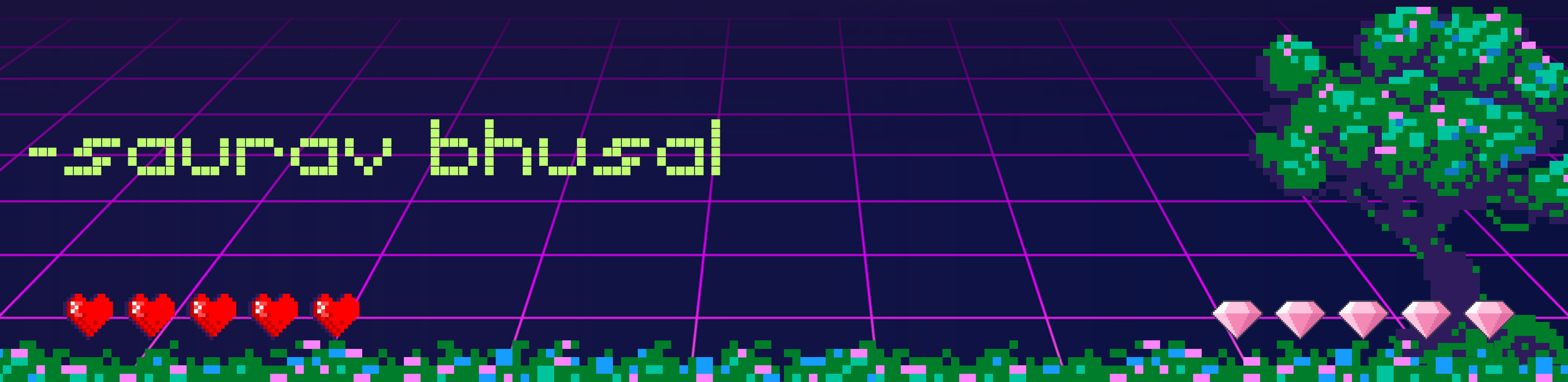
SNAKE GAME IN PYTHON

-sourav bhusal



INTRODUCTION:

- Pygame is a Python library that is used for creating games and multimedia applications
- In this presentation, we'll be creating a classic Snake game using Pygame
- The game will involve a snake that grows longer as it eats food, and the player must avoid collisions with the walls and the snake's own body

SETTING UP THE ENVIRONMENT

- To use Pygame, you must have Python and the Pygame library installed on your system
- You can install Pygame using pip by running "pip install pygame" in your command prompt or terminal
- Once Pygame is installed, you can create a new Python file and import the library using "import pygame"
- We also need to install two more libraries i.e "random" and "math" .
- "random" library is used in the game to create the snack for the snake.
- "math" library is used for the different computation in the program code.

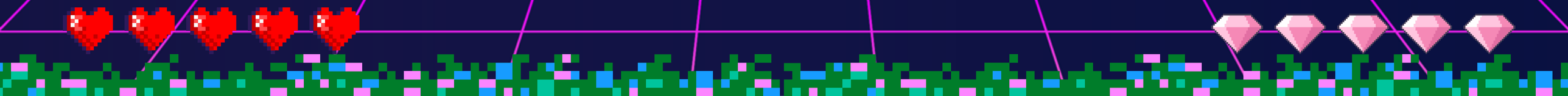
CREATING A GAME WINDOW

- the game window is simply created by using pygame function.

FUNCTION SYNTAX:

```
frame = pygame.display.set_mode((width, height))
```

Now the frame can be used to show the entire game window

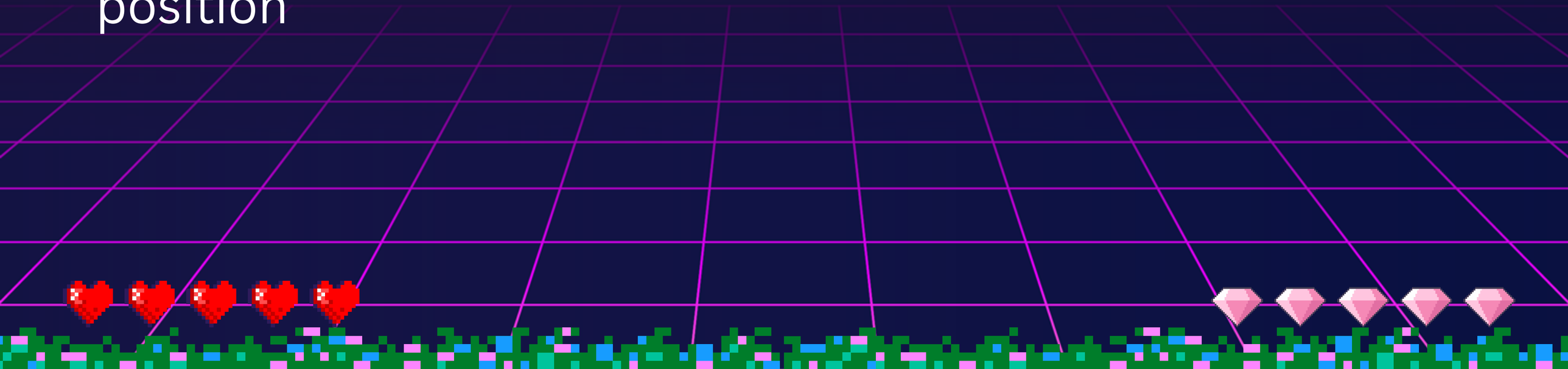


DEFINING SNAKE CLASS

- The Snake class will represent the snake in the game
- We can define the Snake class with instance variables for the snake's position, size, and color
- We can also define methods for moving the snake and updating its position based on its current direction
- We also defined CUBE class so that it will be easier to implement snake class. This means that we used CUBE class to make snake in SNAKE class

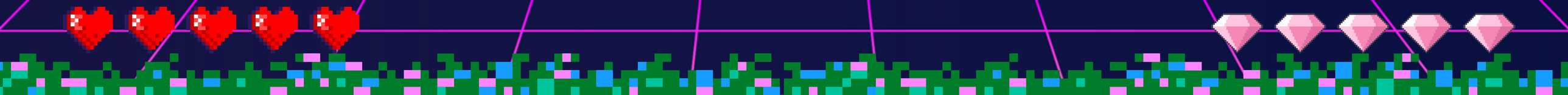
ADDING FOOD TO THE GAME

- We use 'random' library to add the food to the game
- We can find the random value in X and Y coordinate in it's range and then we can draw the food in that position



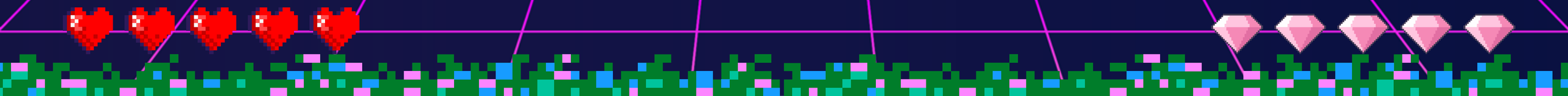
HANDLING USER INPUT

- We have a function in pygame to detect the keypress.
- In this program the "A","S","W","D" keys are used to control the snake .Simply W -> upward moment, S -> Downward moment, A -> Left moment, D-> Right moment.
- In this program "Q" key is used to activate quit function or to terminate the game and floating window



COLLISION DETECTION

- We need to detect whether the snake runs into it's own body.
- The detection process is super easy. We already have the position of each cube so if the position of head matches with position of any of the cube, We can consider it as the game over.



SCORING

- scoring is pretty straight forward. When the snake eats the snack, it's length builds up and more the number of snacks eaten,more will be the score.
- And when the program is terminated,We can print the length of the snake or print the number of cubes in the snake body as a score.
- To make the program more interesting, I also added some lines of codes to find the highest score.

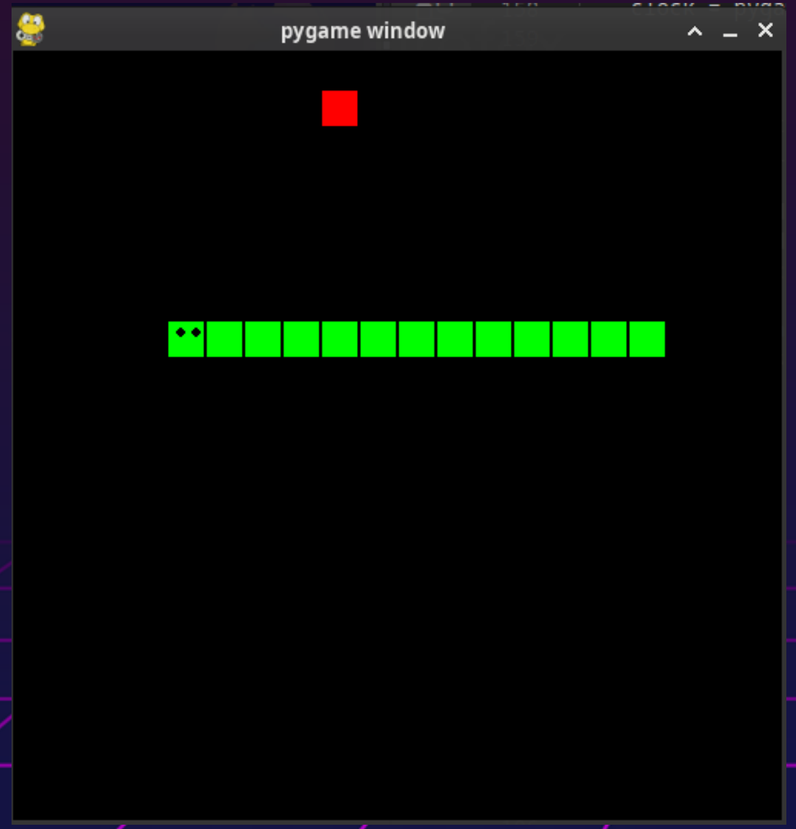
FILE HANDLING FOR HIGH SCORE

- To store the previous highest score, I used file handling.
- When program is terminated, the final score is saved on the score variable and we'll open the file where previous score is located and assign it to a variable say highest_score.
- We check if score>=highest_score. If the condition satisfies then we write score in the opened file and if it's not the case,nothing will be done in the file but we'll print the current score and high score in the terminal.

PROGRAM TERMINATION AND RESET

- The "Q" key is used to terminate the program using pygame .
- Whenever the snake runs over itself, the highest score and current score is printed in the terminal and the program restarts itself.

FINAL RESULT:




```
Hello from the pygame community.
YOUR SCORE:  3
 PREVIOUS HIGHEST_SCORE:   20
YOUR SCORE:  13
 PREVIOUS HIGHEST_SCORE:   20
```

CONCLUSION:

- Pygame is a powerful library for creating games in Python, and the Snake game is a great project for learning the basics of game development
- With the skills you've learned in this presentation, you can create your own games and explore the many other features of Pygame

THANK YOU!

EXIT