Orochimaru

Group Members:

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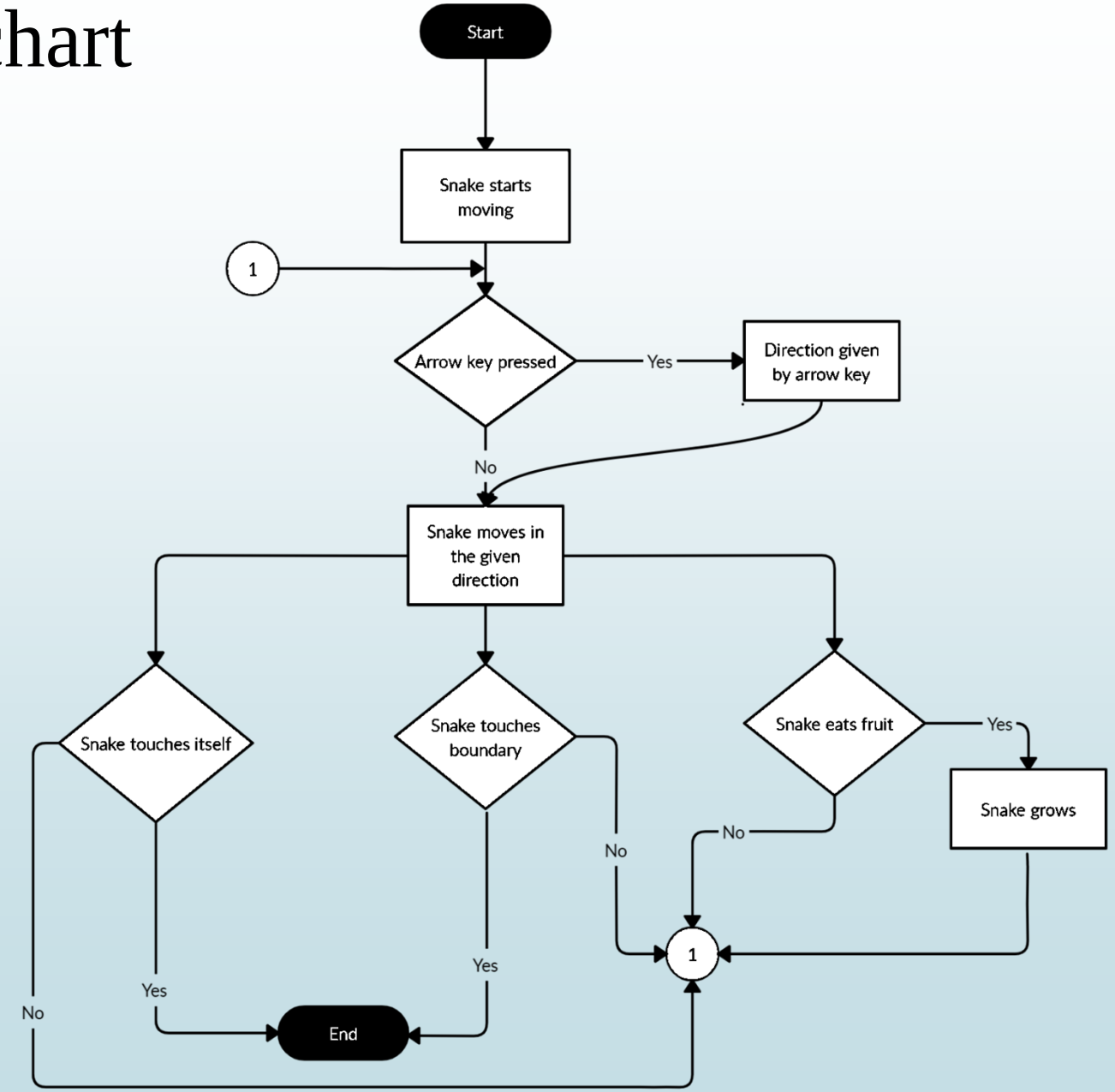
Game Introduction

Orochimaru is the recreation of the popular NOKIA mobile game.

Game Instructions:

- If the snakes head touches its body then the game ends.
- If the snake touches the boundary of the window the game ends.
- Each time the snake eats a fruit it grows one block and score is incremented by one.
- Initially the score is zero.
- The objective of the game is to increase the size of the snake.

Game flowchart



Use of Classes

Snake Class

- $Draw\_snake()$
- $Move()$
- $Add\_snake()$
- $Eat\_sound()$

Fruit Class

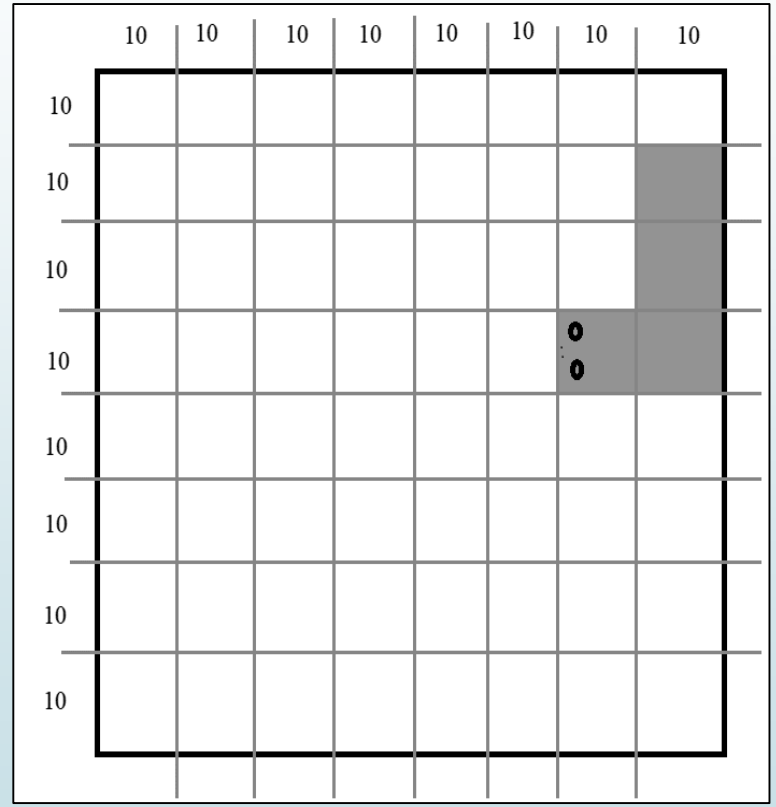
- $Draw\_fruit()$
- $ChangePosition\_fruit()$

MAINLOOP Class

- $Update()$
- $Draw\_fruit\_and\_snake()$
- $Score()$
- $Checkfruit\_eat()$
- $Snake\_death()$
- $Crashed()$

Simulating a grid:

- It was essential to simulate a grid on the display window.
- It would let us know where each of our elements/objects would be on the display window.
- $pygame.display.set\_mode((\text{box\_area*box\_num, box\_area*box\_num}))$
- On the grid, with the help of vectors, we are drawing the snake.



Updating Snake body

Drawing Snake

- Using vectors to draw Snake.
- Pygame function, *draw.rect()* is used.
- A for loop is used

Updating Snake

- When the snake's head overlaps with the fruit, the snake's body is updated by one box on the grid.

Motion of the Snake

- For continuous motion of the snake, we created a custom event.
  - This event periodically updated the motion of the snake by calling update() method after every 100 nanoseconds.

Drawing and Positioning Fruit

Drawing Fruit

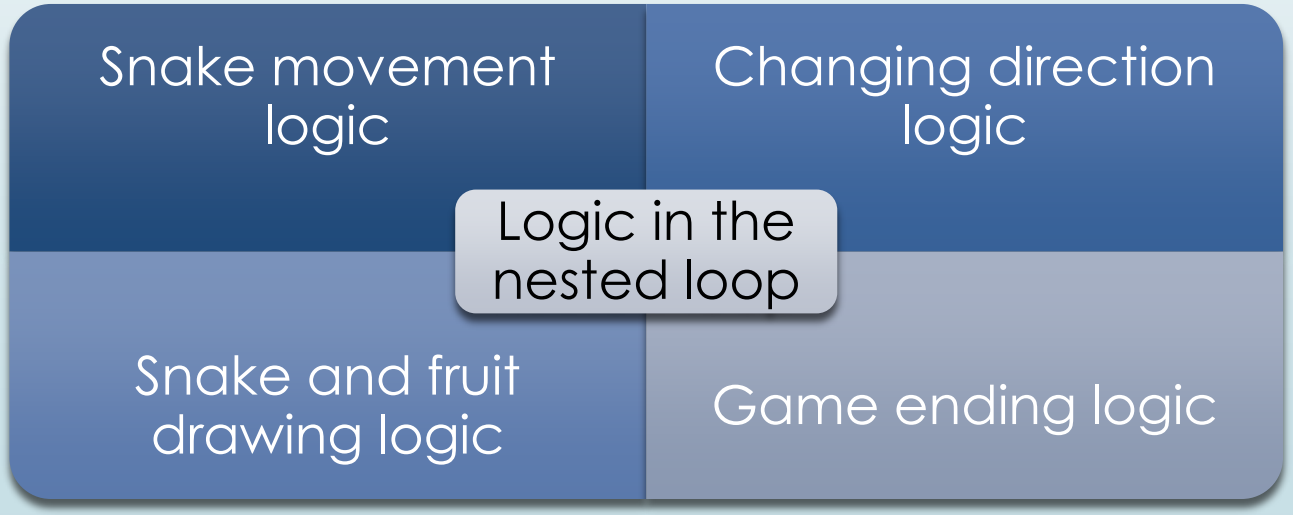
- Fruit is drawn in a similar way to the snake body.
- With the exception of the for loop.

Positioning

- $random.randint()$ is used to generate random x and y coordinates for the position of the fruit.

Game Logic (Main While Loop)

- The main while loop has a nested for loop in it.
  - For event in $pygame.event.get()$
  - $pygame.event.get()$ returns the event that happens typically at 1 fps.
  - An update() method of the MAINLOOP class is called for snake movement, checking if fruit is eaten and if death requirements are met.



Score System

Displaying

- Default font of pygame is used.
- Font.render() is used to display the score.

Score Itself

- It is the length of the list containing the vectors of the list subtracted by four.
- Because initially the length of the snake was 4 boxes.

Game Ending Logic.

Out of Bounds

- If snakes head touches the boundary of the grid, the game ends.

Eat Itself

- If snakes head touches its body the game ends.

Closing Window

- If the cross on the window is clicked, the game ends.

Thank You!