

Readme2

The purpose of this project is to show that gesture-based identification can be used to confirm/verify the identity of a player before being able to load the game to the previous saved state.

Methods used for:

Hand Gesture Authentication:

The **HandDetector** class from **cvzone.HandTrackingModule** is used for detecting hands and tracking landmarks.

The **input_gesture()** function records a hand gesture for 5 seconds.

The **gestureCheck()** function verifies the identity by recording another hand gesture for 5 seconds and comparing it with the previously recorded gesture.

The **compareGestures()** function compares two sets of finger states to check for a match.

The **compare_Input()** function compares two recorded gestures and prints whether they match.

Snake Game: Rules and how it works

The Snake game is implemented using Pygame.

The **main_menu()** function displays a menu prompting the user to choose Player 1 or Player 2.

Depending on the player's choice, the **input_gesture()** function is called to record a hand gesture for authentication.

The snake moves in response to key presses (W, A, S, D), and the goal is to eat the red food to grow.

The game checks for collisions with the snake's own body or the window boundaries to determine if the game is over.

If the player's score is a multiple of 10, the game prompts the user to save the game state.

Authentication of the player:

After the game over, the program prompts the user to start a new game or load saved data by pressing 'N' or 'L', respectively. If the user chooses to load saved data, it calls **gestureCheck()** to authenticate the user with a hand gesture.

Please refer to the page below before running the program

Please note that for this script to run successfully, you need to have the required libraries (Pygame, cv2, cvzone, pickle and mediapipe) installed in your Python environment.

To install:

Pygame:

Run `pip install pygame` in terminal

You can follow this link for more info: <https://www.pygame.org/wiki/GettingStarted>

cvzone:

Run `pip install cvzone` in terminal

You can follow this link for more info: <https://github.com/cvzone/cvzone>

Sources/Help:

For creating the snake game:

https://www.youtube.com/watch?v=_-KjEgCLQFw&ab_channel=CoderSpace

https://www.youtube.com/watch?v=ndtFoWWBAoE&ab_channel=CodingWithRuss

For creating the authentication program, learn about mediapipe, cvzone and how to start the webcam

<https://www.geeksforgeeks.org/right-and-left-hand-detection-using-python/>

<https://www.geeksforgeeks.org/python-opencv-capture-video-from-camera/>