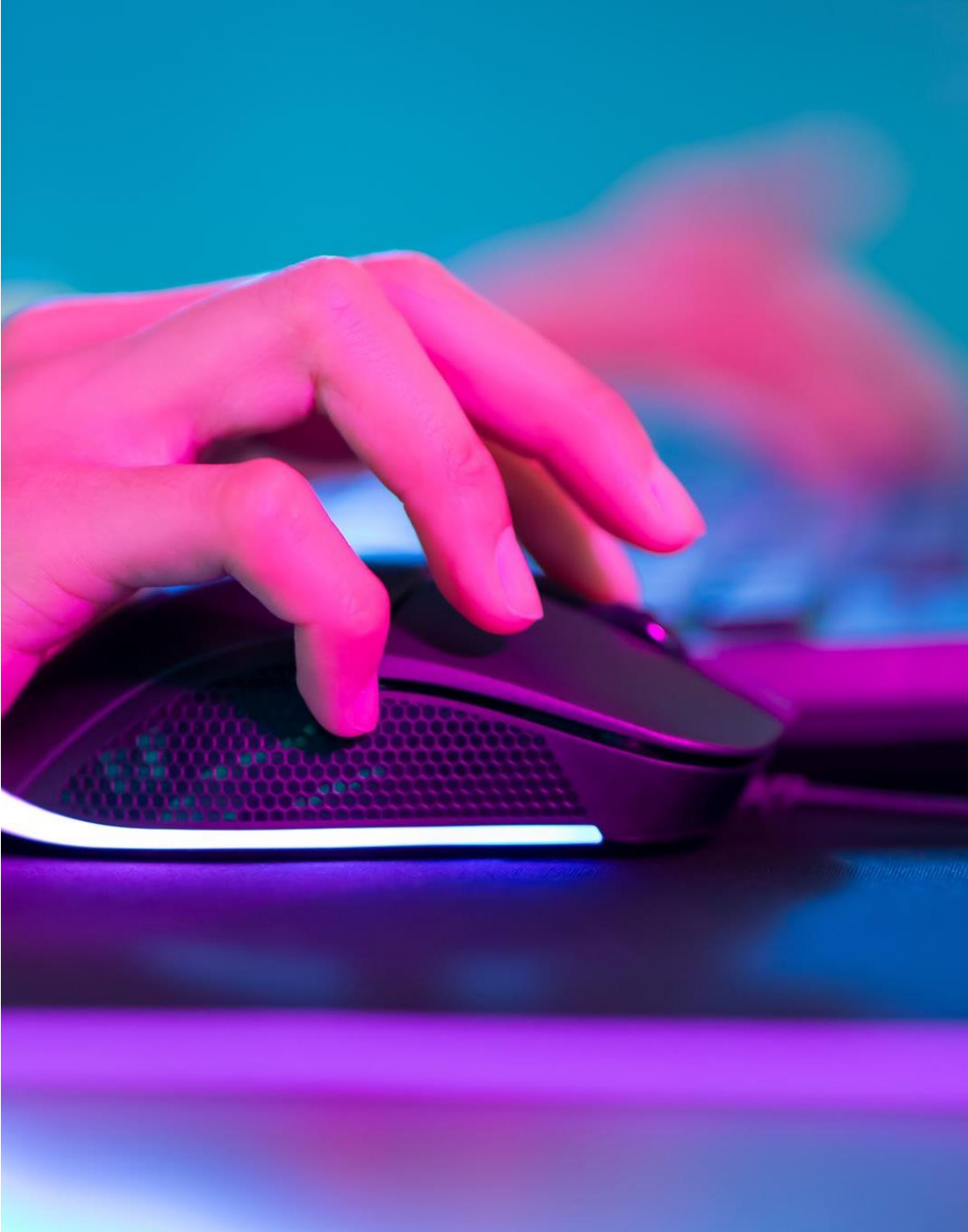


Eye Controlled Mouse & Hand Tracking Paint (AIR CANVAS)





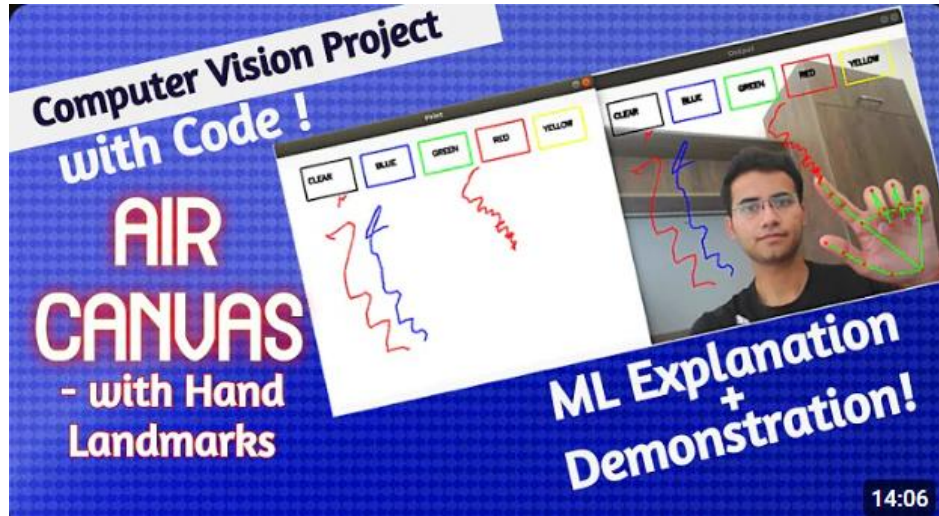
What Does The Project Do

+ **Eye-Controlled Mouse Movement**

The program utilizes the MediaPipe library to detect landmarks on the face, particularly focusing on the eyes. When a predefined condition is met, such as a wink, it simulates a mouse click action. This enables users to interact with their computer using only their eyes.

+ **Hand Tracking Paint Application**

The project also integrates hand tracking functionality using the MediaPipe library. It tracks the movement of the user's hand in real-time through the webcam feed. By detecting the position of the user's hand and fingers, it enables them to draw on a virtual canvas displayed on the screen. The user can select different colors and adjust the pencil size to create drawings directly using hand gestures.




Base Project

- + [1] A. Jain, "Air Canvas with ML," GitHub, [Online]. Available: <https://github.com/infoaryan/Air-Canvas-with-ML>.
- + [2] ProgrammingHero1, "eye_controlled_mouse," GitHub. [Online]. Available: https://github.com/ProgrammingHero1/eye_controlled_mouse.

Errors Encountered


SyntaxError: There are syntax errors in the code, such as missing parentheses or incorrect indentation.




TimeoutError: The code takes too long to execute, causing a timeout error.



ImportError: The project fails to import a required library due to a misspelled library name or an outdated version.



Variability in Hand Poses: Hands can be in various poses and orientations, making it challenging to accurately detect landmarks consistently across different hand positions.



Wink Detection Threshold: Ensure that the wink detection threshold is appropriately set. If the threshold is too high, the system may not detect a wink accurately, resulting in no click action.

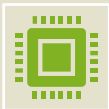
New Features Added



User Interface Enhancements: The project's user interface has been updated with new elements and visual improvements to enhance usability and aesthetics. This includes adding labels, buttons, and other interactive elements to make it easier for users to navigate the application and access its features.



Pencil Size Adjustment: A new feature has been added to allow users to adjust the size of the pencil or brush used for drawing in the paint application. This gives users more control over their artistic creations, allowing them to vary the thickness of lines and strokes based on their preferences.



Merged the two base projects: Both the features of the Eye Controlled Mouse & Hand Tracking Paint were merged resulting in a more user friendly and less hand dependence.

Flowchart



Terminator

Indicates the beginning or end of a program flow in your diagram.



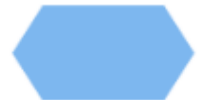
Process

Indicates any processing function.



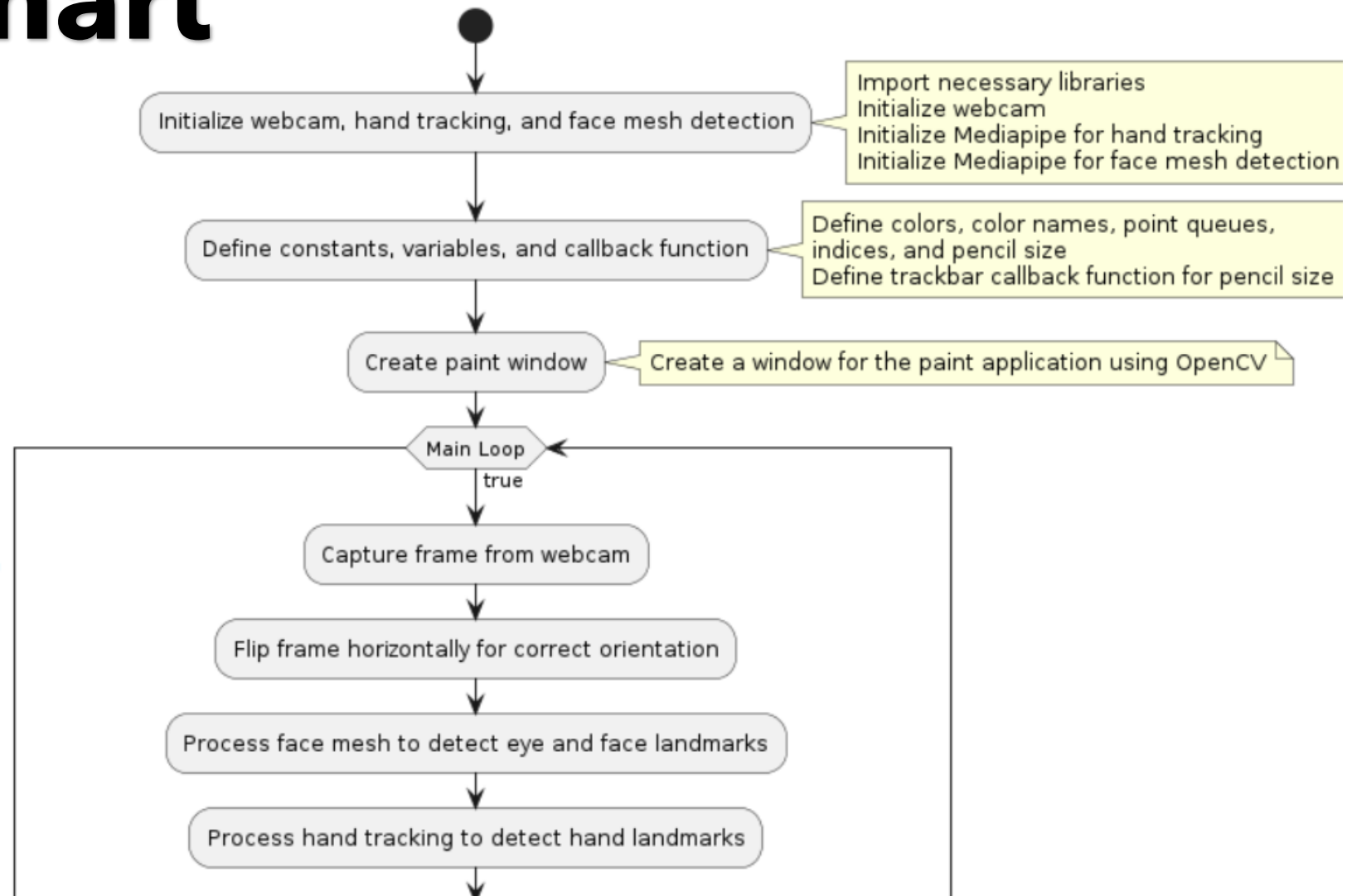
Decision

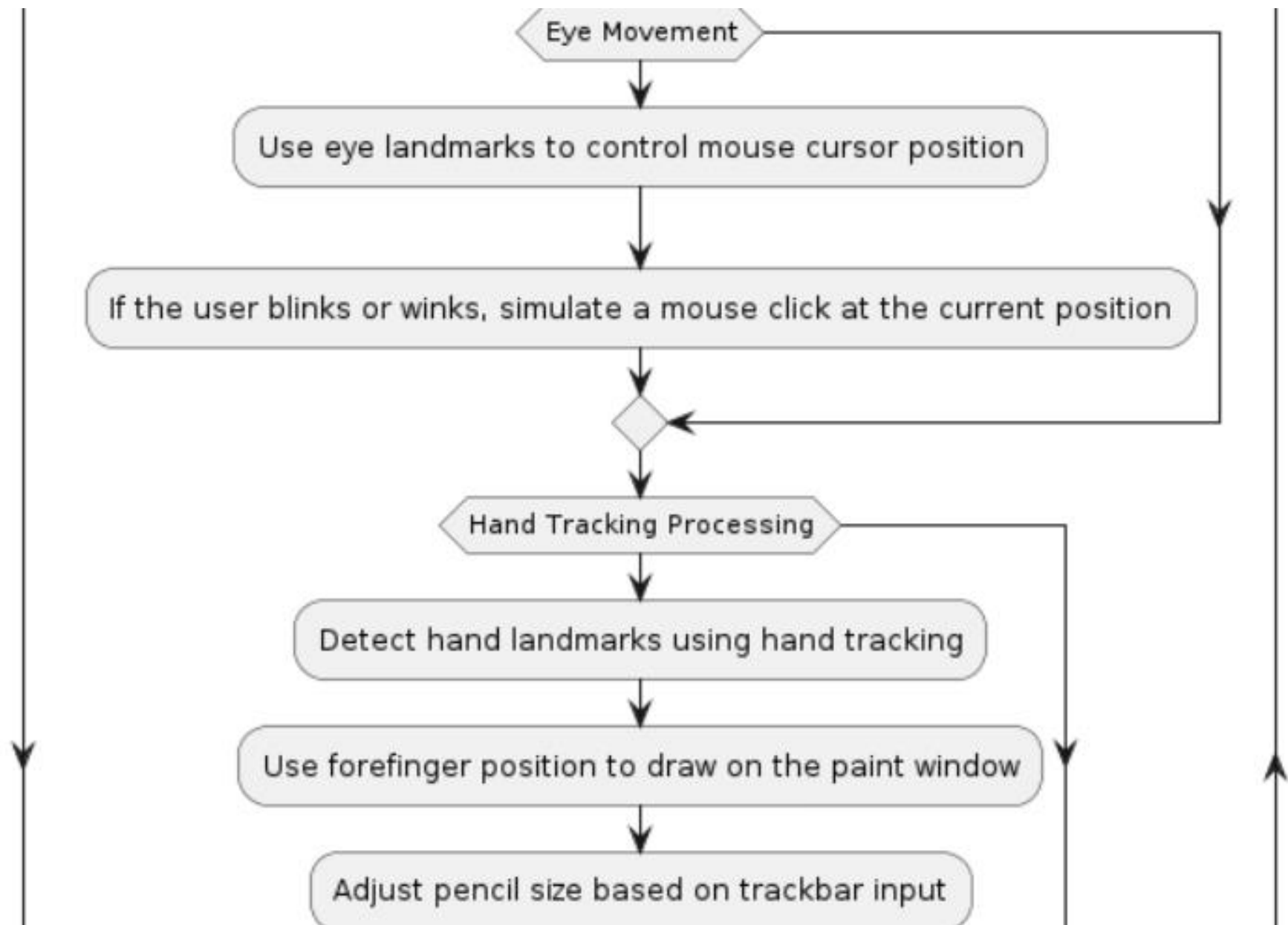
Indicates a decision point between two or more paths in a flowchart.

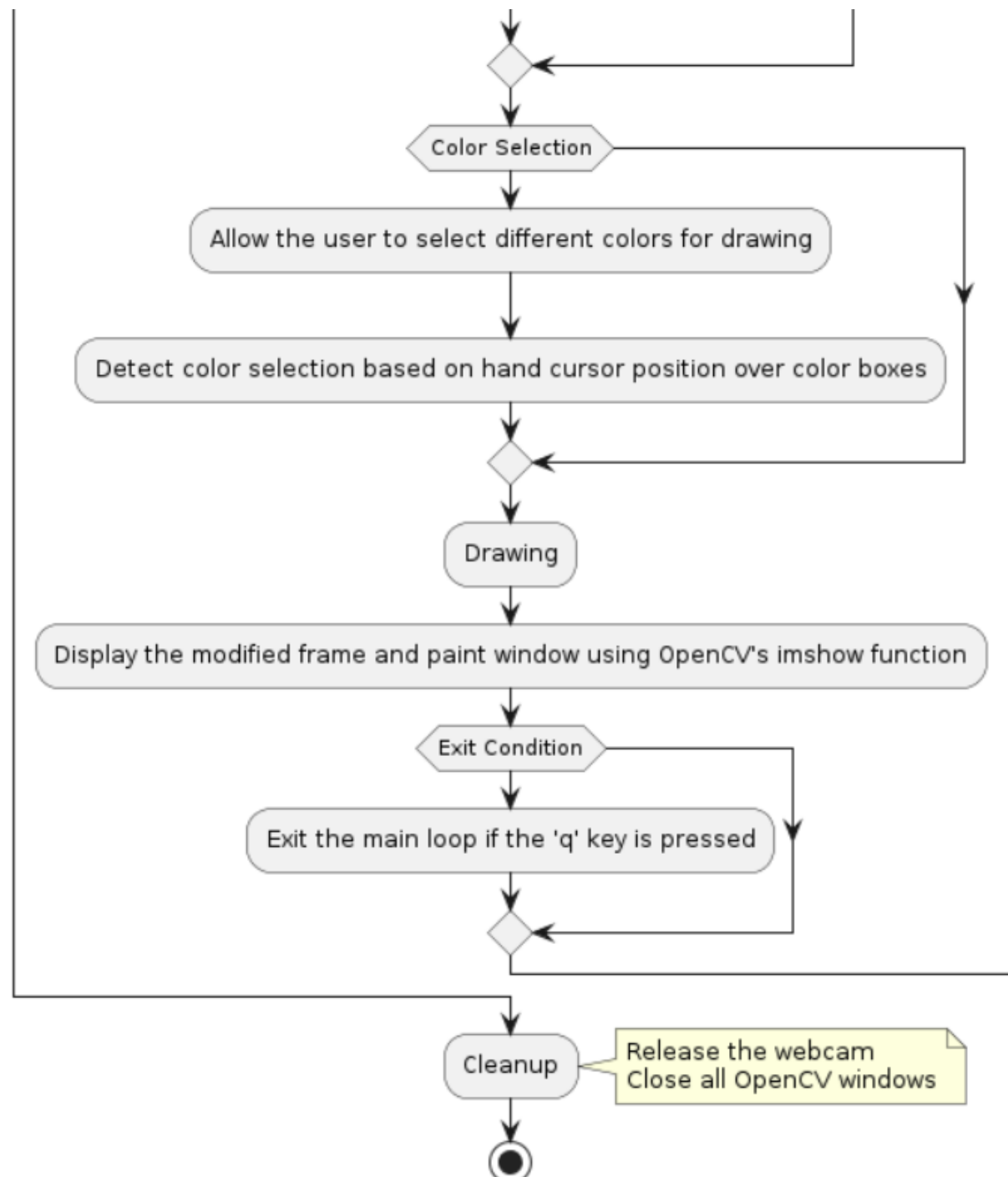


Preparation

Indicates a modification to a process, such as setting a switch or initializing a routine.







Learning Outcomes



**INTEGRATION OF
FUNCTIONALITIES**



**EYE TRACKING
AND HAND
TRACKING**



**USER INTERFACE
DESIGN**



**OPENCV AND
PYAUTOGUI**



**FLOWCHART
CREATION**

Blog & Github

- + <https://medium.com/@jasad557/eye-controlled-mouse-hand-tracking-paint-air-canvas-80e47b15a646>
- + [asadraja557/AI-project \(github.com\)](https://github.com/asadraja557/AI-project)

Thank you

The image features the words "Thank you" in a 3D isometric font. The letters are light yellow with blue outlines and are arranged in two rows: "Thank" on top and "you" below it. Each letter casts a soft red shadow onto the pink background. Scattered around the text are several colorful, five-pointed stars in shades of cyan, yellow, and purple, each also casting a red shadow. The overall style is clean, modern, and celebratory.