Project Description

- Overview:
  - This project will use the camera to track positions for the users fingers. The camera display area will be a canvas for the user to draw on, interact with pre-existing objects in the program, interact with images and objects imported by the user.

- Features
  - Draw:
    - The user will be able to draw on the camera display screen as a canvas using their fingers.
    - The program will be able to support multiple fingers at once.
    - The user can pick a color and thickness.
  - Objects (Shapes and Images):
    - This will support pre-existing geometrical shapes such as circles, rectangles, triangles, etc.
    - The user can import an image from their computer. (PIL supported images will be supported by the program)
    - The user will have the ability insert shapes and images. With those they can resize them, rotate them and draw on them. All on the camera screen or on a blank white canvas.
  - Controlling Objects:
    - All the above objects will be controlled by the users fingers.
    - Scaling and rotation will be done by user pinching on two points of the object using both hands.

- First Checkpoint
  - Motion tracking by reference point. (Planning on automatic finger detection).
  - Drawing by the motion tracked reference.
  - Moving an image by the motion tracked reference point

- Libraries
  - OpenCV
  - PIL
  - Tkinter
  - Possibly more if neede

- The finger tracking and the ability to pinch on objects and rotate them is why I think this is a good project to work on.

Note: I do not have experience on OpenCV. I have read documentations on it. I will do my best to be consistent with my project description and features. Depending on the time, I might add/remove features. No core features will be removed such as finger tracking, drawing with the fingers, and/or manipulating shapes. Pinching, automatic finger tracking or multiple tracking points are such features viable to minimizing.