Assignment

Total Marks: 10
Deadline: 17th February 2025

Part 1: Use computer vision techniques to Detect, segment, and count coins from an image containing scattered Indian coins.

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a. Detect all coins in the image (2 Marks)
   - Use edge detection, to detect all coins in the image.
   - Visualize the detected coins by outlining them in the image.
b. Segmentation of Each Coin (3 Marks)
   - Apply region-based segmentation techniques to isolate individual coins from the image.
   - Provide segmented outputs for each detected coin.
c. Count the Total Number of Coins (2 Marks)
   - Write a function to count the total number of coins detected in the image.
   - Display the final count as an output.

Input Data: Capture or obtain your own image containing various Indian coins.

Part 2: Create a stitched panorama from multiple overlapping images.

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a. Extract Key Points (1 Mark)
   - Detect key points in overlapping images.
b. Image Stitching (2 Marks)
   - Use the extracted key points to align and stitch the images into a single panorama.
   - Provide the final panorama image as output.

Dataset: Capture your own set of overlapping images using a smartphone.

Submission Guidelines

a. Submit your work as a GitHub repository link. The repository should be named as VR_Assignment1_[YourName]_[YourRollNo].
b. All code must be written in Python and submitted as two separate scripts: one for coin detection and segmentation, and one for panorama creation.
c. Include a README file describing how to run your code, the methods chosen, results, and observations.
d. Ensure your visual outputs, including detection, segmentation, coin counts, and the final panorama, are clearly labeled and included in the README file.
e. Include the captured images in a subfolder in the repository.
f. The code should run without any additional intervention. Ensure all dependencies are clearly mentioned in the README file.