**Hough Transform (HT) MATLAB step by step Codes and Solutions to run in MatLab software to compute and answer following:**

Objective: Understanding the HT, its implementation strategy and application.

**1) Line detection:**

Implement line fitting algorithm using Hough Transform. Use your implementation to detect

the longest line in a given image in test1.jpg. Create the function as follows:

line = line\_detection (I)

Input: I (input image)

Output: the longest line

Show the detected lines on the input image.



Test1.jpg

**2) Circle detection:**

Implement circle fitting algorithm using Hough Transform. Use your implementation to detect

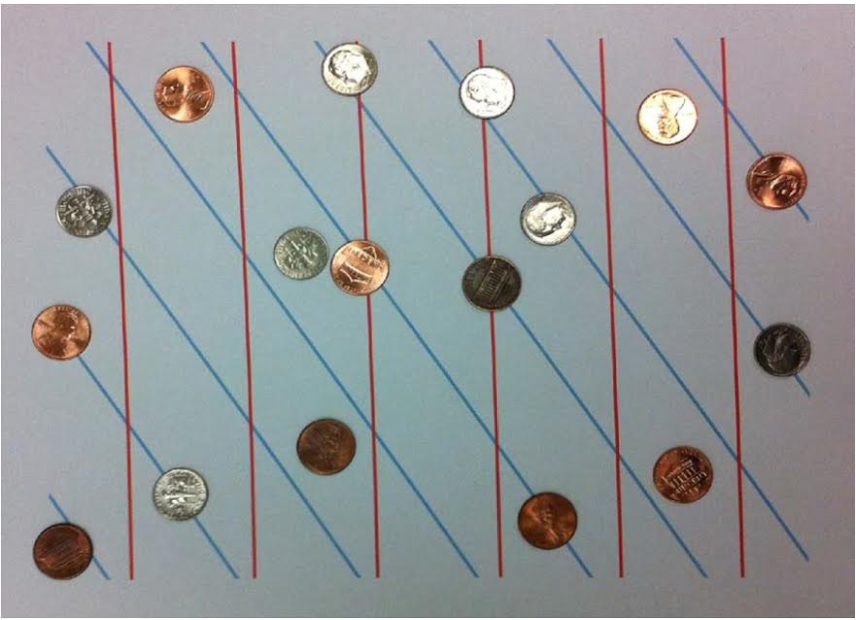
at least three circles with different radius in test2.jpg. Create the function as follows:

C = circle\_detection (I, R)

Input: I (input image), R (Specific radius of the circles that you want to detect)

Outputs: C (centers i.e. x, y coordinates of the detected circles)

Show the detected circles.



Test2.jpg