Department of Computer Science

Below is a 10×10 patch of gradient magnitudes (values between 0–255).

Apply the following steps manually (or with code if allowed):

Non-Maximum Suppression (NMS)

- For each non-border pixel, keep the value only if it is the maximum along the gradient direction (assume horizontal edges → compare left/right neighbors).
- Otherwise, suppress (set to 0).

Hysteresis Thresholding

- Use thresholds:
    - High = 120
    - Low = 60
- Mark pixels ≥ 120 as **strong edges**,
- Pixels between 60 and 119 as **weak edges**,
- Pixels < 60 as **non-edges (0)**.
- Promote weak edges to strong **if connected (8-neighbor) to a strong edge**.

Image Patch (Gradient Magnitudes):

10	15	20	25	30	25	20	15	10	5
15	40	80	130	200	140	90	60	30	10
20	60	100	150	220	160	110	70	40	15
25	70	110	180	240	180	120	80	50	20
30	90	130	200	255	200	140	100	60	25
25	70	110	180	240	180	120	80	50	20
20	60	100	150	220	160	110	70	40	15
15	40	80	130	200	140	90	60	30	10
10	20	40	60	90	70	50	30	15	5
5	10	15	20	25	20	15	10	5	0