COMP9332 Network Routing and Switching
Self-assessed Tutorial for Geographic Routing

Q1. Geographically, the shortest path between the source and destination is the straight line (assuming a flat terrain) connecting them. Does Greedy Forwarding lead to such shortest paths? Why or why not?

Q2. For a given communication, the source is located at (0,0) and the destination at (15,0). There are four other nodes at the following locations:

N1 at (2,0)
N2 at ($5/\sqrt{2}$,$5/\sqrt{2}$)
N3 at (6,0), and
N4 at (10,0)

For a radio range of 5 units, what would be the path taken by a packet if Greedy Forwarding is used?

Q3. There are four wireless nodes, A, B, C, and D, scattered around a field. Each node has a wireless range of 100 meters. Assume that node B is going to forward a packet to node A. For which of the following location combinations (x and y coordinates are shown in parenthesis next to the node IDs) B is going to face a VOID?

a) A=(10,120), B=(10,0), C=(-60,0), D=(80,0)
b) A=(10,120), B=(10,0), C=(-50,0), D=(70,0)

Q4. There are four wireless nodes, A, B, C, D, and E, located at (100,120), (100,0), (30,0), (170,0), and (30,-5), respectively. Each node has a wireless range of 100 meters. Assume that node B is going to forward a packet to node A. For the next-hop forwarding, will basic geographic routing (Greedy Mode) work, or B needs to switch to the Perimeter Mode (explain your answer)?

Q5. For the previous question, if B switches to the Perimeter Mode, what would be the next hop (which node B will forward the packet to)? Explain your answer.