Principles of Distributed Computing
Exercise 4

1   Bad Queues in a Mesh

In Section 4.2, Remark 2 states that the greedy algorithm on a mesh might need queues in the order of m (on an $m \times m$ mesh). Can you find an instance where the queue size gets really big (in the sense of as close to m as possible)?

2   Good Queues in a Mesh

Prove that the time complexity for random destination routing is in $O(m)$, see Remark 1 of Theorem 4.10. To that end, show that the probability that a single column contains $2em$ destination packets is "really small" and finish the proof.