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.