

# Distributed Systems

## Coursework

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Fall 2020

# Coursework

- Up on web page
- Deadline march 24
- Read entire description carefully before starting work.

# Simulation of a distributed system

- Used to test performance before deployment
- Requires thinking carefully about
  - What issues affect a distributed computation
  - How to identify matters that can be ignored
    - Since they do not significantly affect the process
    - Or can be addressed easily
  - How to manage issues that can't be ignored
  - Set assumptions that make basic evaluation easier
  - We may need to just simulate the “effect” of some aspects, not their detail operation

# Two parts

- A
  - Implement Chang and Roberts leader election
- B
  - Handle failures
  - Open ended. There is no perfect solution.

# Example Assumptions

- There is a good operational network
  - We are just simulating that it delivers messages, not the lower level actions like routing or MAC
- Failure detection
  - We assume failures are detected. i.e. some kind of an accurate failure detection is in operation
  - How that effect is simulated is up to you
- There are other implicit issues and assumptions
  - Time and synchronisation
  - Operation in rounds
  - Termination
  - Etc
- It is your task to consider all these and design a meaningful simulation

# Faq

- What if a ring edge does not exist among neighbors defined in file
  - You can assume that all edges required for the initial ring, defined by the order of nodes, are present even if not stated
  - In part B, when nodes fail, this no longer holds, and you have to adapt based on the network.

# Piazza

- Forum is up
- This is mainly for your discussion
- I will answer some questions
  - Not all, and not immediately
- Sign up link:  
<https://piazza.com/ed.ac.uk/spring2020/infr11022>