Project Assignment in Distributed Systems 2g1509

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Administration

- E-mail: aligh@kth.se
  - It is okay to ask questions via e-mail

- Maximum group size is 4

- Deadline 4\textsuperscript{th} of March 2004
  - 6 bonus points in the exam
  - Seldom correction after that
General Project Information

- Design, program, test and evaluate:
  - Distributed Mutual Exclusion
    - Centralized coordinator
    - Ricart-Agrawala
      - Requires Lamport timestamps to resolve ties
    - Token-ring
  - Distributed Leader Election
    - Bully election
    - Ring

- Use any programming language
  - C/C++, Java and Mozart preferred
Goal

- Implement a "shared whiteboard"
  - Part 1:
    - Avoid inconsistent views. What is inconsistent views?
    - Solution: Distributed ME
  - Part 2:
    - The coordinator used in the centralized ME might fail. What to do?
    - Solution: Elect a new leader!
**Inconsistent views**

- Three distributed nodes implementing the shared whiteboard, each showing:

  - Draw circle
  - Draw triangle
  - Draw rectangle

Avoid inconsistent views!
Assumptions

- Who does the drawing on the distributed whiteboard?
  - GUI and graphics not required
  - Simple text messages are enough (chat)
  - Simulate access to the critical section (whiteboard), see project description

- How do we fail nodes?
  - See project description:
    - Simple algorithm that fails the coordinator with some $p$
    - Simple algorithm that checks the coordinator with some $q$
Reporting

- Presentation during scheduled labs
- ...and report containing
  - Name, SSN of all members
  - Everything required by the project description
    - Technology Used (MPI, RPC, JXTA, CORBA)
    - Empirical results of the numbers of messages sent (discount application specific messages, i.e. whiteboard related messages)
    - Source code
Good Luck!