

ICS 4104: DISTRIBUTED SYSTEMS

C.A.T 2

DATE: 26th June 2023 Research and open book

Instructions

1. Research and prepare a two-page summary of the findings.
2. Prepare to share in class
3. Each group to select a unique topic

The dramatic reductions in digital-technology costs, the new opportunities for multi-media communication, new common-carrier data networks and local area networks, as well as the progress in programming techniques provide both new opportunities and challenges in the usage of computer systems. The challenges tend towards a greater distribution of function through the network, with associated architectural needs. However despite of this advances there remain many challenges in the implementation of distributed systems. Key issues are services for distributed invocation, for directories and for security. Known solutions have been discussed and some open problems are identified by many scholars.

As part of the ICS course assessment, you are required to research on topics in distributed systems. Select a topic from list below.

Important instructions:

**RESEARCH TOPICS**

# Paxos algorithm and Vector Clocks algorithm in Distributed Systems

1. Reliable and Fault-tolerant Middleware platforms
2. Mobile Computing Middleware
3. Middleware Protocols & Services for Information Assurance and Security
4. Applications of Middleware Technologies
5. Open Architectures for Re-Configurable Middleware
6. Distributed Object Databases
7. Applications of Distributed Database systems
8. Using Logical Clocks as a way of Synchronization in a Distributed System
9. Models of Synchronizing Physical Clocks in a Distributed System
10. Clock Synchronization Algorithms in Distributed Systems
11. Achieving Fault tolerance in Critical Real-time Distributed Systems
12. Election Algorithms in Distributed Systems
13. Issues in Design and Implementation of Distributed File Systems (DFS)
14. Practical implementation of a Directory (Naming) Service in a DS
15. Transaction Management in Distributed Database Systems