CSCI 351 - F26:
Exam 2 Study Guide

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Learning Goals

This is an outline of the things you have learned so far. I do not guarantee that this outline is complete.

1. From Exam 1
   (a) Models
   (b) Leader Election
   (c) Mutual Exclusion
   (d) Consensus
2. Consensus
   (a) Consensus numbers of ADTs
   (b) Valency impossibility proofs
3. Clocks
   (a) Happens-Before
   (b) Lamport's Logical Clocks
   (c) Vector clocks
   (d) Clock models
   (e) Skew
   (f) Shifting arguments
   (g) Examples: 2-process synchronization, complete graphs
4. Simulations
   (a) Message-passing properties: Integrity, No Duplicates, Liveness, Nonfaulty Liveness
   (b) Broadcast
      i. SSFIFO
      ii. Causal
      iii. Total
      iv. Reliable
         A. Nonfaulty Liveness
         B. Faulty Liveness
   (c) Register Strengthening
      i. Binary → Multi-Valued
      ii. SWSR → SWMR
         A. Readers must write
      iii. SWMR → MWMR