CSC369 Week 10 Notes

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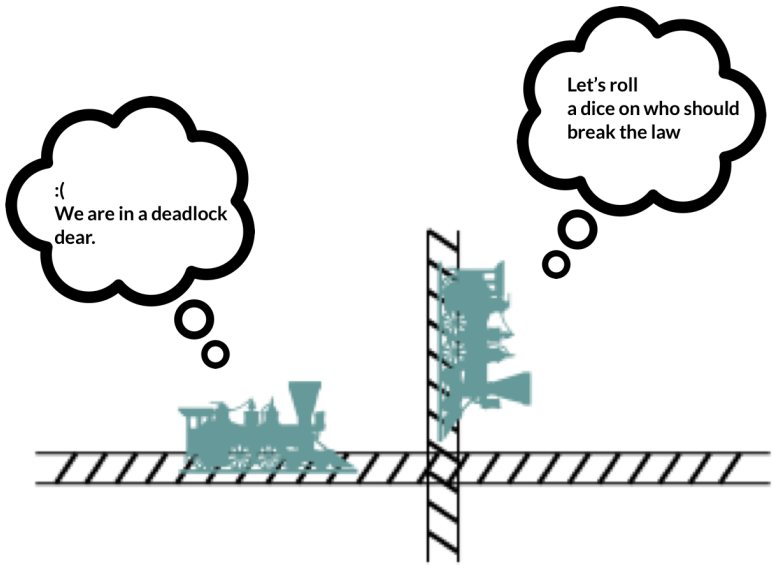
- Deadlock Defined
  - **Google Definition:** Is a situation one typically involving opposing parties, in which no progress can be made.
  - Is permanent
  - Happens to set of processes that
    - Compete for same system resources
    - Communicate with each other
- Example of Deadlock
  - Law passed by Kansas Legislature in in early 20th century
    - "When two trains approach each other at a crossing, both shall come to a full stop and neither shall start upon again until the other is gone"



- Conditions for Deadlock

  - Neccesary Condition
    1. Mutual Exclusion
    2. Hold and wait
    3. No preemption
  - Sufficient Condition
    * Circular wait

- Solutions
- Safe States
- Unsafe States & Algorithm
- What is Atomicity?
- Why would atomicity fail?
- Definitions for Transactions
- How to ensure atomicity in the face of failures?
- Write-ahead logging
- Problems with logging
- Deadlock and Starvation
- Communication Deadlocks
- Livelock