Group Project Proposal

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Scheduling Activities of Student Organizations

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- Algorithms
  - Greedy algorithm
    - Backtracking if necessary
- Data Structures
  - Arrays

Scheduling Activities of Student Organizations

- Considerations
  - Target participants
  - Other people involved
    - E.g. Officers and Professors
  - University calendar
    - E.g. Holidays, activity ban, exam weeks

Scheduling Fast Food Queues

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- Algorithms
  - Some parallel of a CPU Scheduling Algorithm in Operating Systems
  - Dynamic Programming

Scheduling Fast Food Queues

- Data Structures
  - Queues
  - Possibly Priority Queue (Binomial/Fibonacci Heap Implementation?)

Scheduling Fast Food Queues

- Additional Considerations
  - Customer Priority
  - Queue Speed (how good server is)
  - Multiple Queues

Scheduling Elevator Stops

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- Algorithms
  - Genetic Algorithm
- Data Structures
  - Queues

Scheduling Elevator Stops

- Considerations
  - Floor frequency
  - Acceleration/Deceleration Speed

Review of Related Literature

Cormen, et al.’s Introduction to Algorithms

- Basic overview on queue algorithms
- Implementation of priority queues,
  - particularly binomial and fibonacci heaps in chapters 19 and 20.
- Dynamic Programming

Naderi et al.’s Mathematical models and a hunting search algorithm...

- Deals with minimizing total finishing time
- Search Metaheuristic Algorithm

Silberschatz, et al.’s Operating System Concepts

- CPU Scheduling Algorithms for single processor
- Multiprocessor models
- Parallels may be adapted.

Yilmaz Eroglu et al.’s Genetic Algorithm With Local Search...

- Minimizing maximum completion time (makespan)
- Uses Genetic Algorithms to optimize performance

References

Cormen, T.H., Leiserson, C.E., Rivest, R.L., & Stein, C. (2001). Introduction to Algorithms, 2nd edition. MA: The MIT Press.

Naderi, B., Khalili, M., & Khamseh, A. A. (2014). Mathematical models and a hunting search algorithm for the no-wait flowshop scheduling with parallel machines. International Journal Of Production Research, 52(9), 2667-2681. doi:10.1080/00207543.2013.871389

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Yilmaz Eroglu, D., Ozmutlu, H. C., & Ozmutlu, S. (2014). Genetic algorithm with local search for the unrelated parallel machine scheduling problem with sequence-dependent set-up times. International Journal Of Production Research, 52(19), 5841-5856. doi:10.1080/00207543.2014.920966