Ds paxos

The server will accept any request from threads on the same port. Each thread is a member of a council and members can send and receive messages from each other. Messages are only confirmed if majority of the members accepts the message. The process of acceptation is when a member prepares a message to send, and the member will propose this message to every other member. The other members will either accept the message or fail to do so. If majority of the members accepted the message, then the council has come to a consensus. Each member has a condition to accepting the message.

OS scheduler

The goal is to optimize the base script to perform more efficient. The script is a slot machine simulator which prioritize members who have higher priority to play first. The requirements which need to be optimize are the total wait time for players in the high priority queue, the total wait time of players, the longest response time for a player to play the machine and the number of context switches between players. The scheduler incorporates priority queues and the algorithm shortest remaining playing time.

Pagerank

The goal is to score the pages in importance. The script incorporates finding dead ends and spider traps to calculate accurately. However, the script does not remove dead ends. Initializing the matrix to find the pages’ percentages was not optimal.

SEP

The goal is to create a software which calculates the most optimal route for trucks to travel safely through mining sites. The project consisted for 3 parts which were HULL calculation, HULL aggregation and HULL optimization. Used the method 3D projection along an axis to compute the HULL, used Subnet convex algorithm and ball pivoting algorithm to compute the aggregation, used Ramer-Douglas-Peuker algorithm to optimize the aggregation. The subnet convex algorithm incorporates the idea of divide and conquer, ball pivoting algorithm finds points lying on the circumference of the circle and bounds these 2 points, Ramer-Douglas-Peuker algorithm compares the perpendicular distances of points with a global value. Improvements would optimizing or alter the algorithm for ball pivoting and Ramer-Douglas-Peuker as they both require hard-coded input from the user to perform the algorithm.