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Comp 7500

Project 3 AUbatch

* The design and implementation of your AUbatch.

AUbatch design:

Diagram

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The design I used uses multithreaded application to handle a common queue for job submission.

The command parser module handles most of the scheduling threads work including calling functions that build and run the benchmarks and menus.

The dispatching module handles running the processes and removing the job from the queue as well as sending job performance to the performance metrics for calculation.

The queue is sorted based on which policy is selected (sjf) (fcfs) (priority)

• Performance metrics and workload conditions.

The performance metrics I am using are:

1. Total jobs
2. Average turn around
3. Average wait time
4. Throughput

The workload conditions are:

policy, job count, arrival rate, min cpu time, max cpu time

These are being computed and displayed on exit

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This is an example benchmark containing 5 process that range in priority from 1- 5 and arrival times from 0 to 3 with min cpu time of 1 and max of 5

The calculations are performed here:

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• The performance evaluation of the three scheduling algorithms:

Benchmark < test benchmark <policy> 5 2 10 1 5 >

PRIORITY

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FCFS

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SJF

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• Lessons learned.

Multithreaded programming requires more attention to detail then traditional single thread programming.

How to create and use make files

How to better manage time on large projects

How to do separate compilation

How to use pthread

How to use condition variables

How to use mutex and the difficulties in using a shared queue between processes

Working while tired yields much lower performance when doing complicated tasks.

Examples of program execution:

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Graphical user interface, text

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Rescheduling jobs in queue

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ERROR handling:

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Description automatically generated with medium confidence

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