CS3502 Operating Systems

Fall 2017

Assignment No. 1

Study of Basic Performance Metrics of a Simple Batch System

The model of the batch system is implemented in C++ (batch.cpp) using Psim3 simulation package on the CS3 server with Linux.

Copy the "batch.cpp" source file from the system directory /home/jgarrido/psim3 on CS3

compile and link using the "psim3c" script

The 'psim3c' script is a command file that uses the GNU C++ compiler on the CS3 server. Follow the instructions in the documents provided in the course Web page.

Run the program at least three times.

Write a report describing the characteristics of the operating system modeled. Use the guidelines for structuring the report.

Include at the end of the report your answers to the following questions.

\* What aspect of an operating system is the model representing?

\* What performance measures does the model compute?

\* What is noticeable in the dynamic behavior of the system?

After changing some of the parameters in the model (the workload) and recompiling.

\* What changes in the results do you notice?

\* What other performance measures can this model compute?

Increasing the amount of memory twofold of the operating system modeled has an effect in its performance.

Implement these changes in the model and analyze the results.

If the model needs to change the representation of a CPU twice as fast as the previous one, how can you implement this modification?

The following are some of the relevant variables that represent input parameters that affect performance (see source code):

mean\_int\_arr

mean\_ser

mem\_l

mem\_up

The first two variables correspond to system parameters, the others, workload parameters.