Report – Project3
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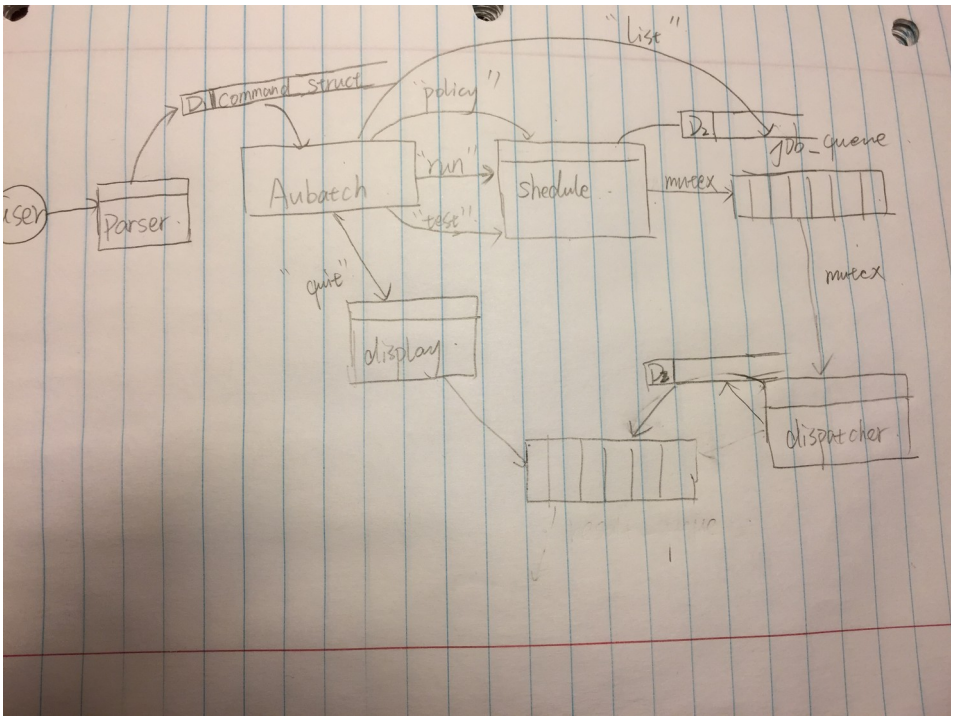
1.Design document
1)The whole data-flow of the Aubatch is shown as follow.

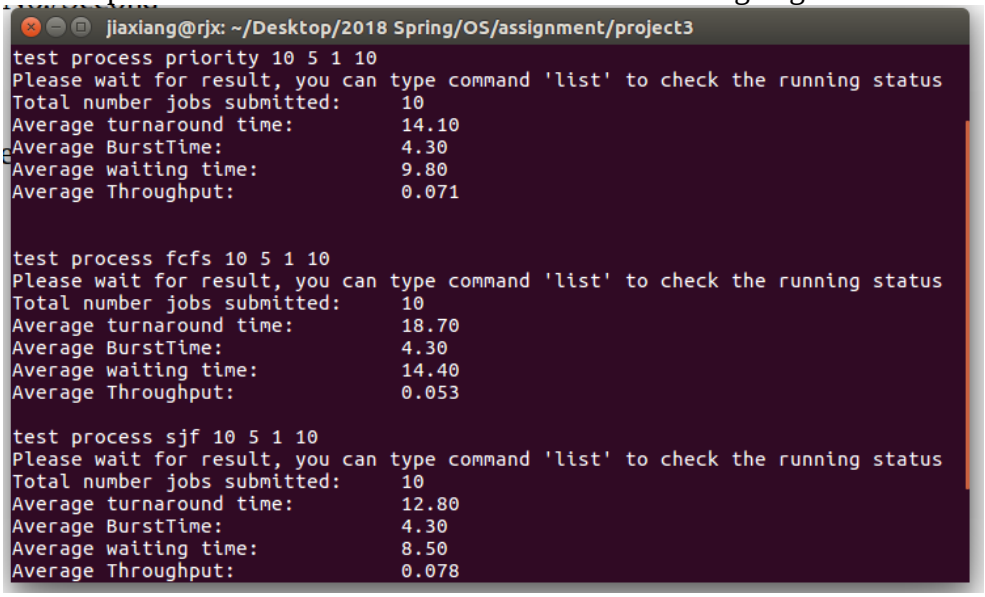


2)implementation:
Parser: Parser receive the user input and return a structure data-type, which contains the operation, job-name, priority and so on, this part mainly use sscanf() and the number of input variables to check which operation the user input.
Aubatch: the Aubatch check the operation and run the corresponding functions
Scheduler: scheduler receive the job informations, create the job and then put the job information into job_queue.
Dispatcher: this part is mainly execute the job(using execv()), receiving the job_name and run the corresponding job process, then put the result into a result queue.
Display: Display the result in result_queue also we can display the running job and waiting jobs in job_queue.
Details: 1.very operation on the job_queue should acquire the mutex first, which make sure the sychronazation of the two threads. (Scheduler and dispatcher).
2.Job_queue and result_queue both use global type.

2.Performance metrix and workload conditions.
1)for the performance metrix:
~Average waiting time
~Average throughput

2)Number of Submitted Jobs : 10
Arrival Rate :1.0 No./Second
Load Distribution (Uniform) :[1, 10]

3.The performance evaluation of the three scheduling algorithms.



This is the screenshot of the performance result, you can also find it in the “output.txt” which created using “script command”.

4.Lesson learned

In this project, I learned many useful things and it’s also a great exercise to improve my programing skills, here are the details:

1)learned how use the pthread library and how to use the mutex to control the communication between two threads.

2)learned how to use the random functions like srand(),rand().

3)learned how to build the producer-consumer mode program.

4)learned how to use time.h library, how to get the current time,how to calculate the difference and convert it into specific format.

5)learned how to design a project by using the data-flow diagram.