Objective

To observe the effects of introducing process “priority” into the time-sharing system.

Experiment

Tested with 10 processes, a variety of quantum, with priorities. The smaller the priority number, the higher the priority. Each process time is as follows:

proc001 800 2

proc002 1500 2

proc003 250 1

proc004 3000 2

proc005 3050 2

proc006 100 1

proc007 300 1

proc008 750 2

proc009 1000 2

proc010 2050 2

The best quantum for this sequence of processes without priority was measured to be **1025**, with the average waiting time of **5380.9**.

In this second project, three among ten processes were assigned higher priority and the average waiting time was measured for different combinations of three higher priority processes while keeping the quantum the same. Due to the data structure used in the program, younger processes (ex. proc001 is the youngest) has higher priority among three higher priority processes.

Result

The average waiting time was measured for six different combinations of three higher priority processes: All within quantum and are three shortest, All within quantum, One over quantum and Two within quantum, Two over quantum and One within quantum, All over quantum, and All over quantum and are three longest.



Conclusion

From the result, with the same number of processes and quantum, I could see **the tendency of a decrease in the average waiting time as the higher priority is given to shorter processes.** The most efficient combination of processes to be given higher priority for this case was **the combination of the shortest processes (proc003: 250, proc006: 100, and proc007: 300), with the average waiting time of 4486.3.** This is much shorter time compared to that without priority, i.e., 5380.9.