

Introduction

The main focus of stage 2 is to implement an algorithm wherein it will complete tasks in the Job Scheduler as efficiently as possible. Implementing this algorithm will require to lower the turnaround time, execution, or cost for these are the jobs that will make the task efficient.

I have chosen to use the 'Best Fit' algorithm as my baseline to improve these tasks. Although the test results of the Job Scheduler will always compromise one another, I have decided that the "Best Fit" algorithm is the best approach since this algorithm have the capabilities of finding the best server that will fit to the job specification being assigned.

Problem Statement

Since the baseline algorithms compromises the tasks that needs to completed, such as lowering execution time may affect the cost of using the largest servers, we are tasked to improve the existing algorithms so that it will create a significant improve in performance compared to the baseline. These tasks that we have to improve are rental cost, turnaround time, and resource utilization. The "Best Fit" algorithm that I chose to improve will optimize the overall performance of the average turnaround time for the tasks being assigned.

Algorithm Description

The aim of the best fit algorithm that I optimized is to complete all of the tasks assigned as fast as quickly as possible so that we can achieve an efficient turnaround time. For this to be able to work, I have designed the algorithm to search the best server and best job that is suitable to that server by continuously searching until it finds the best fit job to the server.

The implementation of this algorithm focuses on inspecting if the server has the resources that is needed to complete the jobs assigned. This will then help with the scheduling of the job which will reduce the average turnaround time and wait time. The process will be that if the current server does not meet the required resources to fulfill the job assigned then it will then proceed to the next job in line.

Implementation

Conclusion

In summary, the optimization of the base line of the best fit algorithm have very helpful in making the performance of the algorithm specially at the average turnaround time. It is very efficient in checking if the servers have enough resources in completing a job that is being run. It has reduced the simulation time, average wait time and overall turnaround time. Although the design and implementation of the algorithm can still be improved, I believe it has successfully optimized the baseline algorithm. Given enough time to improve the existing best fit algorithm will then eliminate the compromise between each goal.