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**Program 6**

**Results**

Each printing method (FIFO, SJF, and Multi-Level) have their advantages and disadvantages meaning they should be used for their specific purposes. With each job being handled in each simulation, the Maximum Wait Time and Average Wait Times differed according to the simulation based on the three categories of Administration, Faculty, and Students.

Of the three simulations, the FIFO method offers the most efficient method for handling print jobs with Maximum Wait Times ranging between 222 and 229 minutes for all three categories. The Average Wait Times also exhibits a similar output with a range between 82 to 109 minutes.

The other two methods offer results that are more skewed to certain degrees with the SJF method favoring jobs that are smaller in page sizes, regardless of arrival time or category priority. While this results in a lower range between average wait times (84 to 93 minutes) with short jobs being processed very quickly, maximum wait times increased significantly with some jobs taking more than 300 minutes for each category. This is caused by the long jobs remaining in the pending queue for a long time regardless of arriving early.

The Multi-Level method offers the most skewed approach with Administrator jobs being prioritized above Faculty and then Students. Which is a great system for Administrators but not so great for everyone else. Using this system results in the shortest wait time however everyone else’s wait time increases significantly. Faculty members experience less wait time than a student, but it is still longer than the FIFO and SJF methods used earlier. There could be outliers in the data which could also be a source of the jobs being skewed that heavily.

While the FIFO method offers delivery services that are evenly distributed across all three categories, the most efficient method can be obtained by using the SJF method. The maximum wait times for SJF were noticeably higher than FIFO, but the average wait times for all three categories were significantly lower for SJF which means overall your wait is less if this queue is used rather than the others.

However, this is a small sample size used for determining a solid conclusion for the data given. Using a bigger sample could offer a more accurate result as to what queue should be used but for this sample, the best choice would be First Job Search due to having the least average wait times than the other methods.