# OS ASSIGNMENT

## Performance  Analysis

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Table depicting avg TAT & avg WT

|  |  | Average Turnaround Time ($us$) | Average Waiting Time($us$) |
|---|---|---|---|
| FCFS | C1 | 437.941 | 0.000 |
|  | C2 | 59334.235 | 437.961 |
|  | C3 | 95832.294 | 59334.235 |
| Round Robin | C1 | 25281.706 | 22916.706 |
|  | C2 | 208566.647 | 147094.529 |
|  | C3 | 58239.529 | 49166.824 |

- **For C1:** FCFS is faster than Round Robin
- **For C2:** FCFS is faster than Round Robin
- **For C3:** Round Robin is faster than FCFS

# Graph Plots

The graphs have been plotted using Python 3, and Matplotlib.

- **FCFS - TAT**

FCFS-Graph for TAT of 3 processes
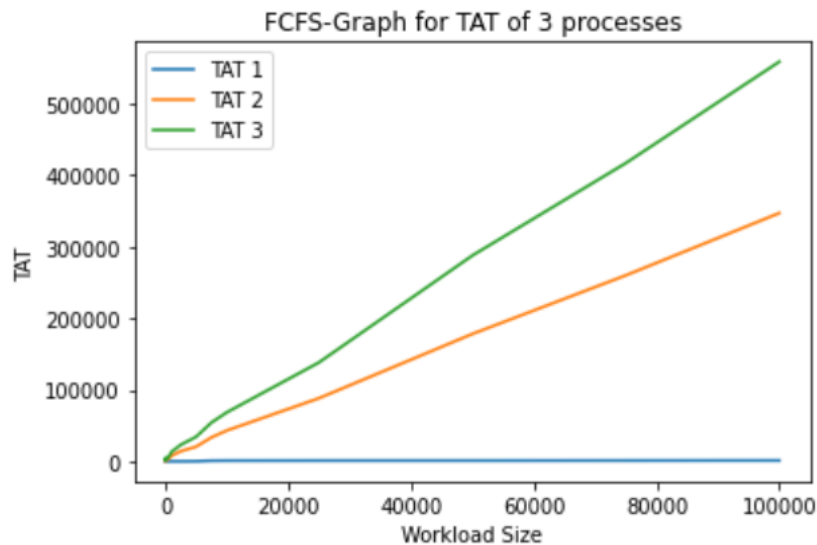


C2 and C3 are I/O intensive processes and I/O + Compute intensive respectively..
Hence TAT 2 and TAT3 increase as workload size increases.
TAT3 > TAT2 since C3 has to wait for both C1 and C2 to complete whereas C2 has to wait only for C1 to complete.
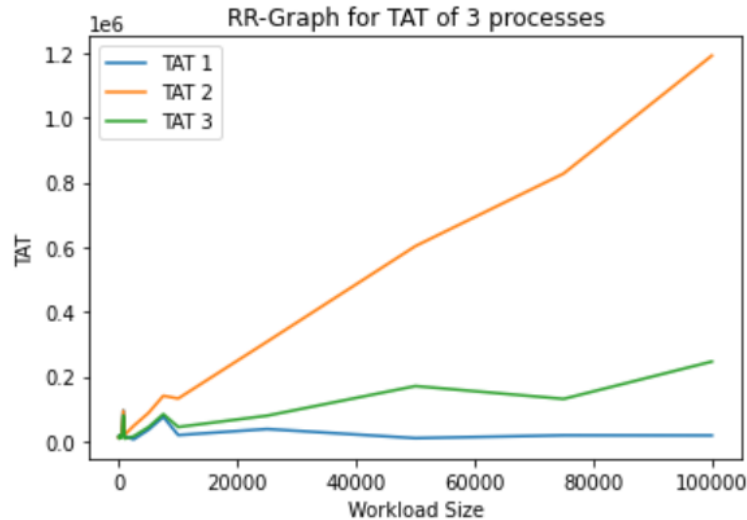

- **FCFS - WT**
The WT1 and WT2 almost overlap with no significant growth rate. WT 3 grows linearly.

FCFS-Graph for WT of 3 processes
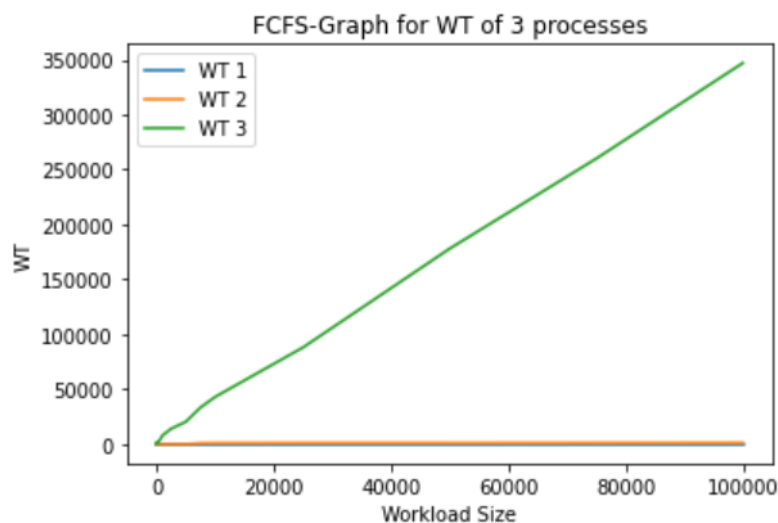


Since C3 has to wait for C1 and C2 to complete, it's WT is more.
Also, TAT1 is not much since WT of C2 is equal to TAT1, therefore WT2 is also less.

- **RR - TAT**

  A sharp kink is observed in the TATs for workload in the range 0-10000. TAT 2 is observed to have a good growth rate. TAT 1 does not have a significant growth rate.

RR-Graph for TAT of 3 processes

In Round Robin, processes are not allowed to starve, hence TAT is affected more by the kind of process than the waiting time. Here, as workload increases TAT2 increases more than TAT3 unlike FCFS where C3 had to starve and also because C2 has both input and output operations whereas C3 has input and arithmetic operations and I/O takes more time.

- **RR- WT**

  A sharp kink is observed in the WTs for workload in range 0-10000.

RR-Graph for WT of 3 processes
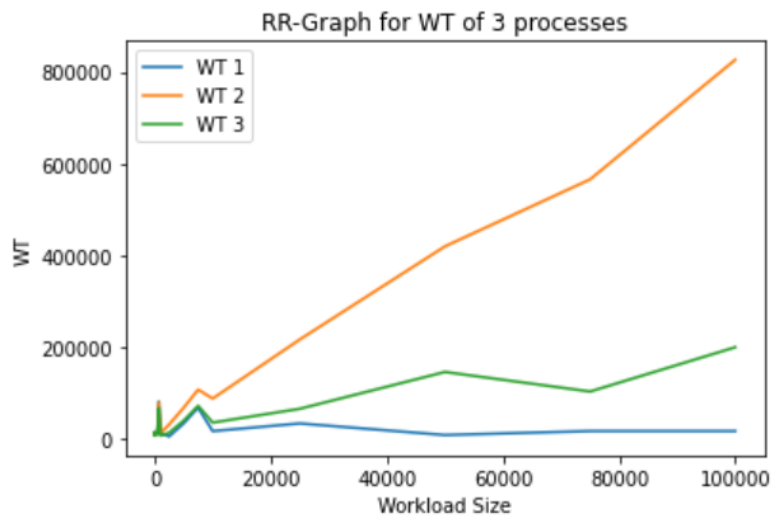
C2 has more I/O operations for the same workload and hence will be in the waiting state for more time than C3.
C1 is not using any I/O operations and hence waiting time is close to 0.