

ASSIGNMENT 3

(SCHEDULING)

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Course: BTech CSE
(Data Science)

1. First Come First Serve Scheduling

CODE

```
File Actions Edit View Help
GNU nano 8.0
print("FCFS Scheduling Result:")
print("Process\tBurst Time\tWaiting Time\tTurnaround Time")
for i in range(n):
    print(f"P{processes[i]}\t{burst_times[i]}\t{waiting_time[i]}\t{turnaround_time[i]}")

# Print averages
avg_wait = sum(waiting_time) / n
avg_turn = sum(turnaround_time) / n

print(f"\nAverage Waiting Time: {avg_wait:.2f}")
print(f"Average Turnaround Time: {avg_turn:.2f}")

# ----- MAIN PROGRAM -----
if __name__ == "__main__":
    # Example processes
    processes = [1, 2, 3]
    burst_times = [5, 3, 8]    # Example burst times

    fcfs(processes, burst_times)
```

OUTPUT

```
File Actions Edit View Help
[(kali㉿kali)-[~]]$ nano fcfs.py
[(kali㉿kali)-[~]]$ python3 fcfs.py
FCFS Scheduling Result:
Process Burst Time    Waiting Time    Turnaround Time
P1          5            0              5
P2 File System   3            5              8
P3          8            8             16

Average Waiting Time: 4.33
Average Turnaround Time: 9.67
```

2. SJF (Shortest Job First)

CODE

```
File Actions Edit View Help
GNU nano 8.0
print("Process\tBurst Time\tWaiting Time\tTurnaround Time")

for i in range(n):
    print(f"P{data[i][1]}\t{data[i][1]}\t{waiting_time[i]}\t{turnaround_time[i]}")

# Calculate averages
avg_wait = sum(waiting_time) / n
avg_turn = sum(turnaround_time) / n

print(f"\nAverage Waiting Time: {avg_wait:.2f}")
print(f"Average Turnaround Time: {avg_turn:.2f}")

# ----- MAIN PROGRAM -----
if __name__ == "__main__":
    # Example processes
    processes = [1, 2, 3, 4]
    burst_times = [6, 2, 8, 3] # Example burst times

    sjf(processes, burst_times)
```

OUTPUT

```
[(kali㉿kali)-[~]]$ nano sjf.py
[(kali㉿kali)-[~]]$ python3 sjf.py
SJF (Shortest Job First) Scheduling Result:
Process Burst Time      Waiting Time      Turnaround Time
P2            2              0                2
P3            3              2                5
P6            6              5               11
P8            8             11               19

Average Waiting Time: 4.50
Average Turnaround Time: 9.25
```

3. Robin Round

CODE

```
File Actions Edit View Help
GNU nano 8.0
print("Process\tBurst Time\tWaiting Time\tTurnaround Time")

for i in range(n):
    print(f"P{processes[i]}\t{burst_times[i]}\t{waiting_time[i]}\t{turnaround_time[i]}")

# Averages
avg_wait = sum(waiting_time) / n
avg_turn = sum(turnaround_time) / n

print(f"\nAverage Waiting Time: {avg_wait:.2f}")
print(f"Average Turnaround Time: {avg_turn:.2f}")

# ----- MAIN PROGRAM -----
if __name__ == "__main__":
    processes = [1, 2, 3, 4]
    burst_times = [5, 15, 4, 7]
    quantum = 3

    round_robin(processes, burst_times, quantum)
```

OUTPUT

```
└─(kali㉿kali)-[~]
$ nano round_robin.py

└─(kali㉿kali)-[~]
$ python3 round_robin.py
Round Robin Scheduling Result (Quantum = 3 ):
Process Burst Time    Waiting Time    Turnaround Time
P1          5            9            14
P2         15           16            31
P3          4            14            18
P4          7            18            25

Average Waiting Time: 14.25
Average Turnaround Time: 22.00
```