ASSIGNMENT 3

(SCHEDULING)

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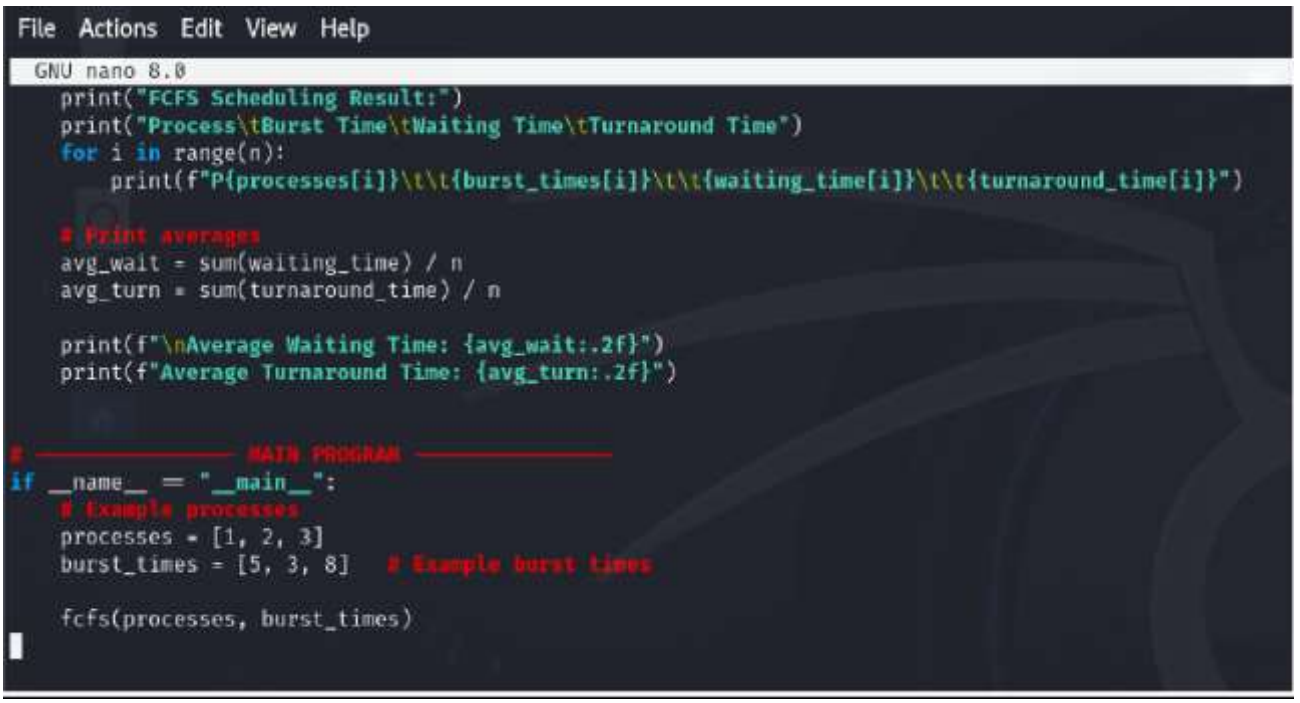
Course: BTech CSE (Cyber Security)

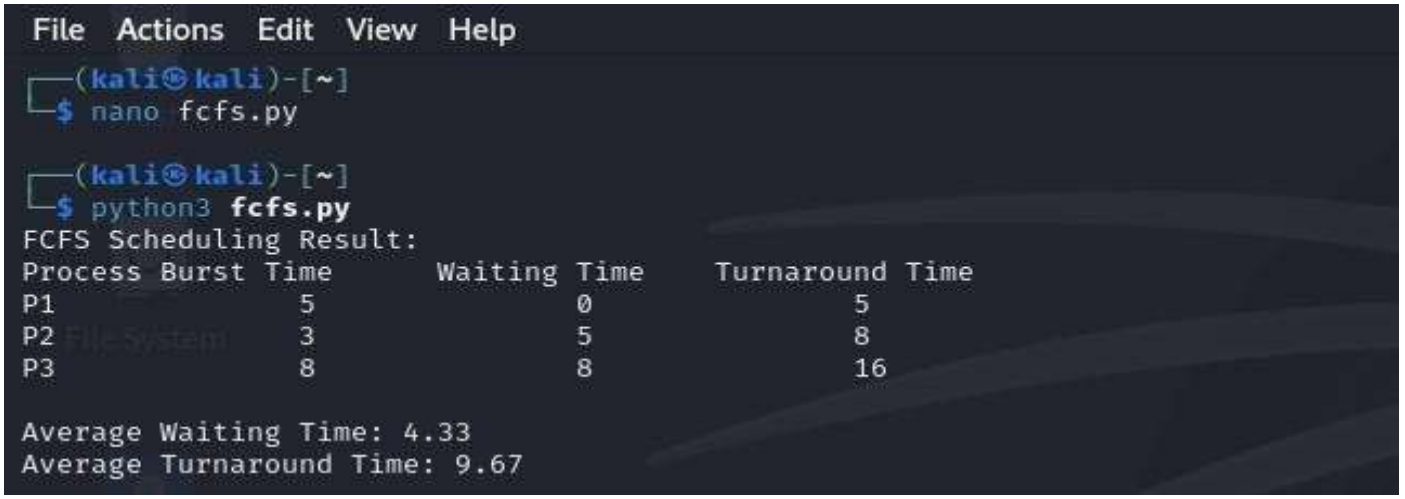
1. First Come First Serve Scheduling

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\t{burst_times[i]}\t\t{waiting_time[i]}\t\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              3               5               8
P3              8               8               16

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

1. **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\t{data[i][1]}\t\t{waiting_time[i]}\t\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
```

2. 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\t{burst_times[i]}\t\t{waiting_time[i]}\t\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
```