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Course: BTech CSE (Data Science)

ASSIGNMENT 3

(SCHEDULING)

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
```

2. SJF (Shortest Job First)

CODE

```python
    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
```

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\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
```