Q1.

```
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ gcc Assgn3SrcQ1-ArnabMandal.c
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ ./a.out
Enter the number of processes: 4
Enter the id of process 0: 0
Enter burst time of process 0: 2
Enter the id of process 1: 1
Enter burst time of process 1: 3
Enter the id of process 2: 2
Enter burst time of process 2: 4
Enter the id of process 3: 3
Enter burst time of process 3: 5
The average Turnaround Time is: 7.50
The average waiting time is: 4.00
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$
```

The program runs as intended, as per the FCFS guidelines. The values of each variable add up as per the predefined formulas.

Q2.

```
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ gcc Assgn3SrcQ1-ArnabMandal.c
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ ./a.out
THIS IS FCFS SCHEDULING ALGORITHM
Enter the number of processes: 3
Enter the id of process 0: 0
Enter burst time of process 0: 15
Enter the id of process 1: 1
Enter burst time of process 1: 2
Enter the id of process 2: 2
Enter burst time of process 2: 3
The average Turnaround Time is: 17.33
The average waiting time is: 10.67
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ gcc Assgn3SrcQ2-ArnabMandal.c
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ ./a.oout
-bash: ./a.oout: No such file or directory
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ 3
3: command not found
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ ./a.out
THIS IS SHORTEST JOB FIRST NON-PREEMPTIVE SCHEDULING ALGORITHM
Enter the number of processes: 3
Enter the id of process 0: 0
Enter burst time of process 0: 15
Enter the id of process 1: 1
Enter burst time of process 1: 2
Enter the id of process 2: 2
Enter burst time of process 2: 3
The average Turnaround Time is: 9.00
The average waiting time is: 2.33
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$
```

We observe for the same process flow, FCFS has a higher avg TAT and waiting time than non pre-emptive SJF. This leads us to believe SJF is superior to FCFS, especially in cases with high variance of burst time.

Q3.

```
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ gcc Assgn3SrcQ3-ArnabMandal.c
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ ./a.out
THIS IS SRTF SCHEDULING ALGORITHM
Enter the number of processes: 4
Enter the arrival time of process 0: 0
Enter burst time of process 0: 5
Enter the arrival time of process 1: 1
Enter burst time of process 1: 3
Enter the arrival time of process 2: 2
Enter burst time of process 2: 4
Enter the arrival time of process 3: 4
Enter burst time of process 3: 1
Process 1 will run now at time 0
Process 2 will run now at time 1
Process 2 will run now at time 2
Process 2 will run now at time 3
Process 4 will run now at time 4
Process 1 will run now at time 5
Process 1 will run now at time 6
Process 1 will run now at time 7
Process 1 will run now at time 8
Process 3 will run now at time 9
Process 3 will run now at time 10
Process 3 will run now at time 11
Process 3 will run now at time 12

Process Arrival Time    Burst Time      Turnaround Time Waiting Time    Response Time
1       0               5               9               4               0
2       1               3               3               0               0
3       2               4               11              7               7
4       4               1               1               0               0
The average Turnaround Time is: 6.00
The average waiting time is: 2.75
The average response time is: 1.75
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$
```

Q4.

```
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ ./a.out
THIS IS ROUND-ROBIN SCHEDULING ALGORITHM
Enter the number of processes: 4
Enter the time quantum: 2
Enter arrival time of process 1: 0
Enter burst time of process 1: 5
Enter arrival time of process 2: 1
Enter burst time of process 2: 4
Enter arrival time of process 3: 2
Enter burst time of process 3: 2
Enter arrival time of process 4: 4
Enter burst time of process 4: 1

Process Arrival Time    Burst Time      Turnaround Time Waiting Time    Response Time
1       0               5               9               4               0
2       1               4               0               0               0
3       2               2               7               5               5
4       4               1               0               0               0
The average Turnaround Time is: 7.50
The average waiting time is: 3.25
The average response time is: 1.25
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$
```

We observe RR has very low response time, making it a good choice

Q5.

```
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ gcc Assgn3SrcQ5-ArnabMandal.c
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ ./a.out
THIS IS PRIORITY (NON-PREEMPTIVE) SCHEDULING ALGORITHM
Higher the priority value, greater the priority
Enter the number of processes: 4
Enter priority of process 1: 10
Enter arrival time of process 1: 0
Enter burst time of process 1: 5
Enter priority of process 2: 20
Enter arrival time of process 2: 1
Enter burst time of process 2: 4
Enter priority of process 3: 30
Enter arrival time of process 3: 2
Enter burst time of process 3: 2
Enter priority of process 4: 40
Enter arrival time of process 4: 4
Enter burst time of process 4: 1
The average Turnaround Time is: 6.00
The average Waiting Time is: 3.00
The average Response Time is: 3.00
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$
```

Q6.

```
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$ ./a.out
THIS IS PREEMPTIVE PRIORITY SCHEDULING ALGORITHM
highest priority value has highest priority
Enter the number of processes: 4
Enter the arrival time of process 0: 0
Enter burst time of process 0: 5
Enter priority of process 0: 10
Enter the arrival time of process 1: 1
Enter burst time of process 1: 4
Enter priority of process 1: 20
Enter the arrival time of process 2: 2
Enter burst time of process 2: 2
Enter priority of process 2: 30
Enter the arrival time of process 3: 4
Enter burst time of process 3: 1
Enter priority of process 3: 40
Process 1 will run now at time 0
Process 2 will run now at time 1
Process 3 will run now at time 2
Process 3 will run now at time 3
Process 4 will run now at time 4
Process 2 will run now at time 5
Process 2 will run now at time 6
Process 2 will run now at time 7
Process 1 will run now at time 8
Process 1 will run now at time 9
Process 1 will run now at time 10
Process 1 will run now at time 11

Process Arrival Time    Burst Time      Priority        Turnaround Time Waiting Time    Response Time
1       0               5               10              12              7               0
2       1               4               20              7               3               0
3       2               2               30              2               0               0
4       4               1               40              1               0               0
The average Turnaround Time is: 5.50
The average waiting time is: 2.50
The average response time is: 0.00
eros@Arnab:/mnt/d/collegeCode/sem4/csd204/lab3/Assgn3-ArnabMandal$
```

We observe with pre emptive scheduling, all time values have been reduced significantly, making it a much needed improvement but can cause starvation.