Name: Juhie Sayyed
Roll No: 28

NonPreemptive priority:

Source code:

```
#include<stdio.h>
#include<stdlib.h>

struct srtf{
 int pid;
 int at;
 int bt;
 int wt;
 int tat;
 int pr;
 };


 void main()
 {
 int np,i,j,k;
 int g=0;
 int pro=0;
 int p,m;
 int cpu_t=0;
 float avg_t=0.0;
 float ab_t=0.0;
 int min;
        int bt[7]={0,2,1,4,6,5,7};
       struct srtf a[7];
       a[0].pid=1;
       a[0].at=0;
       a[0].bt=3;
       a[0].pr=2;

       a[1].pid=2;
       a[1].at=2;
       a[1].bt=5;
```

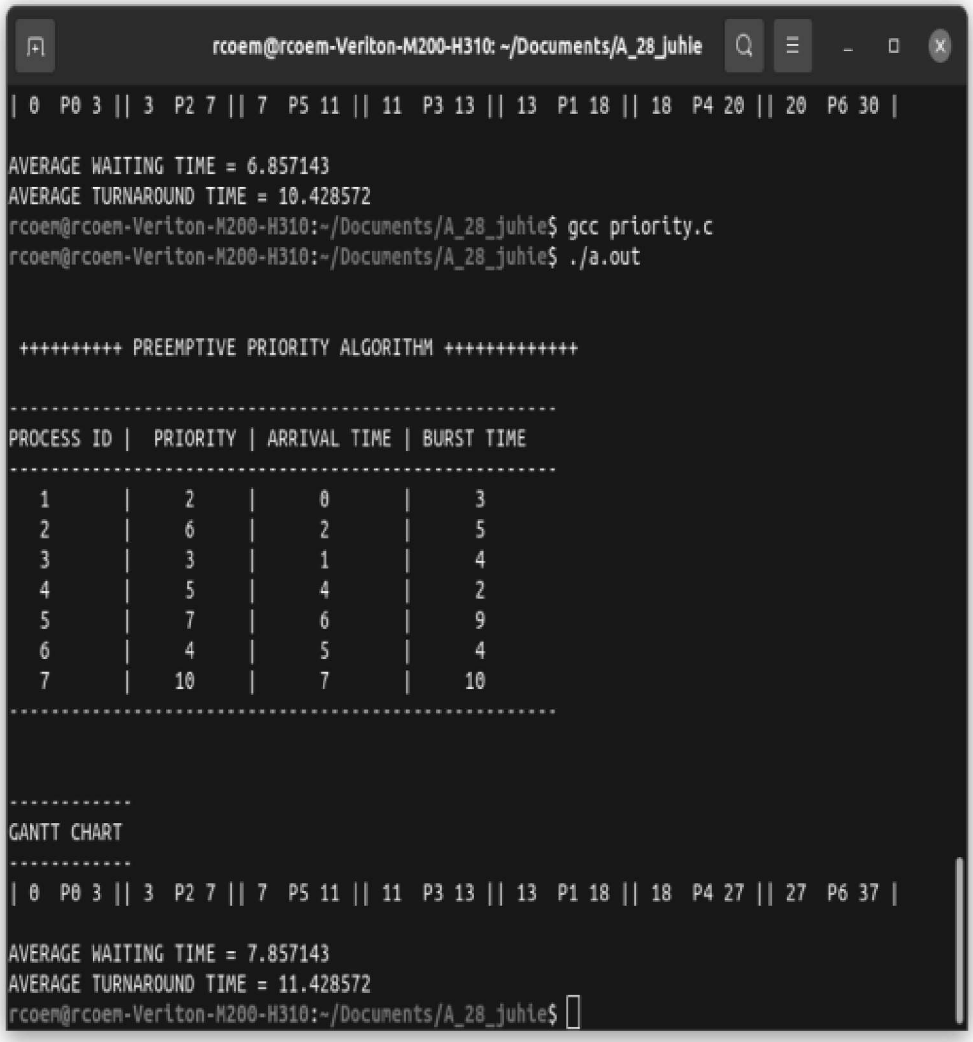
```
        a[1].pr=6;


        a[2].pid=3;
        a[2].at=1;
        a[2].bt=4;
        a[2].pr=3;


        a[3].pid=4;
        a[3].at=4;
        a[3].bt=2;
        a[3].pr=5;


        a[4].pid=5;
        a[4].at=6;
        a[4].bt=9;
        a[4].pr=7;

        a[5].pid=6;
        a[5].at=4;
        a[5].bt=4;
        a[5].pr=0;

        a[6].pid=7;
        a[6].at=7;
        a[6].bt=10;
        a[6].pr=10;
       printf("\n \n ");
       printf("++++++++++ PREEMPTIVE PRIORITY ALGORITHM
+++++++++++++\n");
       printf("\n");
       printf("---------------------------------------------------\n");
       printf("PROCESS ID |  PRIORITY | ARRIVAL TIME | BURST TIME\n");
       printf("---------------------------------------------------\n");
       printf("   1      |    2    |     0      |     3   \n");
       printf("   2      |    6    |     2      |     5   \n");
       printf("   3      |    3    |     1      |     4   \n");
       printf("   4      |    5    |     4      |     2   \n");
       printf("   5      |    7    |     6      |     9  \n");
printf("   6      |     4     |      5       |      4    \n");
printf("   7      |    10     |      7       |     10    \n");
printf("------------------------------------------------------\n");

printf("\n \n");
np=7;
printf("------------\n");
printf("GANTT CHART \n");
printf("------------\n");
for(i=0;i<np;i++)
{
  g=g+a[i].bt;
}

while(cpu_t!=g)
{
  min=9999;
  for(p=0;p<np;p++)
  {
      if(a[p].at<=cpu_t && a[p].bt!=0)
      {
          if(min>a[p].pr)
          {
              min=a[p].pr;
              pro=p;
          }
      }
  }
  printf("|");
  printf(" %d  P%d ",cpu_t , pro);
  a[pro].wt=cpu_t-a[pro].at;
  cpu_t=cpu_t+a[pro].bt;
  printf("%d |", cpu_t);
  a[pro].bt=0;
}
printf("\n\n");

for(p=0;p<np;p++)
 {
 avg_t=avg_t+a[p].wt;
 }
```

```
     printf("AVERAGE WAITING TIME = %f\n",avg_t/np);

    for(p=0;p<np;p++)
     {
     m=bt[p]+a[p].wt;
     ab_t=ab_t+m;
     }
     printf("AVERAGE TURNAROUND TIME = %f\n",ab_t/np);


  }
```

Screenshot of output:
non-preemptive

Premptive SJF:
Source code:

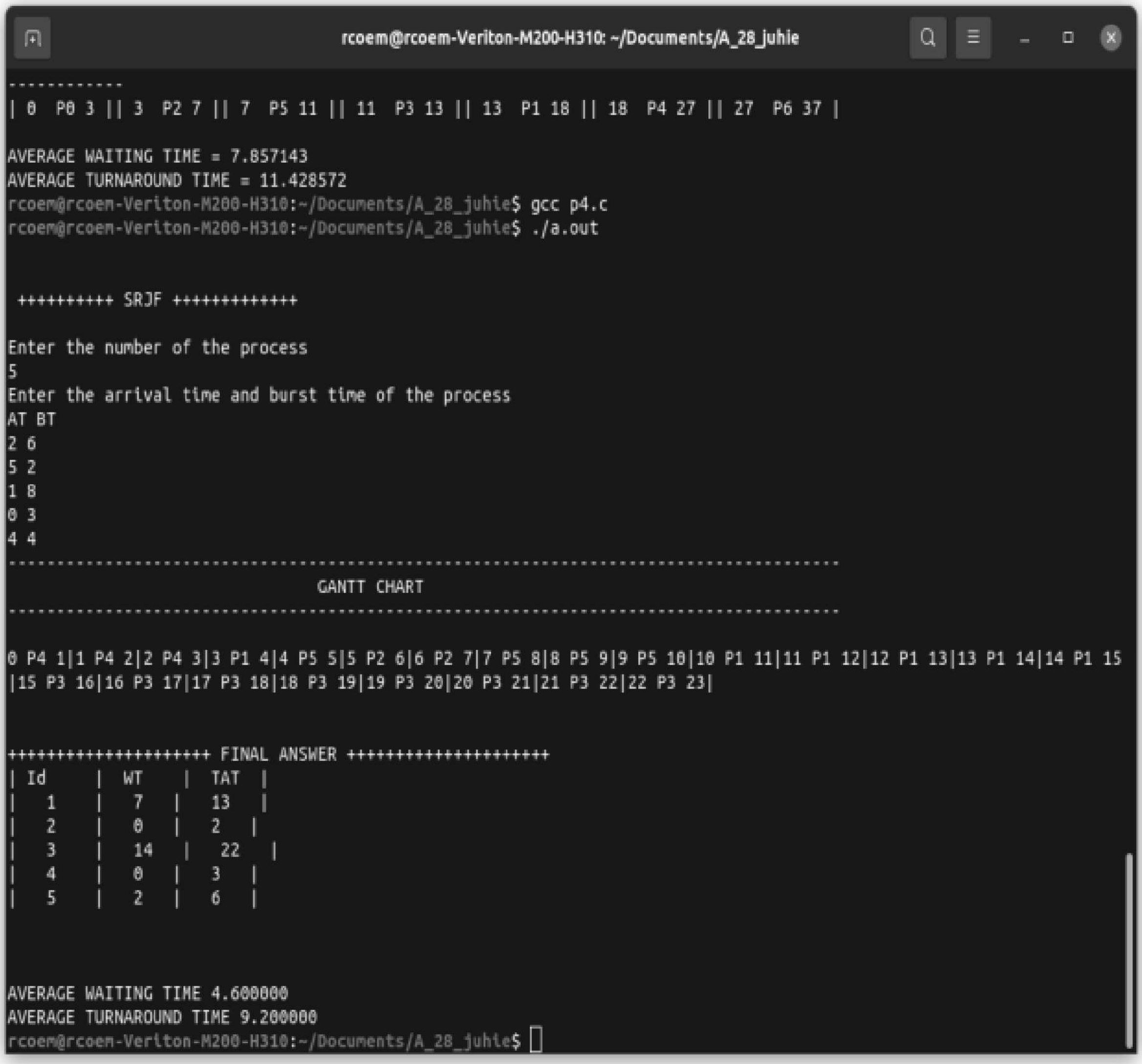
```
//preemptive
```



```
| 0  P0 3 || 3  P2 7 || 7  P5 11 || 11  P3 13 || 13  P1 18 || 18  P4 20 || 20  P6 30 |

AVERAGE WAITING TIME = 6.857143
AVERAGE TURNAROUND TIME = 10.428572
rcoem@rcoem-Veriton-M200-H310:~/Documents/A_28_juhie$ gcc priority.c
rcoem@rcoem-Veriton-M200-H310:~/Documents/A_28_juhie$ ./a.out


 ++++++++++ PREEMPTIVE PRIORITY ALGORITHM +++++++++++++

-----------------------------------------------------
PROCESS ID |  PRIORITY | ARRIVAL TIME | BURST TIME
-----------------------------------------------------
   1       |     2     |      0       |      3
   2       |     6     |      2       |      5
   3       |     3     |      1       |      4
   4       |     5     |      4       |      2
   5       |     7     |      6       |      9
   6       |     4     |      5       |      4
   7       |    10     |      7       |     10
-----------------------------------------------------



------------
GANTT CHART
------------
| 0  P0 3 || 3  P2 7 || 7  P5 11 || 11  P3 13 || 13  P1 18 || 18  P4 27 || 27  P6 37 |

AVERAGE WAITING TIME = 7.857143
AVERAGE TURNAROUND TIME = 11.428572
rcoem@rcoem-Veriton-M200-H310:~/Documents/A_28_juhie$ 
```

```
#include<stdio.h>
struct process
{
    int WT,AT,BT,TAT;
};

struct process a[10];

int main()
{
    int n,temp[10],p=0;
    int count=0,t=0,short_P;
    float total_WT=0, total_TAT=0,Avg_WT,Avg_TAT;
    printf("\n \n ");
      printf("++++++++++ SRJF +++++++++++++\n");
      printf("\n");
    printf("Enter the number of the process\n");
    scanf("%d",&n);
    printf("Enter the arrival time and burst time of the process\n");
    printf("AT BT\n");
    for(int i=0;i<n;i++)
    {
        scanf("%d%d",&a[i].AT,&a[i].BT);
        temp[i]=a[i].BT;
    }

    a[9].BT=10000;
      printf("-----------------------------------------------------------------------------------
----\n");
      printf("                            GANTT CHART \n");
      printf("-----------------------------------------------------------------------------------
----\n\n");

    for(t=0;count!=n;t++)
    {
        short_P=9;
        for(int i=0;i<n;i++)
        {
            if(a[i].BT<a[short_P].BT && (a[i].AT<=t && a[i].BT>0))
            {
                short_P=i;

            }



        }

        a[short_P].BT=a[short_P].BT-1;



        if(a[short_P].BT==0)
        {

            count++;
            a[short_P].WT=t+1-a[short_P].AT-temp[short_P];
            a[short_P].TAT=t+1-a[short_P].AT;
            total_WT=total_WT+a[short_P].WT;
            total_TAT=total_TAT+a[short_P].TAT;



        }

        if(short_P>=0){
            printf("%d P%d %d|",p,short_P+1,t+1);
            p++;
        }




    }
    printf("\n\n\n");

    Avg_WT=total_WT/n;
    Avg_TAT=total_TAT/n;

    printf("++++++++++++++++++++++ FINAL ANSWER
++++++++++++++++++++++\n");
    printf("| Id     |  WT    |  TAT  |\n");
    for(int i=0;i<n;i++)
    {
        printf("|   %d    |   %d   |   %d   |\n",i+1,a[i].WT,a[i].TAT);
    }

    printf("\n\n\n");
    printf("AVERAGE WAITING TIME %f\n",Avg_WT);
    printf("AVERAGE TURNAROUND TIME %f\n",Avg_TAT);

}
```

<u>Screenshot of Premptive :</u>



```
------------
| 0  P0 3 || 3  P2 7 || 7  P5 11 || 11  P3 13 || 13  P1 18 || 18  P4 27 || 27  P6 37 |

AVERAGE WAITING TIME = 7.857143
AVERAGE TURNAROUND TIME = 11.428572
rcoem@rcoem-Veriton-M200-H310:~/Documents/A_28_juhie$ gcc p4.c
rcoem@rcoem-Veriton-M200-H310:~/Documents/A_28_juhie$ ./a.out


 ++++++++++ SRJF +++++++++++++

Enter the number of the process
5
Enter the arrival time and burst time of the process
AT BT
2 6
5 2
1 8
0 3
4 4
--------------------------------------------------------------------------------------
                                GANTT CHART
--------------------------------------------------------------------------------------

0 P4 1|1 P4 2|2 P4 3|3 P1 4|4 P5 5|5 P2 6|6 P2 7|7 P5 8|8 P5 9|9 P5 10|10 P1 11|11 P1 12|12 P1 13|13 P1 14|14 P1 15
|15 P3 16|16 P3 17|17 P3 18|18 P3 19|19 P3 20|20 P3 21|21 P3 22|22 P3 23|


+++++++++++++++++++++ FINAL ANSWER +++++++++++++++++++++
| Id     |  WT    |  TAT  |
|   1    |   7   |   13   |
|   2    |   0   |   2   |
|   3    |   14   |   22   |
|   4    |   0   |   3   |
|   5    |   2   |   6   |



AVERAGE WAITING TIME 4.600000
AVERAGE TURNAROUND TIME 9.200000
rcoem@rcoem-Veriton-M200-H310:~/Documents/A_28_juhie$ 
```