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21/06/23 Week-2 FCFS, SJF, SRTF

```
#include <stdio.h>
int at[20], cput[20];

Void main()
{ int n, i, choice;
  printf("Enter the no of processes \n");
  Scanf("%d", &n);
  printf("Enter arrival time & cpu time for
          each process respectively \n");
  for(i=0; i<n; i++)
  { Scanf("%d %d", &at[i], &cput[i]);
    }

Printf("Menu \n \n1. FCFS \n2. SJF \n3. SRTF \n4. Exit \n");
  while(1) {
  Scanf("%d", &choice);
  Switch (choice)
  {
  case 1 : fcfs(n);
           break;
  case 2 : Sjf(n);
           break;
  case 3 : Srtf(n);
           break;
  case 4 : exit(0);
  default : printf("wrong choice \n");
            }

Void Srtf(int n)
{ int remaining_time[20], tat[20], wt[20],
  completion_time[20], Smallest, time, i, count=0;
      float awt=0, atat=0;
```

```
for (i=0; i<n; i++)
remaining_time[i] = cput[i];
time = 0;

while (count != n)
{ smallest = -1;
  for (i=0; i<n; i++)
  { if (at[i] <= time && remaining_time[i] > 0)
    { if (smallest == -1 || remaining_time[i] < remaing.
                                    - time[smallest])
      smallest = i;
    }
  }
  if (smallest == -1)
    { time++;
      continue;
    }
  remaining_time[smallest]--;

if (remaining_time[smallest] == 0)
  {
  count++;
  completion_time[smallest] = time + 1;
wt[smallest] = completion_time[smallest] - at[smallest]
      - cput[smallest];
  tat[smallest] = completion_time[smallest] - at
                                    [smallest];
}
time++;
}
for (i=0; i<n; i++)
  { awt += wt[i];
    atat += tat[i];
  }
      avt = avt/n;
```

```
        atat = atat/n;
printf ("\n Process \t Arrival Time \t cpu time \t
        Time \t Turnaround Time \n");

for (i=0 ; i<n ; i++)
 { printf (" %d \t %d \t \t %d \t \t %d
        t %d \n", ?, at [i], cput [i], wt [
                                tat [i]);
 }
printf ("\n Average waiting Time --- %f", awt);
printf ("\n Average Turnaround Time --- %f \n",
 }

Void sjf (int n)
 { int cmpt [20], tat [20], wt [20], cput1
   float awt=0 , atat=0 , Sum_burst_time=
   int Sum=0, i, j, Smallest;
printf ("\t process \t waiting time \t Turnaro
                        time \n");
for (i=0 ; i<n ; i++)
 { cput1 [i] = cput [i];
   Sum_burst_time += cput [i];
 }
 cput1 [9] = 9999;
   while (sum < sum_burst_time)
 {
  Smallest = 9;
  for (i=0 ; i<n ; i++)
 {
   if (at [i] <= Sum && cput1 [i] > 0 &&
                cput1 [i] < cput1 [Small
        Smallest = i;
   }
 }
```

```
Void fcfs (int n)
{ int cmpt[20], tat[20], wt[20], pname[20], temp;
  float awt=0, atat=0;
    int sum=0, i;
  for (i=0; i<n; i++)
    { pname[i]=i;
    }
  for (i=0; i<n; i++)
  { if (at[i]==at[i+1] && cput[i]>cput[i+1])
    { temp = cput[i];
      cput[i]=cput[i+1];
      cput[i+1]=temp;
      temp = pname[i];
      pname[i]=pname[i+1];
      pname[i+1]=temp;
    }
  }
for (i=0; i<n; i++)
  { sum+=cput[i];
    cmpt[i]=sum;
    tat[i]=cmpt[i]-at[i];
    wt[i]=tat[i]-cput[i];
  }
for (i=0; i<n; i++)
  { awt+=wt[i];
    atat+=tat[i];
  }
awt=awt/n;
atat=atat/n;
Printf("\t process \t Arrival time \t cputime \t
    waiting time \t Turnaround time \n");
for(i=0; i<n; i++)
```

```
{ printf("\n\t %d \t\t %d \t\t %d \t\t %d
        %d",
    pname[i], at[i], cput[i], wt[i], tat[i]
}
printf("\n Avg waiting time ... %f", awt);
printf("\n Avg Turnaround time ... %f \n", atat);
}
```

Output

Enter the number of processes

4

Enter arrival time and cpu time for each pr
respectively

0 3

1 6

4 4

6 2

Menu

1. FCFS 2. SJF 3. SRTF

1.

Process	Arrival time	Cpu time	waiting time
P_0	0	3	0
P_1	1	4	2
P_2	4	6	6
P_3	6	2	7

Average waiting time - : 3.500000

Average Turnaround time - : 7.250000

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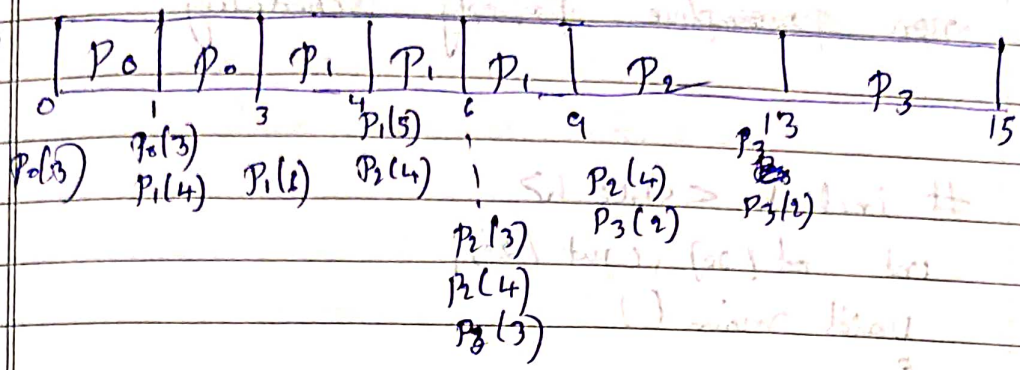
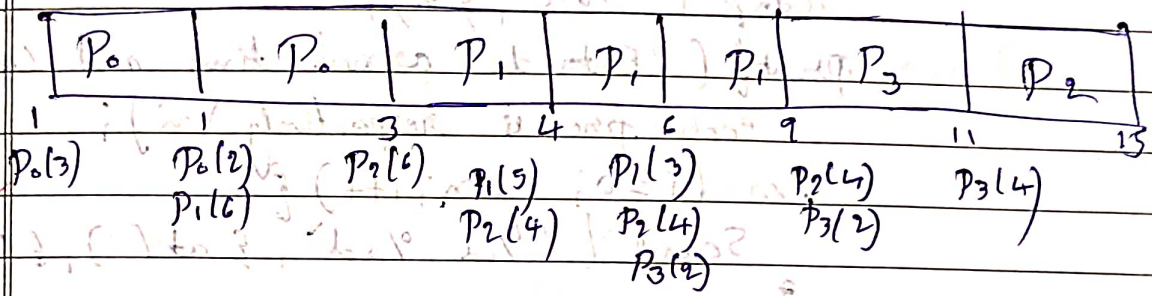
FCFS

1)



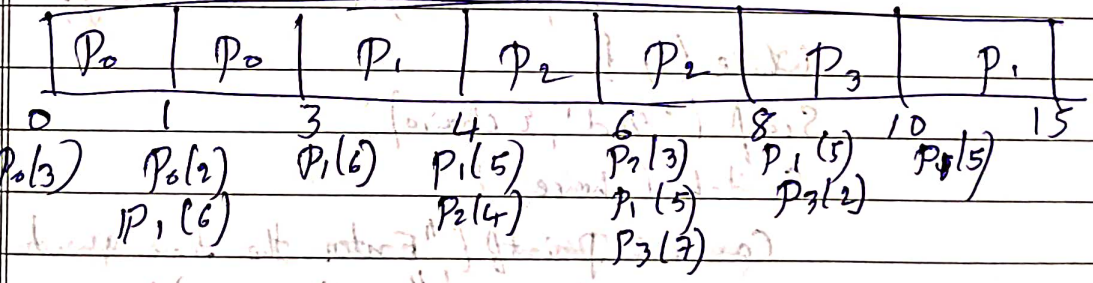
SJF

2)



SRTF

3)



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```
PS D:\BMS study\SEM IV\OS\All codes\OS_LAB> cd 'd:\BMS study\SEM IV\OS\All codes\OS_LAB\output'
PS D:\BMS study\SEM IV\OS\All codes\OS_LAB\output> & .\'fcfs_sheduling.exe'
Enter the number of processes: 3
Enter the burst times of 3 processes: 12 5 7

The details of the processes are as below:
Process Burst Time      Turn Around Time        Waiting Time
1       12.000000       12.000000       0.000000
2       5.000000        17.000000       12.000000
3       7.000000        24.000000       17.000000
The average waiting time is: 9.666667
The average turn around time is: 17.666666
```

Output:

```
Enter the number of processes: 3
Enter the burst times of 3 processes: 12 5 7

The details of the processes are as below:
Process Burst Time      Turn Around Time        Waiting Time
1       5.000000        5.000000                0.000000
2       7.000000        12.000000               5.000000
3       12.000000       24.000000               12.000000
The average waiting time is: 5.666667
The average turn around time is: 13.666667
```

}

Output:

```
Enter the number of processes: 3
Enter the burst times and arrival times of 3 processes: 12 5
4 0
6 7
Processes       Burst time      Waiting time    Turn around time
 1              12              6               18
 2              4               0               4
 3              6               0               6
Average waiting time = 2.000000
Average turn around time = 9.333333
```