

Operation Systems

Program-1

Write a C program to simulate the following non-pre-emptive CPU scheduling algorithm to find turnaround time and waiting time.

- ☐ FCFS
- ☐ SJF (pre-emptive & Non-pre-emptive)

- FCFS

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

```
int waitingtime(int proc[], int n, int burst_time[], int wait_time[]){
    int i;
    wait_time[0]=0;
    for(i=1;i<n;i++){
        wait_time[i]=burst_time[i-1]+wait_time[i-1];
    }
}

int turnaroundtime(int proc[], int n, int burst_time[], int wait_time[], int tat[]) {
    for (int i = 0; i < n; i++) {
        tat[i] = burst_time[i] + wait_time[i];
    }
}
```

```
int avgtime(int proc[], int n, int burst_time[]) {
    int wait_time[n], tat[n], total_wt = 0, total_tat = 0;

    waitingtime(proc, n, burst_time, wait_time);
    turnaroundtime(proc, n, burst_time, wait_time, tat);
```

```
printf("ProcessNo\tBurst Time\tWaiting Time\tTurnaround Time\n");
```

```

for (int i = 0; i < n; i++) {
    total_wt = total_wt + wait_time[i];
    total_tat = total_tat + tat[i];
    printf("%d\t\t%d\t\t%d\t\t%d\n", i+1, burst_time[i], wait_time[i], tat[i]);
}

printf("Average waiting time = %f\n", (float)total_wt / (float)n);
printf("Average turn around time = %f\n", (float)total_tat / (float)n);
}

int main() {
    int i, proc[10], n, burst_time[10];
    printf("Enter no of processes:");
    scanf("%d", &n);
    for(i=0; i<n; i++){
        printf("Enter burst time of process %d:", i+1);
        scanf("%d", &burst_time[i]);
        proc[i]=i+1;
    }
    avgtime(proc, n, burst_time);

    return 0;
}

```

```

C:\Users\STUDENT\Desktop\1BM21CS178\p1.exe
Enter no of processes:3
Enter burst time of process 1:8
Enter burst time of process 2:4
Enter burst time of process 3:6
ProcessNo      Burst Time      Waiting Time      Turnaround Time
1              8              0               8
2              4              8              12
3              6              12             18
Average waiting time = 6.666667
Average turn around time = 12.666667

Process returned 0 (0x0)   execution time : 5.531 s
Press any key to continue.

```

- SJF

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

```
int waitingtime(int proc[], int n, int burst_time[], int wait_time[]){  
    int i;  
    wait_time[0]=0;  
    for(i=1;i<n;i++){  
        wait_time[i]=burst_time[i-1]+wait_time[i-1];  
    }  
}
```

```
int turnaroundtime(int proc[], int n, int burst_time[], int wait_time[], int tat[]) {  
    for (int i = 0; i < n; i++) {  
        tat[i] = burst_time[i] + wait_time[i];  
    }  
}
```

```
int avgtime(int proc[], int n, int burst_time[]) {  
    int wait_time[n], tat[n], total_wt = 0, total_tat = 0;
```

```
    waitingtime(proc, n, burst_time, wait_time);  
    turnaroundtime(proc, n, burst_time, wait_time, tat);
```

```
    printf("ProcessNo\tBurst Time\tWaiting Time\tTurnaround Time\n");
```

```
    for (int i = 0; i < n; i++) {  
        total_wt = total_wt + wait_time[i];  
        total_tat = total_tat + tat[i];  
        printf("%d\t%d\t%d\t%d\n", proc[i], burst_time[i], wait_time[i], tat[i]);  
    }
```

```
    printf("Average waiting time = %f\n", (float)total_wt / (float)n);  
    printf("Average turn around time = %f\n", (float)total_tat / (float)n);
```

```
}
```

```
int main() {  
    int j,temp2,temp,i,n,burst[10],proc[10];  
    printf("Enter no of processes:");  
    scanf("%d",&n);  
    for(i=0;i<n;i++){  
        printf("Enter burst time of process %d:",i+1);  
        scanf("%d",&burst[i]);  
        proc[i]=i+1;  
    }  
    for(i=0;i<n;i++){  
        for(j=i+1;j<n;j++){
```

```

        if(burst[i]>burst[j]){
            temp=burst[i];
            burst[i]=burst[j];
            burst[j]=temp;
            temp2=proc[i];
            proc[i]=proc[j];
            proc[j]=temp2;
        }
    }
}

avgtime(proc, n, burst);

return 0;
}

```

```

C:\Users\STUDENT\Desktop\1BM21CS178\p2.exe
Enter no of processes:3
Enter burst time of process 1:9
Enter burst time of process 2:6
Enter burst time of process 3:2
ProcessNo      Burst Time      Waiting Time      Turnaround Time
3              2              0                2
2              6              2                8
1              9              8                17
Average waiting time = 3.333333
Average turn around time = 9.000000

Process returned 0 (0x0)   execution time : 6.013 s
Press any key to continue.

```