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Dept – CSE , 2nd year , 4th sem

Sec – A

Assignment no – 5 (Subject os)

1. SJF program

```
#include <stdio.h>

void main()
{
    int bt[20], p[20], wt[20], tat[20], i, j, n, total = 0, pos, temp;
    float avg_wt, avg_tat;
    printf("Enter number of process:");
    scanf("%d", &n);
    printf("\nEnter Burst Time:\n");
    for (i = 0; i < n; i++)
    {
        printf("p%d:", i + 1);
        scanf("%d", &bt[i]);
        p[i] = i + 1;
    }
    // sorting of burst times
    for (i = 0; i < n; i++)
    {
        pos = i;
        for (j = i + 1; j < n; j++)
        {
            if (bt[j] < bt[pos])
                pos = j;
        }
        temp = bt[i];
        bt[i] = bt[pos];
        bt[pos] = temp;
```

```
        temp = p[i];
        p[i] = p[pos];
        p[pos] = temp;
    }
    wt[0] = 0;
    for (i = 1; i < n; i++)
    {
        wt[i] = 0;
        for (j = 0; j < i; j++)
            wt[i] += bt[j];
        total += wt[i];
    }
    avg_wt = (float)total / n;
    total = 0;
    printf("\nProcess\t    Burst Time    \tWaiting Time\tTurnaround
Time");
    for (i = 0; i < n; i++)
    {
        tat[i] = bt[i] + wt[i];
        total += tat[i];
        printf("\np%d\t\t  %d\t\t    %d\t\t\t%d", p[i], bt[i], wt[i], tat[i]);
    }
    avg_tat = (float)total / n;
    printf("\n\nAverage Waiting Time=%f", avg_wt);
}
```

```
B:\Assignments\OS\Assignment 5>sjf.exe
Enter number of process:5

Enter Burst Time:
p1:16
p2:3
p3:25
p4:6
p5:4

Process     Burst Time          Waiting Time    Turnaround Time
p2                3                   0                  3
p5                4                   3                  7
p4                6                   7                  13
p1                16                  13                 29
p3                25                  29                 54

Average Waiting Time=10.400000
```

2. FCFS program

```
#include <stdio.h>


typedef struct Pro{
        int aT , bT , cT , tAt , wT ;
}Prog;


int main(){
        int numProg;

        printf("Enter the number of Program you want to run : ");
        scanf("%d" , &numProg);

        Prog program[numProg];
        int timeLine = 0;

        float avgWt = 0;



        for(int i = 0 ; i<numProg ; i++){
                Prog p1;
```

```
        int at , bt;
        printf("Enter the Arrival time of the program :");
        scanf("%d" , &at);

        printf("Enter the Brust time of the program :");
        scanf("%d" , &bt);

        p1.aT = at;
        p1.bT = bt;
        program[i] = p1 ;


}


for(int j = 0 ; j<numProg-1; j++){

        for(int i = 0 ; i<numProg-j-1 ; i++){
                Prog p1 = program[i];
                Prog p2 = program[i+1];
                int at = p1.aT , at2 = p2.aT;
                if(at > at2){
                        program[i] = program[i+1];
                        program[i+1] = p1;
                }



        }

}



for(int i = 0 ; i<numProg ; i++){
```

```
            if(i==0){
                timeLine = timeLine + program[i].aT +
program[i].bT;
                program[i].cT = timeLine;
                program[i].tAt = program[i].cT - program[i].aT;
                program[i].wT = program[i].tAt - program[i].bT;

            }

            else{
                timeLine = timeLine + program[i].bT;
                program[i].cT = timeLine;
                program[i].tAt = program[i].cT - program[i].aT;
                program[i].wT = program[i].tAt - program[i].bT;

            }



        }


        for(int i = 0 ; i<numProg ;i++){
            printf("program no : %d \n" , i);
            printf("Arrival Time : %d \n" , program[i].aT);
            printf("Brust Time : %d \n" , program[i].bT);
            printf("Completion Time : %d \n", program[i].cT);
            printf("Turn Arround Time : %d \n" , program[i].tAt);
            printf("Waiting Time : %d \n" , program[i].wT);

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

        for(int i = 0 ; i<numProg ; i++){
            avgWt = (float) (avgWt + program[i].wT);
        }
```

```
        avgWt = avgWt / numProg;

        printf("Avarage Waiting Time : %.2f " , avgWt);


}
```

```
B:\Assignments\OS\Assignment 5>fcfs.exe
Enter the number of Program you want to run : 5
Enter the Arrival time of the program :5
Enter the Brust time of the program :6
Enter the Arrival time of the program :4
Enter the Brust time of the program :1
Enter the Arrival time of the program :3
Enter the Brust time of the program :2
Enter the Arrival time of the program :1
Enter the Brust time of the program :0
Enter the Arrival time of the program :5
Enter the Brust time of the program :16
program no : 0
Arrival Time : 1
Brust Time : 0
Completion Time : 1
Turn Arround Time : 0
Waiting Time : 0


program no : 1
Arrival Time : 3
Brust Time : 2
Completion Time : 3
Turn Arround Time : 0
Waiting Time : -2


program no : 2
Arrival Time : 4
Brust Time : 1
Completion Time : 4
Turn Arround Time : 0
Waiting Time : -1


program no : 3
Arrival Time : 5
Brust Time : 6
Completion Time : 10
Turn Arround Time : 5
Waiting Time : -1


program no : 4
Arrival Time : 5
Brust Time : 16
Completion Time : 26
Turn Arround Time : 21
Waiting Time : 5


Avarage Waiting Time : 0.20
B:\Assignments\OS\Assignment 5>
```