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OPERATING SYSTEMS ITE2002

LAB DA 02

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AIM

To implement the FCFS (First Come First Serve) Algorithm in C Programming Language.

ALGORITHM

1 - Input the processes along with their burst time (bt).

2- Find waiting time (wt) for all processes.

3- As first process that comes need not to wait so

waiting time for process 1 will be 0 i.e. wt[0] = 0.

4- Find waiting time for all other processes i.e. for

process i ->

wt[i] = bt[i-1] + wt[i-1] .

5- Find turnaround time = waiting_time + burst_time

for all processes.

6- Find average waiting time =

total_waiting_time / no_of_processes.

7- Similarly, find average turnaround time =

total_turn_around_time / no_of_processes.

DESCRIPTION

First Come, First Served (FCFS) also known as First In, First Out(FIFO) is the CPU scheduling algorithm in which the CPU is allocated to the processes in the order they are queued in the ready queue.

FCFS follows non-preemptive scheduling which mean once the CPU is allocated to a process it does not leave the CPU until the process will not get terminated or may get halted due to some I/O interrupt.

Completion Time: Time at which process completes its execution.

Turn Around Time: Time Difference between completion time and arrival time.

Turn Around Time = Completion Time – Arrival Time

Waiting Time(W.T): Time Difference between turn around time and burst time.

Waiting Time = Turn Around Time – Burst Time

CODE

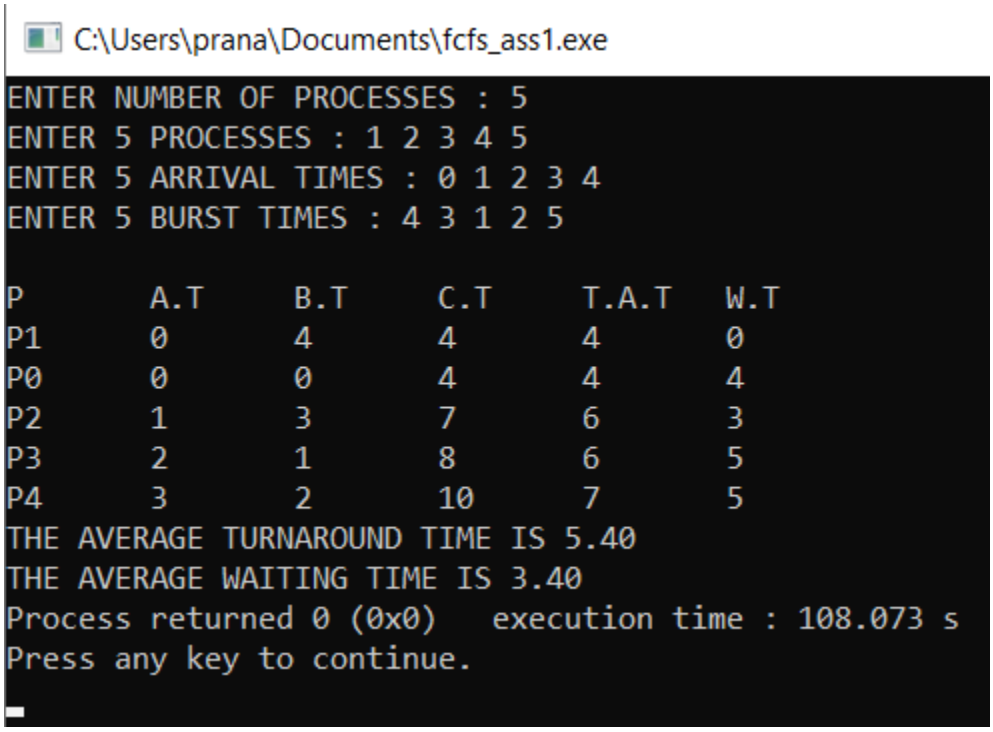
```c
#include<stdio.h>
#include<conio.h>
#include<math.h>
int main()
{
    int p[10],at[10],bt[10],ct[10],tat[10],wt[10],i,j,temp=0,n;
    float awt=0,atat=0;
    printf("ENTER NUMBER OF PROCESSES : ");
    scanf("%d",&n);
    printf("ENTER %d PROCESSES : ",n);
    for(i=0;i<n;i++)
    {
        scanf("%d",&p[i]);
    }
    printf("ENTER %d ARRIVAL TIMES : ",n);
    for(i=0;i<n;i++)
    {
        scanf("%d",&at[i]);
    }
    printf("ENTER %d BURST TIMES : ",n);
    for(i=0;i<n;i++)
    {
        scanf("%d",&bt[i]);
    }
    //sorting at,bt and p according to at
    for(i=0;i<n;i++)
    {
        for(j=0;j<(n-i);j++)
        {
            if(at[j]>at[j+1])
            {
                temp=p[j+1];
                p[j+1]=p[j];
                p[j]=temp;

                temp=at[j+1];
                at[j+1]=at[j];
                at[j]=temp;

                temp=bt[j+1];
                bt[j+1]=bt[j];
                bt[j]=temp;
            }
        }
```

```
    }
    //Calculating 1st ct
    ct[0]=at[0]+bt[0];
    //Calculating 2nd to nth ct
    for(i=1;i<n;i++)
    {
        //when process is ideal : in between i and i+1
        temp=0;
        if(ct[i-1]<at[i])
        {
            temp=at[i]-ct[i-1];
        }
        ct[i]=ct[i-1]+bt[i]+temp;
    }
    //Calculating tat and wt
    printf("\nP\tA.T\tB.T\tC.T\tT.A.T\tW.T");
    for(i=0;i<n;i++)
    {
        tat[i]=ct[i]-at[i];
        wt[i]=tat[i]-bt[i];
        atat+=tat[i];
        awt+=wt[i];
    }
    atat/=n;
    awt/=n;
    for(i=0;i<n;i++)
    {
        printf("\nP%d\t%d\t%d\t%d\t%d\t%d",p[i],at[i],bt[i],ct[i],tat[i],wt[i]);
    }
    printf("\nTHE AVERAGE TURNAROUND TIME IS %.2f",atat);
    printf("\nTHE AVERAGE WAITING TIME IS %.2f",awt);
    return 0;
}
```

OUTPUT



RESULT

The FCFS (First Come First Serve) Algorithm has been successfully implemrnted in C Programming Language.

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