Assignment

CSE316

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Section-K18ZV

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Github link:-

Question No.:10 and 17

Solution no:-10

1. Write a C program to solve the following problem: Suppose that a disk drive has 5,000 cylinders, numbered 0 to 4999. The drive is currently serving a requestuest at cylinder143, and the previous requestuest was at cylinder 125. The queue of pending requestuests, in FIFO

order,is:

86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130

Introduction: Introduction: In operating systems, time interval is extremely important. Since all device requests are linked in queues, the time interval is increased causing the system to hamper . Disk Scheduling Algorithms are wont to reduce the entire time interval of any request.

<stdio> : this library is used for input and output.

<stdlib> : this library is used for string.

In the question values are given but they are constant values but

In the code written above we can actually change the values as

Per our request.The requests are fullfilled in the order in which they come.This algorithm does not cause starvation problem.

Total head movements that occur while serving these requests are:

(125-86)+(1470-86)+(1470-913)+(1774-913)+(1774-948)+(1509-948)+

(1509-1022)+(1750-1022)+(1750-130)

=>7063

Code:

```
#include<stdio.h>
#include<fcntl.h>
#include<sys/types.h>
#include <stdlib.h>
```

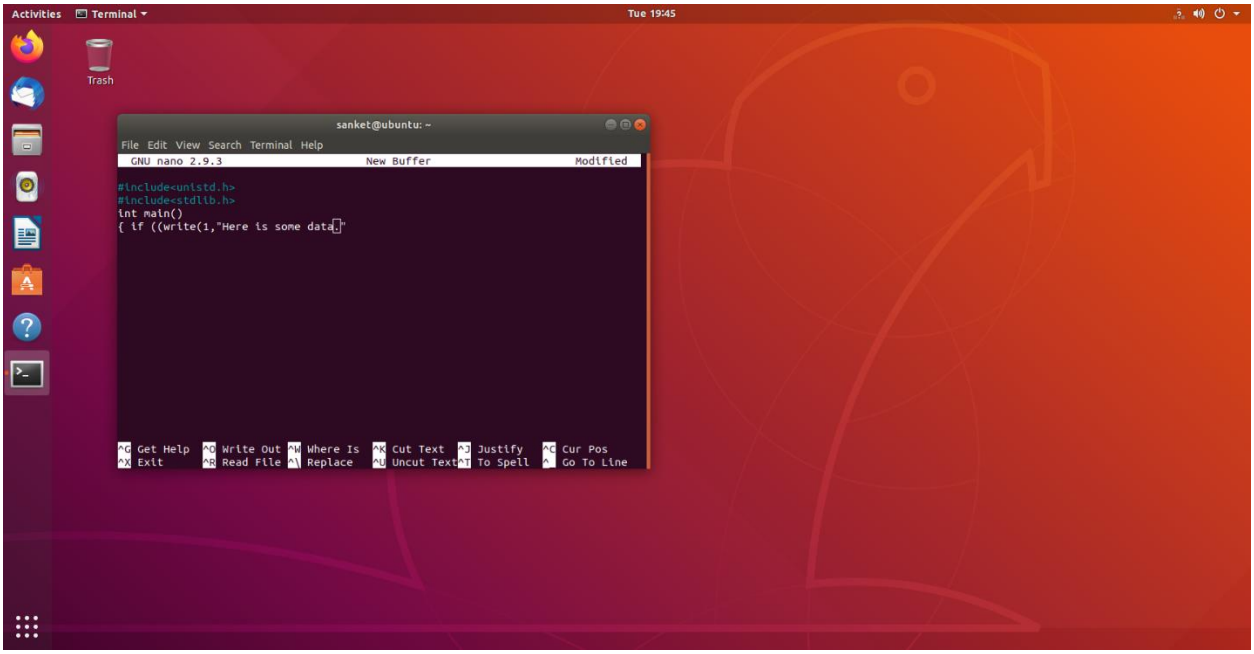
```
int main()
{
    int h,n,m;
     printf("\n");
     printf("Head Position :\n");
    scanf("%d",&h);
    printf("\n");
    printf("No.of Request:\t");
    scanf("%d",&m);
    int req[m];
    for(n=0;n<m;n++)
    {
            scanf("%d",&req[n]);
    }
    int diff=req[0]-h;
    if(diff<0)
    {
              diff=diff*-1;
    }
    for(n=1;n<m;n++)
    {
            if((req[n]-req[n-1])>0)
               diff=diff+(req[n]-req[n-1]);
            else
```

```
            diff=diff+(req[n-1]-req[n]);
    }
    printf("Seek time = %d\n",diff);

}
```

Command to run code:

1. gcc filename.c
2. ./a.out
3. Enter head positi

Complexity of above code: n*n



Solution no:-17

1. Design a scheduling program to implements a Queue with two levels:

Level 1 : Fixed priority preemptive Scheduling

Level 2: Round Robin Scheduling

For a Fixed priority preemptive Scheduling (Queue1), the Priority 0 is highest priority. If one process P1 is scheduled and running, another process P2 with higher priority comes. The New process (high priority) process P2 preempts currently running process P1 and process P1 will go to second level queue. Time for which process will strictly execute must be considered in the multiples of 2. All the processes in second level queue will complete their execution according to round robin scheduling.

Consider: 1. Queue 2 will be processed after Queue 1 becomes empty.

2. Priority of Queue 2 has lower priority than in Queue 1.

Introduction:

Round robin schduling algorithm, is employed to schedule process fairly each job a slot or quantum and therefore the interrupting the work if it's not completed by then the job come after the opposite job which are arrived within the quantum time that make these scheduling fairly. Fixed priority preemptive scheduling It is a scheduling system used in real time systems.

<stdio> : this library is used for input and output.

<stdlib> : this library is used for string.

Code:

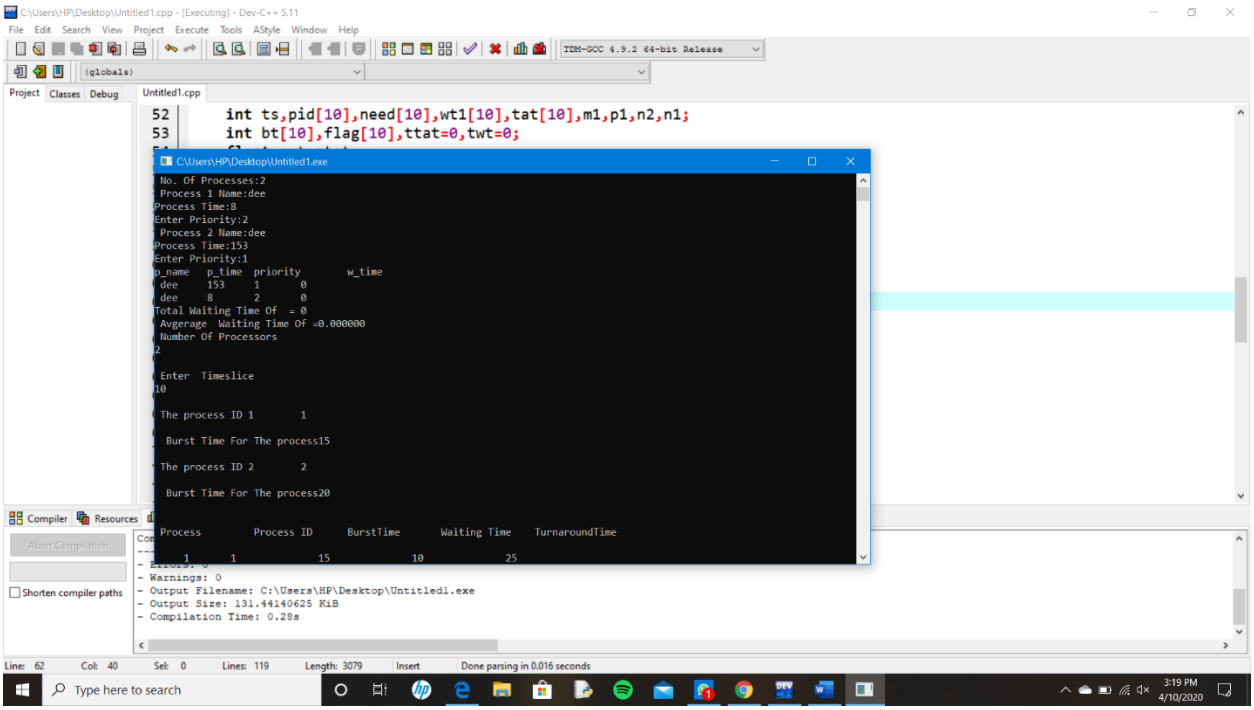
```
#include<stdio.h>
#include<string.h>
#include<conio.h>
main()
{
    char z[10][5],tmp[5];
    int m,p,pt[10],wt[10],totwt=0,pr[10],tmp1,t;
    float avgwt;
    printf(" No. Of Processes:");
    scanf("%d",&t);
    for(m=0;m<t;m++)
    {
        printf(" Process %d Name:",m+1);
        scanf("%s",&z[m]);
        printf("Process Time:");
        scanf("%d",&pt[m]);
        printf("Enter Priority:");
        scanf("%d",&pr[m]);
    }
    for(m=0;m<t-1;m++)
    {
        for(p=m+1;p<t;p++)
        {
            if(pr[m]>pr[p])
            {
                tmp1=pr[m];
                pr[m]=pr[p];
                pr[p]=tmp1;
                tmp1=pt[m];
                pt[m]=pt[p];
                pt[p]=tmp1;
                strcpy(tmp,z[m]);
                strcpy(z[m],z[p]);
                strcpy(z[p],tmp);
            }
        }
    }
    wt[0]=0;
    for(m=1;m<t;m++)
    {
        wt[m]=wt[m-1]+wt[m-1];
        totwt=totwt+wt[m];
    }
    avgwt=(float)totwt/t;
    printf("p_name\t p_time\t priority\t w_time\n");
    for(m=0;m<t;m++)
    {
       printf(" %s\t %d\t %d\t %d\n" ,z[m],pt[m],pr[m],wt[m]);
    }
    printf("Total Waiting Time Of  = %d\n Avgerage  Waiting Time Of =%f",totwt,avgwt);

    int ts,pid[10],need[10],wt1[10],tat[10],m1,p1,n2,n1;
    int bt[10],flag[10],ttat=0,twt=0;
    float awt,atat;
    printf("\n Number Of Processors \n");
```

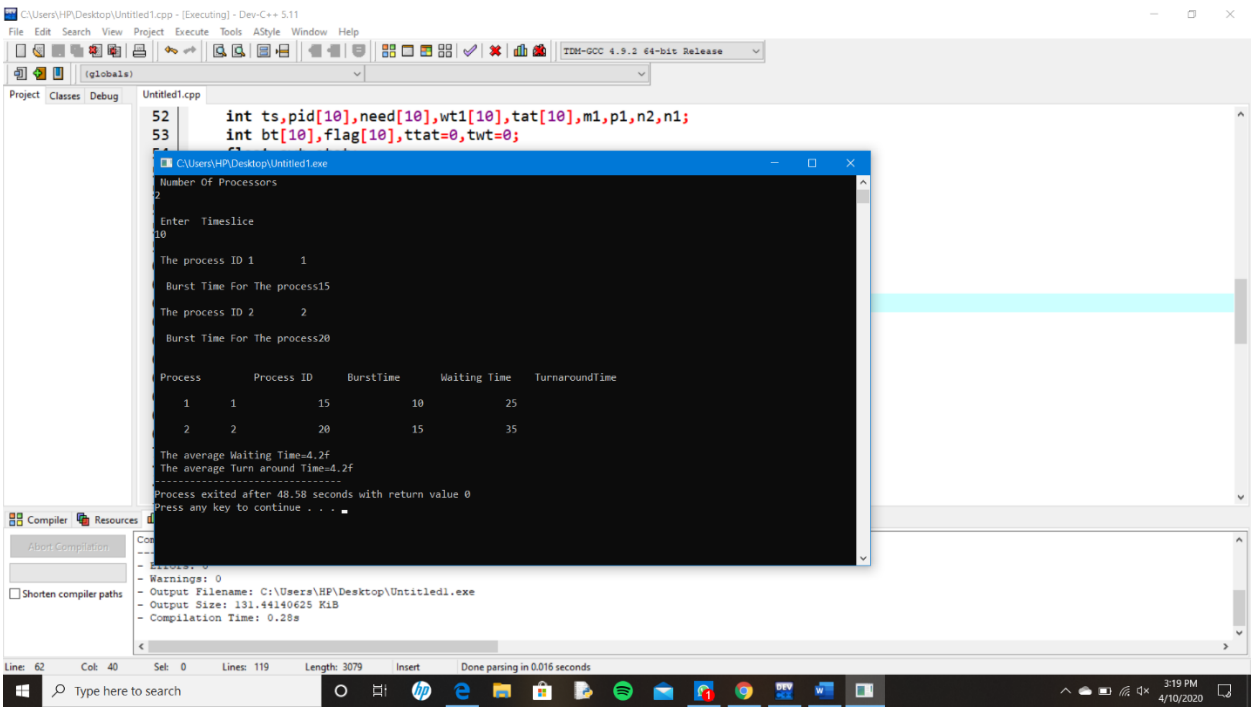
```
    scanf("%d",&t);
    n1=t;
    printf("\n Enter  Timeslice \n");
    scanf("%d",&ts);
    for(m=1;m<=t;m++)
    {
        printf("\n The process ID %d",m);
        scanf("%d",&pid[m]);
        printf("\n  Burst Time For The process");
        scanf("%d",&bt[m]);
        need[m]=bt[m];
    }
    for(m=1;m<=t;m++)
    {
        flag[m]=1;
        wt[m]=0;
    }
    while(t!=0)
    {
        for(m=1;m<=t;m++)
        {
            if(need[m]>=ts)
            {
                for(p=1;p<=t;p++)
                {
                    if((m!=p)&&(flag[m]==1)&&(need[p]!=0))
                    wt[p]+=ts;
                }
                need[m]-=ts;
                if(need[m]==0)
                {
                    flag[m]=0;
                    t--;
                }
            }
            else
            {
                for(p=1;p<=t;p++)
                {
                    if((m!=p)&&(flag[m]==1)&&(need[p]!=0))
                    wt[p]+=need[m];
                }
                need[m]=0;
                t--;
                flag[m]=0;
            }
        }
    }
    for(m=1;m<=n1;m++)
    {
        tat[m]=wt[m]+bt[m];
        twt=twt+wt[m];
        ttat=ttat+tat[m];
    }
    awt=(float)twt/n1;
    atat=(float)ttat/n1;
    printf("\n\n Process \t Process ID  \t BurstTime \t Waiting Time \t TurnaroundTime \n
");
    for(m=1;m<=n1;m++)
    {
```

```
        printf("\n %5d \t %5d \t\t %5d \t\t %5d \t\t %5d \n",
m,pid[m],bt[m],wt[m],tat[m]);
    }
    printf("\n The average Waiting Time=4.2f",awt);
    printf("\n The average Turn around Time=4.2f",atat);
}}
```

Command to run code:

1. gcc filename.c
2. ./a.out
3. Enter no of process





Complexity of above code: nlogn