OPERATING SYSTEM
LAB TASK – 12

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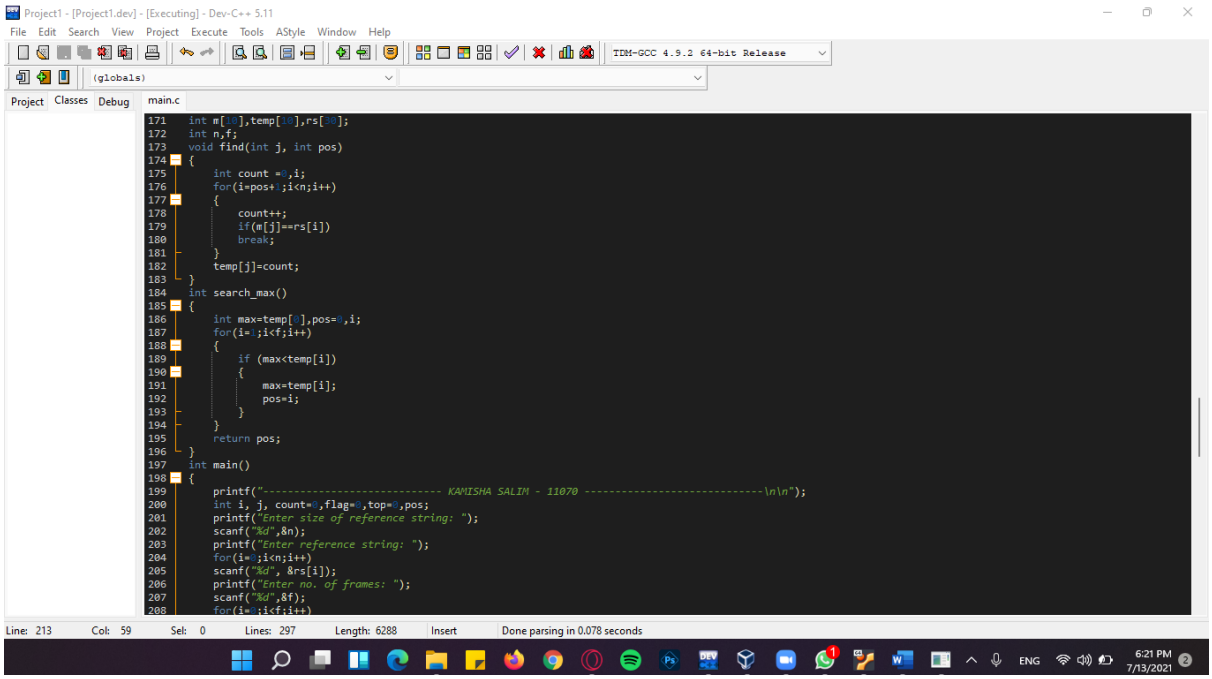
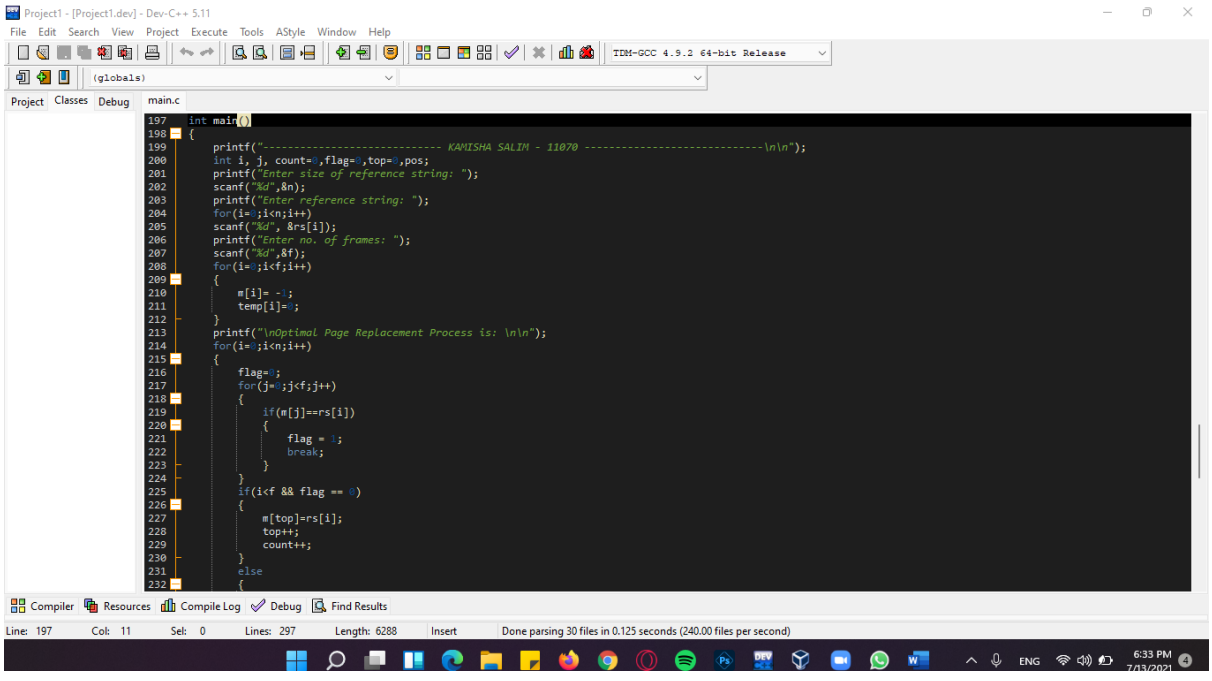
QUESTION – 1
CODE:

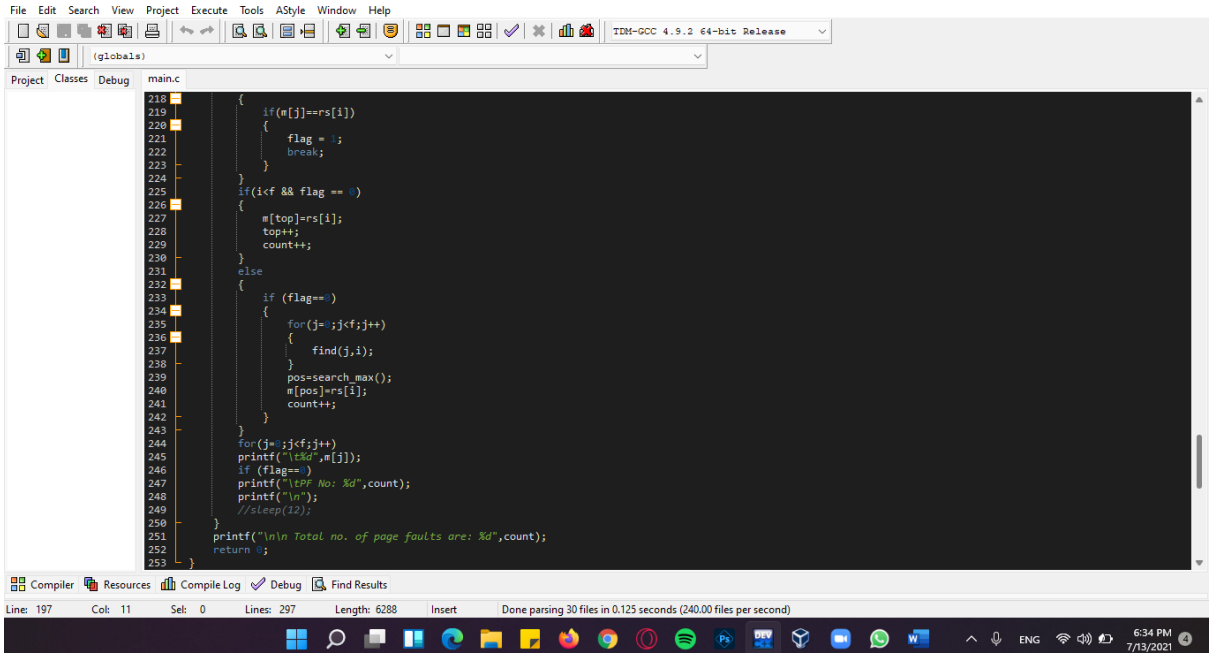
USING OPTIMAL PAGE REPLACEMENT



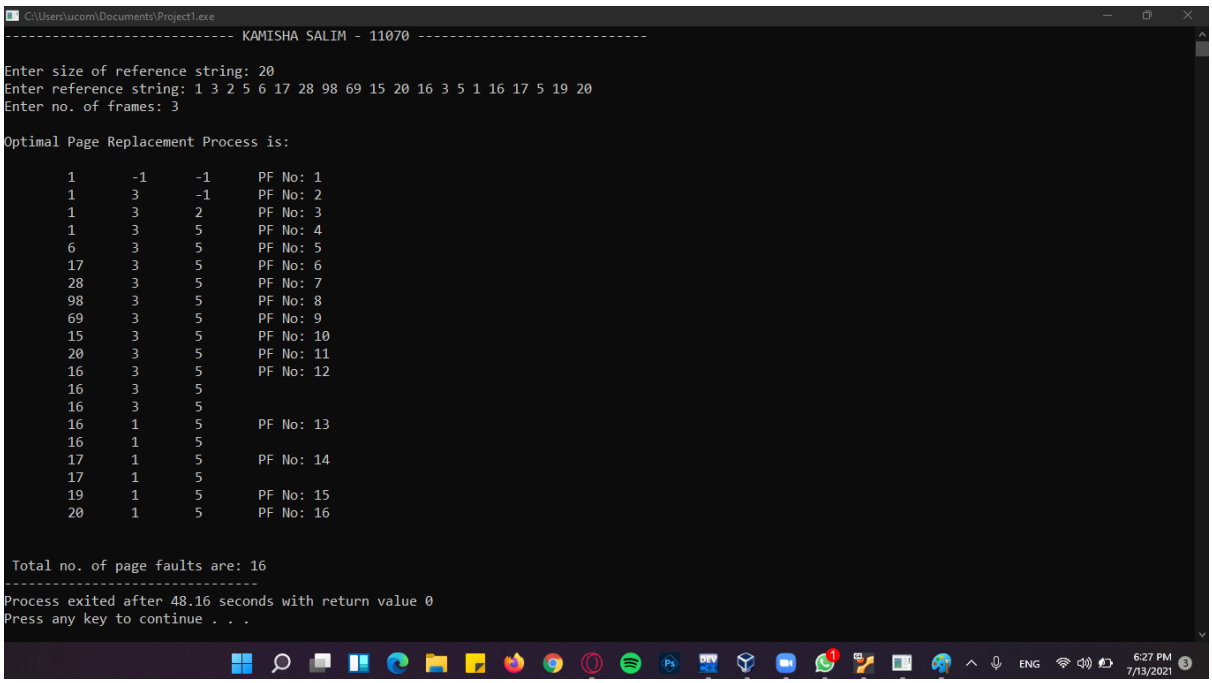
```
int m[10],temp[10],rs[20];
int n,f;
void find(int j, int pos)
{
    int count =0,i;
    for(i=pos+1;i<n;i++)
    {
        count++;
        if(m[j]==rs[i])
        break;
    }
    temp[j]=count;
}
int search_max()
{
    int max=temp[0],pos=0,i;
    for(i=0;i<f;i++)
    {
        if (max<temp[i])
        {
            max=temp[i];
            pos=i;
        }
    }
    return pos;
}
int main()
{
    printf("---------------------------- KAMISHA SALIM - 11070 ----------------------------\n\n");
    int i, j, count=0,flag=0,top=0,pos;
    printf("Enter size of reference string: ");
    scanf("%d",&n);
    printf("Enter reference string: ");
    for(i=0;i<n;i++)
    scanf("%d", &rs[i]);
    printf("Enter no. of frames: ");
    scanf("%d",&f);
    for(i=0;i<f;i++)
```



```
int main()
{
    printf("---------------------------- KAMISHA SALIM - 11070 ----------------------------\n\n");
    int i, j, count=0,flag=0,top=0,pos;
    printf("Enter size of reference string: ");
    scanf("%d",&n);
    printf("Enter reference string: ");
    for(i=0;i<n;i++)
    scanf("%d", &rs[i]);
    printf("Enter no. of frames: ");
    scanf("%d",&f);
    for(i=0;i<f;i++)
    {
        m[i]= -1;
        temp[i]=0;
    }
    printf("\nOptimal Page Replacement Process is: \n\n");
    for(i=0;i<n;i++)
    {
        flag=0;
        for(j=0;j<f;j++)
        {
            if(m[j]==rs[i])
            {
                flag = 1;
                break;
            }
        }
        if(i<f && flag == 0)
        {
            m[top]=rs[i];
            top++;
            count++;
        }
        else
        {
```

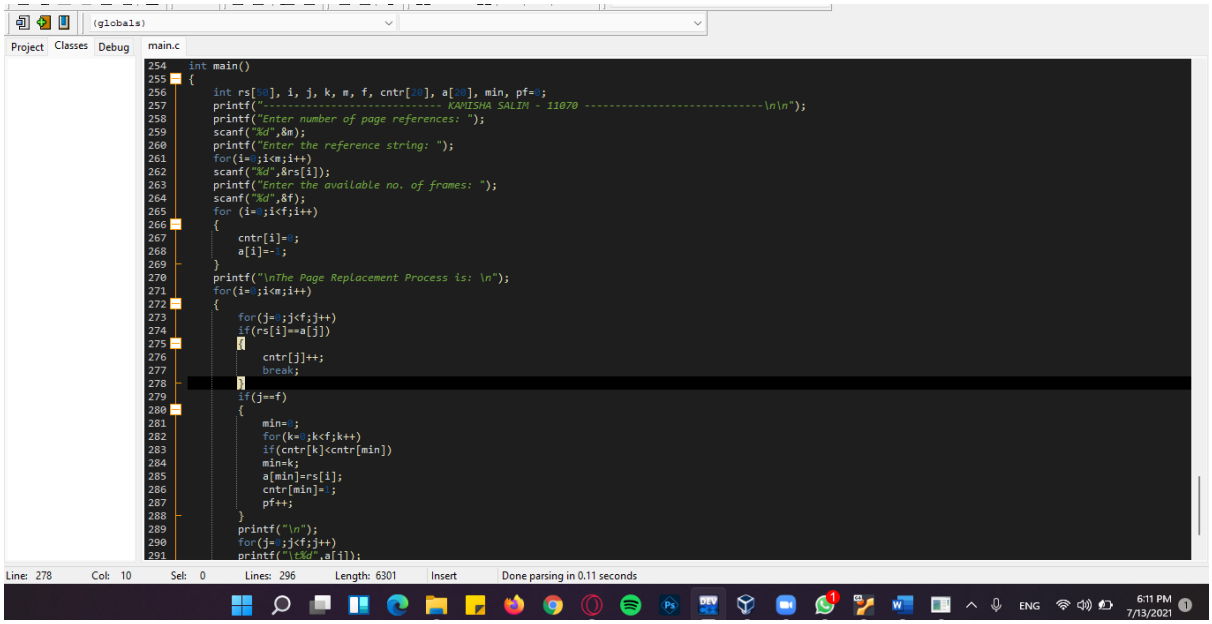

File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug main.c
{
if(m[j]==rs[i])
{
flag = 1;
break;
}
}
if(i<f && flag == 0)
{
m[top]=rs[i];
top++;
count++;
}
else
{
if (flag==0)
{
for(j=0;j<f;j++)
{
find(j,i);
}
pos=search_max();
m[pos]=rs[i];
count++;
}
}
for(j=0;j<f;j++)
printf("\t%d",m[j]);
if (flag==0)
printf("\tPF No: %d",count);
printf("\n");
//sleep(12);
}
printf("\n\n Total no. of page faults are: %d",count);
return 0;
}
Compiler Resources Compile Log Debug Find Results
Line: 197 Col: 11 Sel: 0 Lines: 297 Length: 6288 Insert Done parsing 30 files in 0.125 seconds (240.00 files per second)
ENG 6:34 PM 7/13/2021

OUTPUT:


C:\Users\ucom\Documents\Project1.exe
---------- KAMISHA SALIM - 11070 ----------
Enter size of reference string: 20
Enter reference string: 1 3 2 5 6 17 28 98 69 15 20 16 3 5 1 16 17 5 19 20
Enter no. of frames: 3
Optimal Page Replacement Process is:
1 -1 -1 PF No: 1
1 3 -1 PF No: 2
1 3 2 PF No: 3
1 3 5 PF No: 4
6 3 5 PF No: 5
17 3 5 PF No: 6
28 3 5 PF No: 7
98 3 5 PF No: 8
69 3 5 PF No: 9
15 3 5 PF No: 10
20 3 5 PF No: 11
16 3 5 PF No: 12
16 3 5
16 3 5
16 1 5 PF No: 13
16 1 5
17 1 5 PF No: 14
17 1 5
19 1 5 PF No: 15
20 1 5 PF No: 16
Total no. of page faults are: 16
Process exited after 48.16 seconds with return value 0
Press any key to continue . . .
ENG 6:27 PM 7/13/2021

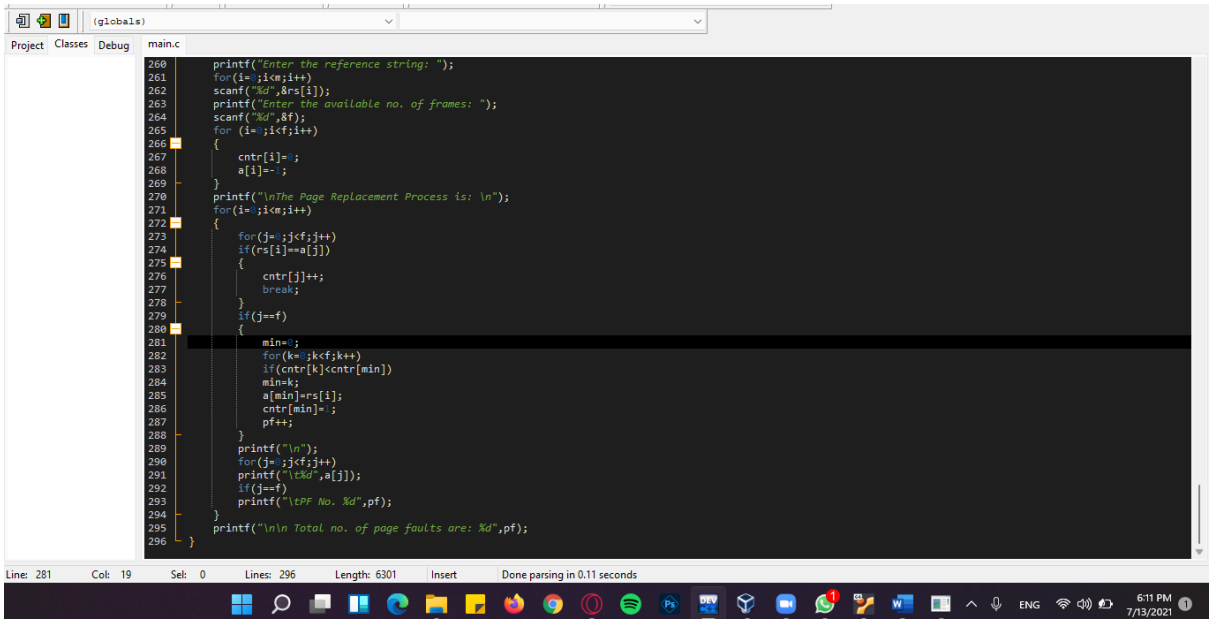
QUESTION – 2
CODE:

USING LFU



```
int main()
{
    int rs[50], i, j, k, m, f, cntr[50], a[50], min, pf=0;
    printf("----------------------------- KAMISHA SALIM - 11070 -----------------------------\n\n");
    printf("Enter number of page references: ");
    scanf("%d",&m);
    printf("Enter the reference string: ");
    for(i=0;i<m;i++)
    scanf("%d",&rs[i]);
    printf("Enter the available no. of frames: ");
    scanf("%d",&f);
    for (i=0;i<f;i++)
    {
        cntr[i]=0;
        a[i]=-1;
    }
    printf("\nThe Page Replacement Process is: \n");
    for(i=0;i<m;i++)
    {
        for(j=0;j<f;j++)
        if(rs[i]==a[j])
        {
            cntr[j]++;
            break;
        }
        if(j==f)
        {
            min=0;
            for(k=0;k<f;k++)
            if(cntr[k]<cntr[min])
            min=k;
            a[min]=rs[i];
            cntr[min]=1;
            pf++;
        }
        printf("\n");
        for(j=0;j<f;j++)
        printf("\t%d",a[j]);
```

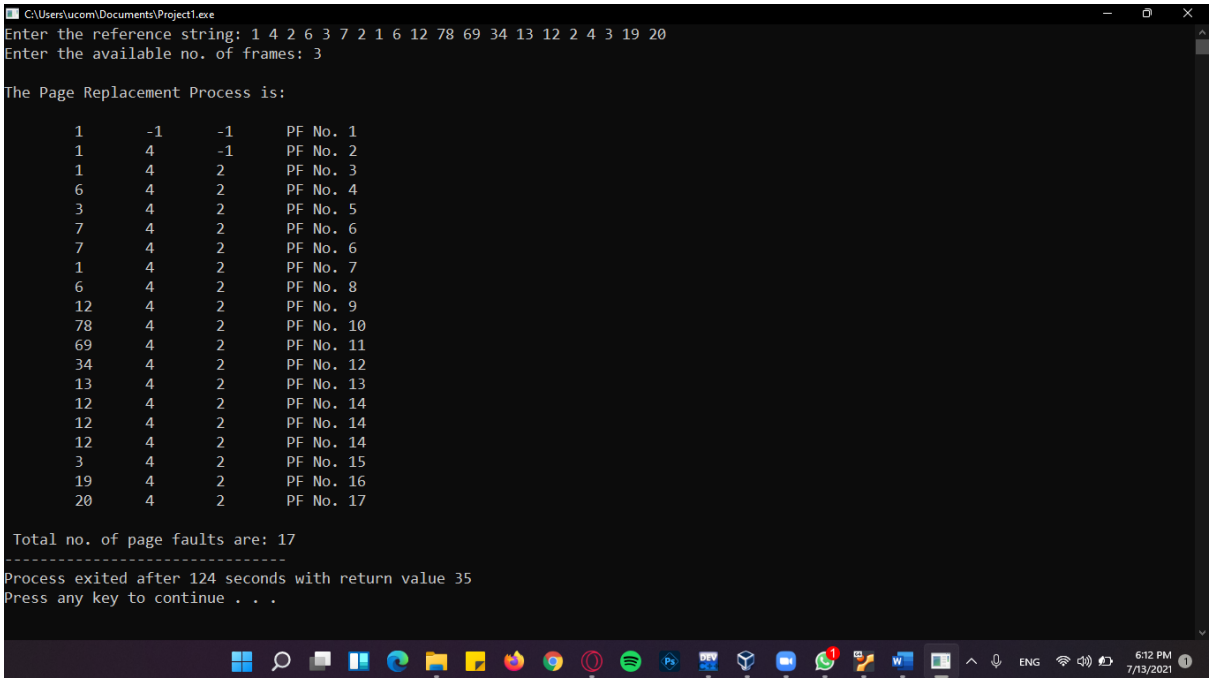
Line: 278 Col: 10 Sel: 0 Lines: 296 Length: 6301 Insert Done parsing in 0.11 seconds



```
    printf("Enter the reference string: ");
    for(i=0;i<m;i++)
    scanf("%d",&rs[i]);
    printf("Enter the available no. of frames: ");
    scanf("%d",&f);
    for (i=0;i<f;i++)
    {
        cntr[i]=0;
        a[i]=-1;
    }
    printf("\nThe Page Replacement Process is: \n");
    for(i=0;i<m;i++)
    {
        for(j=0;j<f;j++)
        if(rs[i]==a[j])
        {
            cntr[j]++;
            break;
        }
        if(j==f)
        {
            min=0;
            for(k=0;k<f;k++)
            if(cntr[k]<cntr[min])
            min=k;
            a[min]=rs[i];
            cntr[min]=1;
            pf++;
        }
        printf("\n");
        for(j=0;j<f;j++)
        printf("\t%d",a[j]);
        if(j==f)
        printf("\tPF No. %d",pf);
    }
    printf("\n\n Total no. of page faults are: %d",pf);
}
```

Line: 281 Col: 19 Sel: 0 Lines: 296 Length: 6301 Insert Done parsing in 0.11 seconds

OUTPUT:


C:\Users\ucom\Documents\Project1.exe
Enter the reference string: 1 4 2 6 3 7 2 1 6 12 78 69 34 13 12 2 4 3 19 20
Enter the available no. of frames: 3
The Page Replacement Process is:
1 -1 -1 PF No. 1
1 4 -1 PF No. 2
1 4 2 PF No. 3
6 4 2 PF No. 4
3 4 2 PF No. 5
7 4 2 PF No. 6
7 4 2 PF No. 6
1 4 2 PF No. 7
6 4 2 PF No. 8
12 4 2 PF No. 9
78 4 2 PF No. 10
69 4 2 PF No. 11
34 4 2 PF No. 12
13 4 2 PF No. 13
12 4 2 PF No. 14
12 4 2 PF No. 14
12 4 2 PF No. 14
3 4 2 PF No. 15
19 4 2 PF No. 16
20 4 2 PF No. 17
Total no. of page faults are: 17
Process exited after 124 seconds with return value 35
Press any key to continue . . .
ENG
6:12 PM
7/13/2021