OS LAB WEEK – 03

NAME :V.SRIKANTH
ID :B172320

1.First in First Out Page Replacement code :

```
#include<stdio.h>
void main()
{
int page_fault=0,pages,frames,i,j,s,x;
printf("Enter number of pages:");
scanf("%d",&pages);
printf("Enter number of frames:");
scanf("%d",&frames);
int ref_str[pages];
printf("Enter page reference string:");
for(i=0 ; i<pages ;i++)
{
scanf("%d",&ref_str[i]);
}
int temp[frames];
for(i=0; i<frames; i++)
temp[i]=-1;
for(i=0 ;i<pages ;i++)
{
s=0;
for(j=0 ;j<frames ;j++)
{
if(ref_str[i]==temp[j])
{
s++;
page_fault--;
}
}
page_fault++;
if((page_fault <= frames) && (s==0))
{
temp[i]=ref_str[i];
}
else if(s==0)
{temp[(page_fault-1) % frames]=ref_str[i];
}
```

```
printf("\n");
printf("%d: ",ref_str[i]);
for(j=0 ;j<frames; j++)
{
if(temp[j]!=-1)
printf("%d ",temp[j]);
else
printf("- ");
}
```

```
Enter number of pages:5
Enter number of frames:3
Enter page reference string:4
1
2
4
5

4: 4 - -
1: 4 1 -
2: 4 1 2
4: 4 1 2
5: 5 1 2
Page faults = 4
Process returned 16 (0x10)   execution time : 24.515 s
Press any key to continue.
```

```
}
printf("\nPage faults = %d",page_fault);}
```

2.Optimal Page Replacement code :

```
#include <stdio.h>
void main()
{
int no_frames,no_pages,i,j,f1,f2,fault=0,f3,k,p,max;
printf("Enter number of frames:");
scanf("%d",&no_frames);
printf("Enter number of pages:");
scanf("%d",&no_pages);
int frames[no_frames],pages[no_pages],check[no_frames];
printf("Enter page reference string:");
for(i=0;i<no_pages;i++)
```

```
scanf("%d",&pages[i]);
for(i=0;i<no_frames;i++)
frames[i]=-1;
for(i=0;i<no_pages;i++)
{
f1=0,f2=0;
for(j=0;j<no_frames;j++)
{
if(pages[i]==frames[j])
{
f1=1;
f2=1;
break;
}
}
if(f1==0) //miss
{
for(j=0;j<no_frames;j++)
{
if(frames[j]==-1)
{
frames[j]=pages[i];
fault+=1;
f2=1;
break;
}
}
}
if(f2==0)
{
f3=0;
for(j=0;j<no_frames;j++)
{
check[j]=-1;
for(k=i+1;k<no_pages;k++)
{
if(frames[j]==pages[k])
{
check[j]=k;
break;
}
}
 }
for(j=0;j<no_frames;j++)
{
```

```
if(check[j]==-1)
{
p=j;
f3=1;
break;
}
}
 if(f3 ==0)
{
max=check[0];
p=0;
for(j =0; j < no_frames;j++)
{
if(check[j] > max)
{
max=check[j];
p=j;
}
}
 }
frames[p] = pages[i];
fault++;
 }
printf("\n");
 printf("%d :",pages[i]);
 for(j = 0; j < no_frames;j++)
{
if(frames[j]!=-1)
printf("%d ", frames[j]);
 else
printf("- ");
 }
 }
 printf("\nPage Faults = %d", fault);
 }
```

```
Enter number of frames:3
Enter number of pages:10
Enter page reference string:2
3
4
2
1
3
7
5
4
3

2 :2 - -
3 :2 3 -
4 :2 3 4
2 :2 3 4
1 :1 3 4
3 :1 3 4
7 :7 3 4
5 :5 3 4
4 :5 3 4
3 :5 3 4
Page Faults = 6
Process returned 16 (0x10)   execution time : 33.711 s
Press any key to continue.
```

3.Least Replacement Used- Page Repalcement code :

```
#include <stdio.h>
main()
{
int q[20],p[50],c=0,c1,d,f,i,j,k=0,n,r,t,b[20],c2[20];
printf("Enter no of pages:");
scanf("%d",&n);
printf("Enter the reference string:");
for(i=0;i<n;i++)
        scanf("%d",&p[i]);
printf("Enter no of frames:");
scanf("%d",&f);
q[k]=p[k];
printf("\n\t%d\n",q[k]);
c++;
k++;
for(i=1;i<n;i++)
```

```
{
        c1=0;
        for(j=0;j<f;j++)
        {
                if(p[i]!=q[j])
                c1++;
        }
        if(c1==f)
        {
              c++;
                if(k<f)
                {
                        q[k]=p[i];
                        k++;
                        for(j=0;j<k;j++)
                        printf("\t%d",q[j]);
                        printf("\n");
                }
                else
                {
                        for(r=0;r<f;r++)
                        {
                                c2[r]=0;
                                for(j=i-1;j<n;j--)
                                {
                                if(q[r]!=p[j])
                                c2[r]++;
                                else
                                break;
                        }
                }
                for(r=0;r<f;r++)
                 b[r]=c2[r];
                for(r=0;r<f;r++)
                {
                        for(j=r;j<f;j++)
                        {
                                if(b[r]<b[j])
                                {
                                        t=b[r];
                                        b[r]=b[j];
                                        b[j]=t;
                                }
                        }
                }
```

```
                        for(r=0;r<f;r++)
                        {
                                if(c2[r]==b[0])
                                q[r]=p[i];
                                printf("\t%d",q[r]);
                        }
                        printf("\n");
                }
        }
}
printf("\nThe no of page faults is %d",c);
}
```

```
Enter no of pages:10
Enter the reference string:7
 5
9
4
3
7
9
6
2
1
Enter no of frames:3

        7
        7       5
        7       5       9
        4       5       9
        4       3       9
        4       3       7
        9       3       7
        9       6       7
        9       6       2
        1       6       2

The no of page faults is 10
Process returned 0 (0x0)   execution time : 66.160 s
Press any key to continue.
```