OS Assignment 8

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Code 8 :

```
#include<stdio.h>
int p[50];
int h=0;
int i,j,k;
int n;
pf_count=0;
int in[100];
void get_data()
{
        printf("\nEnter length of page reference
        sequence:");
        scanf("%d",&n);
        printf("\nEnter the page reference
        sequence:");
        for(i=0; i<n; i++)
                scanf("%d",&in[i]);
        printf("\nEnter no of frames:");
        scanf("%d",&nf);
}
void start()
{
        pf_count=0;
        for(i=0; i<nf; i++)
                p[i]=9999;
}
int is_h(int data)
{
        h=0;
        for(j=0; j<nf; j++)
                i
        f(p[j]=
        =data)
```

```
                        h
                =1;
                brea
                k;
        return h;
}
int index_h(int data)
{
        int h;
        for(k=0;
k<nf; k++)
        {
                i
        f(p[k]=
        =data)
                {
                        h
                =
                k
                ;

                b
                r
                e
                a
                k
                ;
                }
        }
        r
eturn h;
}
void disp_p()
{
        for (k=0; k<nf; k++)
        {
        if(p[k]!=9
999)
                pr
        intf(" %d",
        p[k]);
        }
}
void display_pf()
{
        printf("\nTotal no of page faults:%d",pf_count);
}
void FIFO()
```

```
{
        s
tart();
        for(i=0; i<n; i++)
        {
                printf("\
        nFor %d :",in[i]);
                if(is_h(i
        n[i])==0)
                {
                        f
                or(k=
                0;
                k<nf-
                1;
                k++)
                                        p
                        [
                        k
                        ]
                        =
                        p
                        [
                        k
                        +
                        1
                        ]
                        ;

                        p
                [k]=in
                [i];
                        p
                f_cou
                nt++;
                        d
                isp_p
                ();
                }
                else
        printf("No page
        fault");
        }
        display_pf();
}
void OPT()
{
```

```
	int no_of_frames, no_of_pages, frames[10], pages[30], temp[10], flag1, flag2,
flag3, i, j, k, pos, max, faults = 0;
	printf("Enter number of frames: ");
	scanf("%d", &no_of_frames);
	printf("Enter number of pages: ");
	scanf("%d", &no_of_pages);
	printf("Enter page reference string: ");
	for(i = 0; i < no_of_pages; ++i)
	{
		scanf("%d", &pages[i]);
	}
	for(i = 0; i <
no_of_frames; ++i)
	{
		frames[i] = -1;
	}
	for(i = 0; i <
no_of_pages; ++i)
	{
		flag1 = flag2 = 0;
		for(j = 0; j <
	no_of_frames; ++j)
		{
			if(frames[
			j] == pages[i])
			{
				fl
			ag1 =
			flag2 = 1;
			break;
			}
		}
		if(flag1 == 0)
		{
			for(j = 0; j
			< no_of_frames;
			++j)
			{
				if(
				frames[j]
				== -1)
				{
					f
				a
				ul
				ts
				+
				+;
```

```
                fr
                a
                m
                e
                s[j]
                =
                p
                a
                g
                e
                s[i]
                ;
                        f
                la
                g
                2
                =
                1;
                br
                e
                a
                k;
                }
        }
}
if(flag2 == 0)
{
        flag3 =0;
        for(j = 0; j <
no_of_frames; ++j)
        {
                temp[j] = -1;
                for(k = i + 1; k
        < no_of_pages; ++k)
                {
                        if(fram
                es[j] ==
                pages[k])
                        {
                                t
                        emp[j]
                        = k;
                        break;
                        }
                }
        }
```

```
        for(j = 0; j
< no_of_frames;
++j)
        {
                if(
        temp[j]
        == -1)
                {
                        p
                o
                s
                =
                j;
                        f
                la
                g
                3
                =
                1;
                        b
                re
                a
                k;
                }
        }
        if(flag3
==0)
        {
                m
        ax =
        temp[0];
                p
        os = 0;
                fo
        r(j = 1; j <
        no_of_fra
        mes; ++j)
                {
                        i
                f(t
                e
                m
                p[
                j]
                >
                m
                a
                x)
```

```
                                        {
                                                m
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                                        x
                                        =
                                        t
                                        e
                                        m
                                        p
                                        [
                                        j
                                        ]
                                        ;
                                                p
                                        o
                                        s
                                        =
                                        j
                                        ;
                                        }
                                }
                        }
                        frames[p
                os] = pages[i];
                faults++;
                }
                printf("\n");
                for(j = 0; j <
        no_of_frames; ++j)
                {
                        printf("%
                d\t", frames[j]);
                }
        }
        printf("\n\nTotal Page Faults = %d",
faults);
        return 0;
}
void LRU()
{
        start();
        int least[50];
        for(i=0; i<n; i++)
```

```
{
        printf("\n
For %d :",in[i]);
        if(is_h(in
[i])==0)
        {
                f
        or(j=0;
        j<nf; j++)
                {
                        i
                n
                t
                p
                g
                =
                p
                [j]
                ;
                        i
                n
                t
                f
                o
                u
                n
                d
                =
                0
                ;
                        f
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                =
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                -
                1
                ;
                k
                >
                =
                0
                ;
                k
                -
                -)
```

```
{
        if(pg==in[k])
        {
                last[j]=k;
                found=1;
                break;
        }
else
s
```

```
                e

                f
                o
                u
                n
                d
                =
                0
                ;
                }
                if(!
        found)lea
        st[j]=-
        9999;
        }
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9 ;
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f;
j+
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        {
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        j
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        ;

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        e
        x
        =
        j
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}

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                nd
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                =i
                n[i]
                ;

                pf
                _c
                ou
                nt
                ++;
                        d
                is
                p_
                p()
                ;
                }
                else
        printf("No page
        fault!");
        }
        displ
ay_pf();
}
void new_user()
{
        int
usedbit[50];
        int
vcm_ptr=0;
        start();
        for(i=0;
i<nf; i++)
                u
        sedbit[i]=
        0;
        for(i=0;
i<n; i++)
        {
                printf("\
        nFor %d:",in[i]);
                if(is_h(i
        n[i]))
                {
                        p
                rintf("N
                o page
                fault!");
```

```
int hex=index_h(in[i]);if(usedbit[hex]==0)
        u
sedbit[
```

```
        h
        e
        x
        ]
        =
        1
        ;
}
else
{
        pf_count
++;
        if(usedbit
[vcm_ptr]==1)
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                +;
                        i
                f(
                vc
                m
                _
                pt
                r=
                =
                nf)
```

```
                    v
                c
                m
                _
                pt
                r=
                0;
                }
                w
            hile(used
            bit[vcm_p
            tr]!=0);
            }
            if(usedbit
[vcm_ptr]==0)
            {

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            c
            m
            _
            p
```

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                        +
                        +
                        ;
                        }
                        disp_p();
                }
                if(vcm_ptr=
        =nf) vcm_ptr=0;
        }
        display_pf();
}
int main()
{
        int
choice;
        w
hile(1)
        {
                printf("\n\n1.Enter data\n2.FIFO\n3.OPT\n4.LRU\n5.Enter new data
        \n7.Exit\nEnter your choice:");
                scanf("%d",&cho
        ice);
                switch(choice)
                {
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                1
                :

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```

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                a
                k
                ;
            }
        }
}
```