

## Page Replacement Algorithm

### FIFO (First In First Out)

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,n,page[50],framenos,frame[10],move=0,flag,count=0;
    float rate;
    printf("Enter the number of pages\n");
    scanf("%d",&n);
    printf("Enter the page reference numbers\n");
    for(i=0;i<n;i++)
        scanf("%d",&page[i]);
    printf("Enter the number of frames\n");
    scanf("%d",&framenos);
    for(i=0;i<framenos;i++)
        frame[i]=-1;
    printf("Page reference string\n");
    for(i=0;i<n;i++)
    {
        printf("%d\t\t",page[i]);
        flag=0;
        for(j=0;j<framenos;j++)
        {
            if(page[i]==frame[j])
            {
                flag=1;
                printf("No replacement\n");
                break;
            }
        }
        if(flag==0)
        {
            frame[move]=page[i];
            move=(move+1)%framenos;
            count++;
            for(j=0;j<framenos;j++)
                printf("%d\t",frame[j]);
            printf("\n");
        }
    }
}
```

```

    }
}
rate=(float)count/(float)n;
printf("Number of page faults is %d\n",count);
printf("Fault rate is %f\n",rate);
getch();
}

```

## Output:

```

Enter the number of pages
12
Enter the page reference numbers
0 2 1 6 4 0 1 0 3 1 2 1
Enter the number of frames
4
Page reference string   Frames
0                       0       -1       -1       -1
2                       0       2       -1       -1
1                       0       2       1       -1
6                       0       2       1       6
4                       4       2       1       6
0                       4       0       1       6
1                       No replacement
0                       No replacement
3                       4       0       3       6
1                       4       0       3       1
2                       2       0       3       1
1                       No replacement
Number of page faults is 9
Fault rate is 0.750000

```

## Page Replacement Algorithm

### LRU (Least Recently Used)

```

#include<stdio.h>
#include<conio.h>
void print(int frameno,int frame[])
{
    int j;
    for(j=0;j<frameno;j++)
        printf("%d\t",frame[j]);
    printf("\n");
}
void main()
{
    int i,j,k,n,page[50],frameno,frame[10],move=0,flag,count=0,count1,repindex,
        check[50]={0};
    float rate;

```

```

printf("Enter the number of pages\n");
scanf("%d",&n);
printf("Enter the page reference numbers\n");
for(i=0;i<n;i++)
scanf("%d",&page[i]);
printf("Enter the number of frames\n");
scanf("%d",&framenos);
for(i=0;i<framenos;i++)
frame[i]=-1;
printf("Page reference string\n");
for(i=0;i<n;i++)
{
    printf("%d\t\t\t",page[i]);
    flag=0;
    for(j=0;j<framenos;j++)
    {
        if(page[i]==frame[j])
        {
            flag=1;
            printf("No replacement\n");
            break;
        }
    }
    if(flag==0&&count<framenos)
    {
        frame[move]=page[i];
        move=(move+1)%framenos;
        count++;
        print(framenos,frame);
    }
    else if(flag==0)
    {
        count1=0;
        for(j=i-1;j>=0;j--)
        {
            for(k=0;k<framenos;k++)
            {
                if(page[j]==frame[k]&&check[page[j]]==0)
                {
                    check[page[j]]=1;

```

```

        count1++;
        repindex=k;
        k=frameno;
    }
}
if(count1==frameno)
    break;
}
frame[repindex]=page[i];
count++;
print(frameno,frame);
}
for(j=0;j<50;j++)
    check[j]=0;

}
rate=(float)count/(float)n;
printf("Number of page faults is %d\n",count);
printf("Fault rate is %f\n",rate);
getch();;
}

```

### Output:

```

Enter the number of pages
12
Enter the page reference numbers
0 2 1 6 4 0 1 0 3 1 2 1
Enter the number of frames
4
Page reference string    Frames
0                        0      -1      -1      -1
2                        0      2      -1      -1
1                        0      2      1      -1
6                        0      2      1      6
4                        4      2      1      6
0                        4      0      1      6
1                        No replacement
0                        No replacement
3                        4      0      1      3
1                        No replacement
2                        2      0      1      3
1                        No replacement
Number of page faults is 8
Fault rate is 0.666667

```