#include<stdio.h>

void plot(int f);

int search(int f);

void display();

int fm,n,a[10][10],p[10],s[100];

void main()

{

int i,j,top=-1,k,flag,sh,count=0;

float turn;

printf("\nEnter the no. of Page Frames : ");

scanf("%d",&fm);

for(i=0;i<fm;i++)

{

p[i]=0;

for(j=0;j<fm;j++)

{ a[i][j]=0;

}

}

printf("\nEnter the total no. of pages you want to enter into main memory: ");

scanf("%d",&n);

for(i=0;i<n;i++)

{

printf("\nEnter the page [%d] to be accessed: ",i);

scanf("%d",&s[i]);

}

for(i=0;i<n;i++)

{

if(i==0)

{

printf("\nPAGE FAULT\t page %d is causing a page fault ",s[i]);

top++;

p[i]=s[i];

plot(i);

}

else

{

flag=0;

for(j=0;j<fm;j++)

{

if(s[i]==p[j])

{

printf("\nPAGE SUCESSFUL\tpage %d is already present",s[i]);

plot(j);

count++;

flag=1;

break;

}

}

if(flag==0)

{

if(top<(fm-1))

{

printf("\nPAGE FAULT\tpage %d is causing page fault",s[i]);

top++;

p[top]=s[i];

plot(i);

}

else

{

sh=search(i);

printf("\nPAGE FAULT\tpage %d is causing page fault ",s[i]);

plot(sh);

}}}}

turn=(float)count/n;

printf("\nhit ratio is : %f",turn);

}

void plot(int f)

{

int k,j;

for(k=0;k<fm;k++)

a[f][k]=1;

for(j=0;j<fm;j++)

a[j][f]=0;

display();

}

int search(int f)

{

int k,temp[10],sum=9,j,aa=-1;

for(k=0;k<fm;k++)

{

temp[k]=0;

for(j=0;j<fm;j++)

{

temp[k]=temp[k]+a[k][j];

}

}

for(k=0;k<fm;k++)

{

if(temp[k]<sum)

{

sum=temp[k];

aa=k;

}

}

p[aa]=s[f];

return(aa);

}

void display()

{

int l,m;

printf("\n\npage no.\tLRU ARRAY");

for(l=0;l<fm;l++)

{

printf("\n%d\t",p[l]);

for(m=0;m<fm;m++)

{

printf("\t%d",a[l][m]);

}

}

printf("\n---------------------------------------------------------");

}