#include <stdio.h>

#include <conio.h>

# define infinite 1000

int fdistance(int trace[],int ntrace, int start,int pageno )

{

int i;

for(i=start+1;i<ntrace ;i++)

if(pageno==trace[i])

return(i-start);

return(infinite);

}

int search(int a[],int n, int pageno)

{

int i;

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

if(a[i]==pageno)

return(1);

return(0);

}

int findmax(int a[],int n)

{

int i,j;

j=0;

for(i=1;i<n;i++)

if(a[i] > a[j])

j=i;

return(j);

}

int findempty(int a[],int n)

{

int i;

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

if(a[i]==-1)

return(i);

return(-1);

}

void main()

{

int optf[10],trace[30],ntrace,nframes;

int i,j,loc,optd[10];

float opth=0.00;

printf("\n Enter no. of frames : ");

scanf("%d",&nframes);

printf("\n enter no of entries in the page trace : ");

scanf("%d",&ntrace);

printf("\nEnter page trace : ");

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

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

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

{

optf[i]=-1;

optd[i]=0;

}

printf("\nPage no. OPT Allocation");

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

{

if(!search(optf,nframes,trace[i]))

{

loc=findempty(optf,nframes);

if(loc!=-1)//Empty Frame

optf[loc]=trace[i];

else

{

//Page fault

loc=findmax(optd,nframes);

optf[loc]=trace[i];

}

}

else

opth=opth+1;

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

optd[j]=fdistance(trace,ntrace,i, optf[j]);

printf("\n %d ",trace[i]);

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

printf("%3d ",optf[j]);

}

printf("\nPAGE FAULT %d" ,ntrace-opth);

getch();

}