program -7

#include <stdlib.h>

#include <stdio.h>

int lr=1;

int rl=0;

int fact(int n)

{

int res = 1;

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

res = res \* i;

return res;

}

int mobile\_pos(int a[],int n,int mobile)

{

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

{

if(a[i]==mobile)

{

return i;

}

}

}

int largest\_mobile(int a[],int dir[],int n)

{

int mobile=0;

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

{

if(dir[a[i]-1]==rl && i!=0)

{

if(a[i]>a[i-1] && a[i]>mobile)

{

mobile=a[i];

}

}

if(dir[a[i]-1]==lr && i!=n-1)

{

if(a[i]>a[i+1] && a[i]>mobile)

{

mobile=a[i];

}

}

}

if (mobile == 0)

{

return 0;

}

else

{

return mobile;

}

}

void perm(int a[],int dir[],int n)

{

int mobile=largest\_mobile(a,dir,n);

int pos=mobile\_pos(a,n,mobile);

if(dir[a[pos]-1]==rl)

{

int temp=a[pos];

a[pos]=a[pos-1];

a[pos-1]=temp;

}

else if(dir[a[pos]-1]==lr)

{

int temp=a[pos];

a[pos]=a[pos+1];

a[pos+1]=temp;

}

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

{

if(a[i]>mobile)

{

if(dir[a[i]-1]==lr)

{

dir[a[i]-1]=rl;

}

else if(dir[a[i]-1]==rl)

{

dir[a[i]-1]=lr;

}

}

}

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

{

printf("%d ",a[i]);

}

printf("\n");

}

int main()

{

int n;

printf("Enter the number of elements:");

scanf("%d",&n);

int a[n];

int dir[n];

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

{

a[i]=i+1;

dir[i]=0;

printf("%d ",a[i]);

}

printf("\n");

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

{

perm(a,dir,n);

}

return 0;

}

output:

[shilpa@shilpa-linux ADA\_LAB-PROG-main]$ gcc -o john\_trotter john\_trotter.c

[shilpa@shilpa-linux ADA\_LAB-PROG-main]$ ./john\_trotter

Enter the number of elements:5

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