Johnson Trotter:

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#include<stdio.h>
#include<math.h>
int left_to_right=1;
int right_to_left=0;
void swap(int *x,int *y)
{
   int temp=*x;
   *x=*y;
   *y=temp;
}
int searcharr(int a[],int mobile,int n){
int i;
for(i=0;i<n;i++){
if(a[i]==mobile)
return i+1;
}
}

int getmobile(int a[],int n,int dir[])
{

   int mobile=0;
   int mobile_prev=0;
   for(int i=0;i<n;i++)
   {
      if(dir[a[i]-1]==right_to_left && i!=0)
      {
         if(a[i]>a[i-1] && a[i]>mobile_prev)
         {
            mobile=a[i];
            mobile_prev=mobile;

         }
      }
      if(dir[a[i]-1]==left_to_right && i!=n-1)
      {
         if(a[i]>a[i+1] && a[i]>mobile_prev)
         {
            mobile=a[i];
            mobile_prev=mobile;
         }

      }
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    }
    if(mobile==0 && mobile_prev==0)
    {
        return 0;
    }
    else{
        return mobile;
    }
}
int printonprem(int a[],int dir[],int n)
{
    int mobile=getmobile(a,n,dir);
    int pos=searcharr(a,mobile,n);
    if(dir[a[pos-1]-1]==right_to_left)
    {
       swap(&a[pos-1],&a[pos-2]);
    }
    else
    {
       swap(&a[pos-1],&a[pos]);
    }
    for(int i=0;i<n;i++)
    {
       if(a[i]>mobile)
       {
          if(dir[a[i]-1]==right_to_left)
          {
             dir[a[i]-1]=left_to_right;
          }
          else
          {
             dir[a[i]-1]=right_to_left;
          }
       }
    }
    for(int i=0;i<n;i++)
    {
       printf("%d\t",a[i]);
    }
    printf("\n");
}
int fact(int n)
{
    int p=1;
    for(int i=1;i<=n;i++)
    {
       p=p*i;
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   }
   return p;
}
void per(int n)
{
   int a[n];
   int dir[n];
   for(int i=0;i<n;i++)
   {
      a[i]=i+1;
      printf("%d\t",a[i]);
   }
   printf("\n");
   for(int i=0;i<n;i++)
   {
      dir[i]=right_to_left;
   }
   for(int i=0;i<fact(n);i++)
   {
       printonprem(a,dir,n);
   }
}
int main()
{
   int n;
   printf("Enter the number of terms\n");
   scanf("%d",&n);
   per(n);
}
```

OUTPUT:

```
User@PRATHIKSHA /c/ada lab
$ cd "/c/ada lab/" && gcc johnson_trotter.c -o johnson_trotter && "/c/ada lab/"johnson_trotter
Enter the number of terms
2
1       2
2       1
1       2
```