```c
#include <stdio.h>
int N, i, count=0;
int p[100], pi[100];
int dir[100];
void PrintPerm()
{
    int i;
    count=count+1;
    printf("\n[%d] ",count );
    for (i=1;i<=N;++i)
        printf("%d",p[i]);
}

void Move(int x,int d)
{
    int z;
    z=p[pi[x]+d];
    p[pi[x]]=z;
    p[pi[x]+d]=x;
    pi[z]=pi[x];
    pi[x]=pi[x]+d;
}
void Perm(int n)
{
    int i;
    if (n>N)
        PrintPerm();
    else
    {
        Perm(n+1);
        for(i=1;i<=n-1;++i)
        {
            Move(n,dir[n]);
            Perm(n+1);
        }
        dir[n]=-dir[n];
    }
}
void main ()
{
    printf("Enter n:");
    scanf("%d",&N);
    for (i=1;i<=N;++i)
    {
        dir[i]= -1;
        p[i]=i;
        pi[i]=i;
    }
    Perm(1);
    printf("\n");
}
```

```
Enter n:4

[1]  1234
[2]  1243
[3]  1423
[4]  4123
[5]  4132
[6]  1432
[7]  1342
[8]  1324
[9]  3124
[10]  3142
[11]  3412
[12]  4312
[13]  4321
[14]  3421
[15]  3241
[16]  3214
[17]  2314
[18]  2341
[19]  2431
[20]  4231
[21]  4213
[22]  2413
[23]  2143
[24]  2134
```

```c
1  #include<stdio.h>
2  #include<string.h>
3  int main()
4  {
5     char str[]="ABCD";
6     int n=strlen(str);
7     printf("Permutations of ABCD:\n");
8     Perm(str,0,n);
9  }
10 void Perm(char *str,int start,int end)
11 {
12    char temp;
13    int i,j;
14    for(i = start; i < end-1; ++i){
15       for(j = i+1; j < end; ++j)
16       {
17             temp = str[i];
18             str[i] = str[j];
19             str[j] = temp;
20             Perm(str , i+1 ,end);
21             temp = str[i];
22             str[i] = str[j];
23             str[j] = temp;
24       }
25    }
26    printf("%s\n",str);
27 }
```

```
Permutations of ABCD:
BCDA
BCAD
BDAC
BDCA
BADC
BACD
CADB
CABD
CDBA
CDAB
CBDA
CBAD
DCAB
DCBA
DABC
DACB
DBAC
DBCA
ACDB
ACBD
ADBC
ADCB
ABDC
ABCD
```