

```

1  /* EE2310 Lab05. Permutations
2     106061146, Chen Jhao-Ting
3     2017,10,23
4  */
5
6  #include<stdio.h>
7  #define N 4
8
9  int main(void)
10 {
11     int A[N];          //array A
12     int num = 1 , n;    //num = # 1 2 3 ... n = n!(end while)
13     int i , j , k;      //j,k for algorithm, i for loop count
14     int stop = 0 , swap; //stop to stop loop, swap to swap A[i]
15
16     for (i = 0 ; i < N ; i++) {    //assign A[N]={N,N-1n...,2,1}
17         A[i] = N-i;
18     }
19     printf("permutations #d:", num);    //print the first per
20     for( i = 0 ; i < N ; i++) {
21         printf(" %d",A[i]);
22     }
23     num++;                        //#++
24     n = N;                        //count n! for loop to stop
25     for (i = n-1 ; i>0 ; i--) {
26         n = n*i;
27     }
28     printf("\n");
29     while (num <= n) {            //num > n!, end
30         for (i = N-2 ; i >= 0 && stop == 0 ; i--) { //find A[j] for algorithm
31             if(A[i] > A[i+1]){
32                 j = i;            //remember j
33                 stop = 1;         //stop loop
34             }
35         }
36         stop = 0;                //next loop
37         for (i = N-1 ; i > j && stop == 0 ; i--) { //find A[k] for algorithm
38             if(A[j] > A[i]){
39                 k = i;            //remember k
40                 stop = 1;         //stop loop
41             }
42         }
43         stop = 0;                //next loop
44         swap = A[j];             //swap A[j] A[k]
45         A[j] = A[k];
46         A[k] = swap;
47         for (i = 1 ; (i+j) <= (j+N)/2 ; i++) { //reverse from A[j+1] to last
48             swap = A[j+i];
49             A[j+i] = A[N-i];
50             A[N-i] = swap;

```

```

51     }
52     printf("permutations #d:",num);    //print 1 permutation
53     for (i = 0 ; i <= N-1 ; i++) {
54         printf(" %d",A[i]);
55     }
56     printf("\n");
57     num++;                            //###
58 }
59
60 return 0;
61 }

```

Score: 85

[Output] needs to match example exactly.

[Termination] loop should terminate using step 1 of Pandita algorithm.

[Space] character can be used more effectively for better legibility.