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Print all subarrays of a given array

January 19, 2018 by Sumit Jain

Problem: Given an array write an algorithm to print all the possible sub-arrays.

Example:

```
int [] a = {1, 2, 3};
```

Output: Possible subarrays –
{1}, {2}, {3}, {1, 2} , {2, 3}, {1, 2, 3}

Approach:

Click here to read about the recursive solution – [Print all subarrays using recursion](#)

- Use three nested loops.
- Outer loops will decide the starting point of a sub-array, call it as **startPoint**.
- First inner loops will decide the group size (sub-array size). Group size starting from 1 and goes up array size. Let's call it as **grps**.
- The most inner loop will actually print the sub-array by iterating the given array from **startPoint** and print the next **grps** elements.
- See the code below for more understanding.

Complete Code:

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```
1 public class PrintAllSubArrays {  
2  
3     public void printSubArrays(int [] arrA){  
4  
5         int arrSize = arrA.length;  
6         //start point  
7         for (int startPoint = 0; startPoint < arrSize ; startPoint++) {  
8             //group sizes  
9             for (int grps = startPoint; grps <= arrSize ; grps++) {  
10                //if start point = 1 then  
11                //grp size = 1 , print 1  
12                //grp size = 2, print 1 2  
13                //grp size = 3, print 1 2 3 ans so on  
14                for (int j = startPoint ; j < grps ; j++) {
```

```
15 System.out.print(arrA[j] + " ");
16 }
17 System.out.println();
18 }
19 }
20 }
21
22 public static void main(String[] args) {
23     int [] arrA = {1,2,3, 4};
24     new PrintAllSubArrays().printSubArrays(arrA);
25 }
26
27 }
```

[view raw](#)

PrintAllSubArrays.java

hosted with ❤️ by GitHub

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Output:


```
1
1 2
1 2 3
1 2 3 4
2
2 3
2 3 4
3
```

3 4

4

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