

Problem 8\SubsetGenerator.java

```
1 import java.util.ArrayList;
2 import java.util.List;
3
4 public class SubsetGenerator {
5     public static void generateSubsets(List<Integer> current, List<Integer> remaining,
6     List<List<Integer>> result) {
7         if (remaining.isEmpty()) {
8             result.add(new ArrayList<>(current));
9             return;
10        }
11        generateSubsets(current, remaining.subList(1, remaining.size()), result);
12
13        current.add(remaining.get(0));
14        generateSubsets(current, remaining.subList(1, remaining.size()), result);
15        current.remove(current.size() - 1); // Backtrack to remove the last added element
16    }
17
18    public static void main(String[] args) {
19        List<Integer> set = List.of(1, 2, 3); // Input set
20        List<List<Integer>> subsets = new ArrayList<>(); // List to store all subsets
21
22        generateSubsets(new ArrayList<>(), set, subsets);
23
24        System.out.println("All subsets:");
25        for (List<Integer> subset : subsets) {
26            System.out.println(subset);
27        }
28    }
29 }
30
```