# [复原IP地址](https://leetcode-cn.com/explore/interview/card/bytedance/242/string/1044/)

**头条重点**

## 题目

给定一个只包含数字的字符串，复原它并返回所有可能的 IP 地址格式。

示例:  
  
输入: "25525511135"  
输出: ["255.255.11.135", "255.255.111.35"]

## 解题思路

1. 利用回溯法，遍历所有可能的 IP

public static List<String> restoreIpAddresses(String s) {  
 if (s.length() > 12 || s.length() < 4) {  
 return Collections.emptyList();  
 }  
  
 List<String> res = new ArrayList<>();  
 ArrayList<String> ip = new ArrayList<>();  
 for (int i = 0; i < 4; i++) {  
 ip.add("");  
 }  
 p(res, s.toCharArray(), 0, ip, 0);  
  
 return res;  
}  
  
private static void p(List<String> res, char[] chars, int startIndex, List<String> ip, int segmentIndex) {  
 StringBuilder builder = new StringBuilder();  
 for (int i = startIndex; i < chars.length; i++) {  
 builder.append(chars[i]);  
 String ipStr = builder.toString();  
 int parseInt = Integer.parseInt(ipStr);  
 if (parseInt > 255) {  
 return;  
 }  
 if (ipStr.length() > 1 && ipStr.startsWith("0")) {  
 return;  
 }  
  
 ip.set(segmentIndex, ipStr);  
 if (segmentIndex == 3 && i == chars.length - 1) {  
 res.add(String.join(".", ip));  
 }  
  
 if (segmentIndex < 3) {  
 p(res, chars, i + 1, ip, segmentIndex + 1);  
 }  
 }