



```

keys.put(key: '2', value: "abc");
keys.put(key: '3', value: "def");
keys.put(key: '4', value: "ghi");
keys.put(key: '5', value: "jkl");
keys.put(key: '6', value: "mno");
keys.put(key: '7', value: "pqrs");
keys.put(key: '8', value: "tuv");
keys.put(key: '9', value: "wxyz");

```

```

public int letterCombinations_helper(String digits, int idx, String asf, List<String> res,
    Map<Character, String> keys) {
    if (idx == digits.length()) {
        res.add(asf);
        return 1;
    }

    String key = keys.get(digits.charAt(idx));
    int count = 0;
    for (int i = 0; i < key.length(); i++) {
        char ch = key.charAt(i);
        count += letterCombinations_helper(digits, idx + 1, asf + ch, res, keys);
    }

    return count;
}

```

(7 8) → 700
 8 ↑

(p q r s)
 0 1 2 3
4 x 9 = 12

pt
 pu
 pv
 qt
 qu
 qv
 rt
 ru
 rv

