

```

class Solution {
    /*
    public List<String> letterCombinations(String digits) {
        String[] strs
            = {"", "", "abc", "def", "ghi", "jkl", "mno", "pqrs", "tuv", "wxyz"};
        List<String> res = new ArrayList<>();
        if (digits == null || digits.length() == 0)
            return res;
        helper(digits, 0, strs, "", res);
        return res;
    }
    */
    public List<String> letterCombinations(String digits) {
        String[] strs
            = {"", "", "abc", "def", "ghi", "jkl", "mno", "pqrs", "tuv", "wxyz"};
        LinkedList<String> res = new LinkedList<>();
        if (digits == null || digits.length() == 0)
            return res;
        res.add("");
        for (int i = 0; i < digits.length(); i++) {
            String s = strs[digits.charAt(i) - '0'];
            int len = res.size();
            while (len > 0) {
                String cur = res.poll();
                for (int j = 0; j < s.length(); j++) {
                    res.offer(cur + s.charAt(j));
                }
                len--;
            }
        }
        return res;
    }

    public void helper(String d, int idx, String[] strs, String cur, List<String> res) {
        if (idx < d.length()) {
            String s = strs[d.charAt(idx) - '0'];
            for (int i = 0; i < s.length(); i++) {
                helper(d, idx+1, strs, cur+s.charAt(i), res);
            }
        } else {
            res.add(cur);
        }
    }
}

```