import java.util.\*;

class Solution {

public static ArrayList<String> ans;

public static String input;

public static String[] mapping={"","","abc","def","ghi","jkl","mno","pqrs","tuv","wxyz"};

public static void combinations(int i,StringBuilder ds){

if(input==""||input.length()==0) return;

if(i==input.length()){

String s= new String(ds);

ans.add(s);

return;

}

String chars=mapping[Integer.parseInt(String.valueOf(input.charAt(i)))];

for(char c:chars.toCharArray()){

ds.append(c);

combinations(i+1,ds);

ds.deleteCharAt(ds.length()-1);

}

}

public static List<String> letterCombinations(String digits) {

StringBuilder s=new StringBuilder();

ans=new ArrayList<String>();

input=new String(digits);

combinations(0,s);

return ans;

}

}