

```

class Solution {
    public String convert(String s, int numRows) {
        if (numRows == 1) {
            return s;
        }
        List<StringBuilder> list = new ArrayList<>();
        for (int i = 0; i < numRows; i++) {
            list.add(new StringBuilder());
        }
        int r = 0, idx = 0;
        boolean down = true;
        while (idx < s.length()) {
            list.get(r).append(s.charAt(idx++));
            if (down) {
                r++;
                if (r == numRows) {
                    r = numRows - 2;
                    down = false;
                }
            } else {
                r--;
                if (r < 0) {
                    r = 1;
                    down = true;
                }
            }
        }
        StringBuilder sb = new StringBuilder();
        for (StringBuilder sbuilder : list) {
            sb.append(sbuilder);
        }
        return sb.toString();
    }
}

```