Problem 5: Funny Necklace Numbers
11 Points

Problem ID: `necklace`

Rank: 2

Introduction

You are playing a game with beads on bracelets. Each bead has a number, and the bracelet can only be rotated around your wrist (not flipped or reversed or otherwise rearranged). You gain points based on how you orient your bracelet around your wrist, starting at a set spot on your wrist and reading the beads left to right to form a single integer. You want to know the maximum number of points you can gain by rotating the bracelet around the set point.

Your task is to create a program that will take in a number and output the highest possible number attainable by rotating it in place.

Program Input

The first line of the input from STDIN will contain a positive integer `T` denoting the number of test cases that follow. Each test case will have the following input:

- A single line containing a positive integer `n`

Example Input:

```
4
12
6493
9919
100
```

Program Output

For each test case, your program should output the largest possible number attainable by rotating the current number in place. For example, rotating "123" one to the right will yield the number "312." You should not include leading zeros.

Example Output:

```
21
9364
9991
100
```

Problem Constraints

$T \leq 100$

$0 < n \leq 1.0 \times 10^8$