Problem 2847: Smallest Number With Given Digit Product

Problem Information

Difficulty: Medium
Acceptance Rate: 43.57%
Paid Only: Yes
Tags: Math, Greedy

Problem Description

Given a **positive** integer `n`, return _a string representing the**smallest positive** integer such that the product of its digits is equal to_ `n` _, or_`"-1"`_if no such number exists_.

Example 1:

Input: n = 105 **Output:** "357" **Explanation:** 3 * 5 * 7 = 105. It can be shown that 357 is the smallest number with a product of digits equal to 105. So the answer would be "357".

Example 2:

Input: n = 7 **Output:** "7" **Explanation:** Since 7 has only one digit, its product of digits would be 7. We will show that 7 is the smallest number with a product of digits equal to 7. Since the product of numbers 1 to 6 is 1 to 6 respectively, so "7" would be the answer.

Example 3:

Input: n = 44 **Output:** "-1" **Explanation:** It can be shown that there is no number such that its product of digits is equal to 44. So the answer would be "-1".

Constraints:

* `1 <= n <= 1018`

Code Snippets

C++:

```
class Solution {
public:
string smallestNumber(long long n) {

}
};
```

Java:

```
class Solution {
public String smallestNumber(long n) {

}
}
```

Python3:

```
class Solution:
def smallestNumber(self, n: int) -> str:
```