357. Count Numbers with Unique Digits

题目描述:https://leetcode.com/problems/count-numbers-with-unique-digits/

> 给定一个数x，求 0 <= n < 10^x 范围内每位互不相同的整数。
> 例如:
>
> ```
> x = 2
> return: 91
> because: except for 11, 22, 33, 44, 55, 66, 77, 88, 99
> ```

解题思路:

假设 a[x] 代表x位整数的互不相同的整数个数 则:
a[0] = 1
a[1] = 9
a[2] = 9 * 9
a[3] = 9 * 9 * 8
...
a[k] = 9 * 9 * 8 * ... * (11 - k)

代码:

```
class Solution {
public:
    int countNumbersWithUniqueDigits(int n) {
        vector<int> f(n+1, 0);
        f[0] = 1;
        for (int i = 1; i <= n; i++) {
            f[i] = 9;
            int count = i-1;
            while(count > 0){
                f[i] = f[i] * (10 - count);
                count--;
            }
            f[i] += f[i-1];
        }
        return f[n];
    }
};
```