**[Combination Sum III](https://leetcode.com/problems/combination-sum-iii/description/)**

Find all valid combinations of k numbers that sum up to n such that the following conditions are true:

* Only numbers 1 through 9 are used.
* Each number is used **at most once**.

Return *a list of all possible valid combinations*. The list must not contain the same combination twice, and the combinations may be returned in any order.

**Example 1:**

**Input:** k = 3, n = 7

**Output:** [[1,2,4]]

**Explanation:**

1 + 2 + 4 = 7

There are no other valid combinations.

**Example 2:**

**Input:** k = 3, n = 9

**Output:** [[1,2,6],[1,3,5],[2,3,4]]

**Explanation:**

1 + 2 + 6 = 9

1 + 3 + 5 = 9

2 + 3 + 4 = 9

There are no other valid combinations.

**Example 3:**

**Input:** k = 4, n = 1

**Output:** []

**Explanation:** There are no valid combinations.

Using 4 different numbers in the range [1,9], the smallest sum we can get is 1+2+3+4 = 10 and since 10 > 1, there are no valid combination.

**Constraints:**

* 2 <= k <= 9
* 1 <= n <= 60