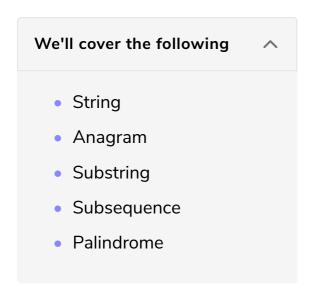
#### **Strings**

In this lesson, we'll discuss common string terms before moving onto problems.



## String #

A string is a sequence of characters; hence it can be represented using an array of characters.

C++ also has a string type that can be used instead of char[].

First, let's go over some common terms used in programming competitions for strings.

### Anagram #

The anagram of a string is obtained by rearranging the letters in the string.

For example: evil is an anagram of live, other anagrams are leiv and vile.

Whereas lie is not because we removed v.

# Substring #

Substring is a *contiguous* sequence of characters within a string. Analogous to *subarray* in arrays.

For example, for the string

ror example, for the string competitive

comp, tive, and pet are substrings. cope is not because it's not contiguous in
competitive.

Correspondingly, there are  $[rac{N imes(N-1)}{2}+N]$  substrings in a string of length N.

#### Subsequence #

A subsequence of a sequence is obtained by deleting some or none of the elements without changing the order of elements. Similar to what we discussed in arrays.

For example, for the string competitive:

• cope and pit are subsequences but tom is not.

There are  $2^N2N$  subsequences of a string of length N.

#### Palindrome #

Palindromes are simply strings that read the same forwards and backwards.

For example: madam or racecar is the same spelt backwards.

In the next lesson, we'll see how to use C++ STL string.