



Day-1

'Beginner' Track

Introduction to Programming

- User Input
- Output
- Loops
- Conditions
- Data Types
- Etc.

Note: Just go through the link, of your preferred language.

- C++: <https://www.w3schools.com/cpp/>
(Just go through the "C++ Tutorial" Sub-Section, as of now)
- Java: <https://www.w3schools.com/java/>
(Just go through the "Java Tutorial" Sub-Section, as of now)
- Python: <https://www.w3schools.com/python/>
(Just go through the "Python Tutorial" Sub Section, as of now)

For running your code:

- Good Online Editor, that might be useful: onlinegdb.com
- IDE(s), that can be installed on your PC's:
 - VS Code
 - Sublime Text Editor
 - Code Blocks

Note: Check out Youtube Videos for more details, regarding the installation, etc. of the above IDE's

What are Competitive Programming (CP) Contests?

CP Contests are time-bounded online individual/team competitions, in which you are given logical, algorithmic, data-structures related problems to solve within the time duration of the contest, using any programming language.

Most used Programming Languages, in Competitive Programming (CP):

C++, Java, Python

General things, in CP (which are a little different from General Programming):

1. **Fast I/O**

It is used to reduce the number of accesses to "input" and "output" streams. - A

Problem to justify, why and how Fast I/O can be useful in CP:

<https://www.spoj.com/problems/INTEST/>

2. **Test Cases**

It is the combination of different inputs, for which you have to give the output of the problem. The different inputs (test cases) are mostly independent (sometimes, dependent) from each other.

Topic: 1-Dimensional Arrays

What are arrays?

1. An Array is a collection of finite values/objects of the same data type.
2. Usually, represented using square brackets [..]
3. For eg.:
4. [1,2,3] → An Integer Array
5. ['a','b','c'] → A Character Array

// Basic Programming Stuff, that should be tried on "1-D Arrays" or "Arrays"

- Declare the Array, with given Input Size
- Input the Array
- Output the Array
- Accessing a value from Array

Note: Just go through the link(s), of your preferred language.

- C++ : <https://www.programiz.com/cpp-programming/arrays>
- Java: <https://www.programiz.com/java-programming/arrays>
- Python: <https://pynative.com/python-accept-list-input-from-user/>,
https://www.w3schools.com/python/python_arrays.asp

The above links will browse you through the programming aspects of 1-D arrays.

Topic: Strings

A String is basically an array of characters. (For ex.: String "abc" can be seen as a character array ['a','b','c'])

It is generally bounded by double quotes, when described. (For ex.: string a = "hi") -

// Similar to Arrays

// Basic Programming Stuff, that should be tried on **Strings**

- Input the String
- Output the String
- Accessing a character of a String

Note: Just go through the link, of your preferred language.

- C++ : https://www.w3schools.com/cpp/cpp_strings.asp
- Java : https://www.w3schools.com/java/java_strings.asp
- Python : https://www.w3schools.com/python/python_strings.asp

The above links will browse you through the programming aspects of *Strings*.