

4. GETTING STARTED WITH C++

1. What is a character set?

Character set is a Set of valid symbols , called characters that a programming language can recognize. These are the fundamental units of the language. It contains

- a). **Letters** : A to Z, a to z
- b). **Digits** : 0 to 9
- c). **Special Characters** : , . ; : > < = etc
- d). **White Space** : blank space, tab, form feed, new line, enter etc...
- e). **Other characters** : C++ can process any of the 256 ASCII characters.

2. What are token? What are different types of tokens used in C++?

Tokens are the fundamental building blocks of the program(**Lexical units**). There are 5 types of tokens in C++.

1. **Key words**: Key words are tokens that carry a specific meaning to the language compiler. They also known as reserved words because they are reserved by the language for special purpose and not be redefined for any other purpose.
2. **Identifiers**: Identifiers are user defined words that are used to name different program elements such as memory locations, statements, functions, classes etc.. Identifiers used for naming memory location is known as **variables**. .. Identifiers assigned to statements are known as **labels**. .. Identifiers used for set of statements are known as **functions**.

3. **Literal** : Literals are data items that never change their values during the program running. They are also known as constants. There are 4 types of literals

a) **Integer literal**: tokens formed only by digits. It must have at least one digit and must not have decimal point. It may contain +ve or _ve sign as first character. If there is no sign it is treated as positive. Other characters are allowed. Eg. 15, -20, +40

b) **Floating Point Literal(Real constants)**: They have fractional part. They can be written in two forms: Fractional and exponential form.

They have at least one digit and a decimal point. They have either +ve or -ve sign. If there is no sign it is treated as positive. In exponential form, there are two parts, Mantissa (Parts appearing before E) and Exponential(Power). Mantissa may be either integer or a valid fractional part. The Mantissa is followed by letter E or e and the exponent. The exponent must be an integer.

Eg: 52.15, -715.12, .458E04

c) **Character Literal** : Single character enclosed with single quotes and that never changes its value during program run. Value of character constant is ASCII value of the character.

Non graphical symbols can be represented by using by escape sequence which consists of a back slash(\) followed by one or more characters. (eg. \n, \a..). (‘, ’, ? etc are also written with escape sequence because they carry special purpose).

Eg. Valid Character Literal: ‘s’, ‘\$’, ‘\n’

Invalid Character Literal: ‘82’, ‘k’, ‘\8’

d). **String Literals**: Sequence of one or more characters enclosed within a pair of double quotes. Eg. “computer”

4. **Punctuators**: Special symbols that have syntactic or semantic meaning to the compiler. Eg: #, : , ’ , ” ,() ,[,]

5. **Operators:** An operator is a symbol that tells the compiler about a specific operation.

Operators are the tokens that trigger some kind of operations. The operations applied on a set of data called operands

3. What are rules in naming of identifiers?

- b). First character must be letter or _(under a). It may contain an arbitrary long sequence of letters, digits and _ (under score)
- c). White space and special characters are not allowed.
- d). Key words can not be used.
- e). Upper and Lower case letters are treated separately(case sensitive).

Eg.

Valid identifiers: _dob, FOR, Count

Invalid identifiers: sum of, 1styear, for.....

4. Briefly describe the C++ IDE and its features

C++ integrated development environment is depend on the compiler used. It is used for supporting in developing a C++ program. They provide facilities for typing, editing, searching compiling linking and executing a C++ program.

It have menu with File, Edit, Search, Run, Compile, debug etc as menu items.

File-> open is used to open a new project.

File-> save is used to save program.

Compile is used to compile the written program.

Run is used to execute the program .

File->quit is used to exit .

Previous Question

1. Which header file is responsible for cout and cin objects ? (1)
2. C++ uses the language processor for translation. (1)
3.are tokens that never change their values while execution takes place. (1)
4.are tokens that never change their values while execution takes place. (1)
5. IDE stands for (1)
6. Identify and classify the different tokens in the following C++ statement.
Age = 18;
Ans: age : identifier =: operator 18 : Literal ; : Punctuator (2)
7. Explain the rules for naming identifiers. (2)
8. The following are invalid identifiers in C++. Write a reason for each.
a) Id# b) void c) 2ab d) avg hgt (2)
9. Define tokens in C++. List any four types of tokens. (3)
10. a). What is a token in C++ ? (1)
b). Distinguish between keywords and identifiers. (2)