C PROGRAMMING LANGUAGE

INTRODUCTION

C is a general – purpose, procedural computer programming language supporting structured programming. In 1970's Dennis Ritchie led to the development of 'C' language ,which was influenced from Ken Thompson interpreter based language named 'B' .

INTRODUCTION

- The new language developed by Dennis Ritchie is compiler based and the whole process taken place at AT&T Bell Laboratory in USA between 1972to 1973 to make utilities running on Unix. later , it was applied to re-implementing the kernel of the Unix operating system. During 1980's, 'C' gradually gained popularity. It has become one of the most widely used programming languages.
- Unlike some other programming language 'C' is a free-form language .That is the 'C' compiler does not care, where on the line we being typing. While this may be a licence for bad programming, we should try to use this fact to our advantage in developing readable programs.

BASIC STRUCTURE OF C PROGRAM

- A ‘C’ program can be viewed as a group of building blocks called Function. A Function is a subroutine that may include one or more statements designed to perform a specific task. To write a program, we first create functions and then put them together.
- **A ‘C’ program may contain one or more sections as-**

BASIC STRUCTURE OF C PROGRAM

- Documentation section
- Link section
- Definition section
- Global Declaration Section
- main () Function Section
- {
- Declaration part
- Executable part
- }
- Subprogram Section
- Function 1
- Function 2
- .
- .
- Function n

EXECUTING A C PROGRAM

- **Executing a ‘C’ program involves a series of steps. These are-**
- Creating the program
- Compiling the program
- Linking the program with functions that are needed from ‘C’ library.
- Executing the program.

.CHAPTER 2

CONSTANT VARIABLE AND DATA TYPE

- **INTRODUCTION**

- A programming language is designed to help process certain kind of data consisting of number ,characters and strings and to provide useful output known as *information*. The task of processing of data is accomplished by executing a sequence of precise instructions called a *program.* These instructions are formed using certain symbols and words according to some rigid rules known as syntax rules. Like any other language,'C' has its own vocabulary and grammar.

CHARACTER SET

The characters that can be used to form words, numbers and expressions depend upon the computer on which the program is run .the characters in ‘C’ are grouped into the following categories:-

- Letter
- Digits
- Special characters
- White spaces

C TOKENS

- In a passage of text , individual words and punctuation marks are called *tokens*. similarly, in a ‘C’ program the smallest individual units are known as ‘C’ tokens. Following are ‘C’ tokens –
- Keywords
- Identifiers
- Constants
- String
- Special symbol
- Operators

KEYWORDS AND IDENTIFIERS

Every ‘C’ word is classified as either a *keyword* or an *identifier.* All keywords have fixed meanings and these meanings cannot be changed. All keywords must be written in lowercase. Keywords serve as basic building blocks for program statements.

- Identifiers refers to the names of variables, functions and arrays . These are user defined names and consist of a sequence of letters and digits ,with a letter as a first character.

KEYWORDS AND IDENTIFIERS

- **RULES FOR IDENTIFIERS**
- First character must be an alphabet (or underscore) .
- Must consist of only letters, digits or underscore.
- Only first 31 characters are significant.
- Cannot use a keyword.
- Must not contain white space.
-

CONSTANTS

- Constant in ‘C’ refer to fixed values that do not change during the execution of a program. ‘C’ support several types of constants ,these are—
- **Numeric constants**
- a). Integer constants
- b). Real constant

Character constants

- a). Single character constants
- b). String constants

5. VARIABLES

- A variable is a data name that may be used to store a data value. A variable may take different values at different times during execution .
- A variable name can be chosen by the programmer in a meaningful way so as to reflect its function or nature in the program. For example-
- name
- age
- city
- salary etc.

5. VARIABLES

- Rules for creating variable
- I). they must begin with a letter.
- II). Its length not more than 31 characters ,since only the first eight characters are treated as significant.
- III). Uppercase and Lowercase are significant.
- IV). It should not be a keyword.
- V). White space is not allowed.

6. DATA TYPE

- C language is rich in its ***data types***. The variety of data types available allow the programmer to select the type appropriate to the needs of the application as well as the machine.
- ANSI C supports three classes of data types :-
- **A). Primary(Fundamental) data types** : All 'C' compilers support five fundamental data types namely integer (int) ,character (char),floating point(float), double and void.

6. DATA TYPE

- **B). Derived data types :-** these are data types that derive from primary data type such as arrays , functions , structure , and pointers .
- **C). User-defined data types;-** C supports a feature known as “type definition” that allows users to define an identifier that would represent an existing data type. The user-define data type identifier can later be used to declare variables.

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- BCA /PT 2
- PAPER 3

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