



# C PROGRAMING

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# Tokens

- Smallest Individual unit of the program is called as token
- C program is made up of functions.
- Function is made up of statements.
- Statement contain multiple tokens.
  - Keywords
  - Data Types
  - Identifiers
  - Variables
  - Constants
  - Operators



# Keywords

- Keywords are predefined words used in program, which have special meanings to the compiler.
- They are reserved words, so cannot be used as identifier.
- K & R C has 27 keywords. C89 added 5 keywords. C99 added 5 new keywords.

|          |        |          |          |
|----------|--------|----------|----------|
| auto     | double | int      | struct   |
| break    | else   | long     | switch   |
| case     | enum   | register | typedef  |
| char     | extern | return   | union    |
| const    | float  | short    | unsigned |
| continue | for    | signed   | void     |
| default  | goto   | sizeof   | volatile |
| do       | if     | static   | while    |



# Identifiers

- Identifiers give names to variables, functions, defined types and pre-processor macros.
- Rules of Identifiers:
  - Should start with alphabet or with \_ (underscore)
  - The first character of an identifier cannot be digit it should be letter ( either uppercase or lowercase)
  - Can include alphabets, \_ (underscore), digits
  - Case sensitive
- Examples:
  - Var\_1 //Valid
  - 1\_var // Not Valid
  - \_var //valid
  - Var-1 // invalid
  - Basic Salary //invalid



# Data Types, Variables & Constants

- C allows computations to be performed on various types of data.
  - Numerical: Whole numbers, Real numbers
  - Character: Single character, Strings
- Fixed data values are said to be constants.
  - 12, -45, 0, 2.3, 76.9, 'A', "Sunbeam", etc.
- Data is hold in memory locations identified by names called as variables.
  - Variable must be declared before its use in the program.
  - As per need, variable have some data type.
- Simple C data types are: int, double, char.
  - Data type represents amount of space assigned to the variable.
  - It also defines internal storage of the data.



# printf()

- Arbitrary strings and variable values can be printed using printf() function.
  - int - %d
  - double - %lf
  - char - %c
  - float - %f
- Examples:
  - printf("Hello PreCAT @ Sunbeam");
  - printf("%d", roll\_number);
  - printf("%d %lf %c", number, basic\_salary, letter);
  - printf("Book price is %lf", price);




# Data Types

- Data type defines storage space and format of variable.
- Primitive types
  - int
  - char
  - float
  - Double
- Type Modifiers
  - It modifies the range of base type
    - Signed
    - Unsigned
    - Short
    - Long
- Integer types can be signed and unsigned
- Derived types
  - Array
  - Pointer
  - Function
- Type qualifiers
  - There are used to indicate special properties
    - const and volatile
- User defined types
  - struct
  - union
  - enum
- void type – represent no value.



# FORMAT SPECIFIERS

- char - %c
- int - %d,%i
- float - %f
- double - %lf
- long int - %ld
- short int - %hd
- unsigned long - %lu 
- unsigned short - %hu
- string type - %s
- Pointer type - %p





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- GIT Bash
  - Zoom channel





Thank you!

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