



# 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

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- 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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