

ASSIGNMENT-1

[DATE:20-11-2025]

1)What is C-Language?

Ans. C is general-purposed procedural programming language initially developed by **Dennis Ritchie** in **1972** at Bell Laboratories of AT&T Labs. It was mainly created as a system programming language to write the **UNIX operating system**.

C-Language is considered **mother of all programming languages** as many later languages like Java ,PHP and JavaScript have borrowed syntax directly or indirectly from C.

2)Applications of C Programming?

Ans. Some of the applications of c programming language are:

- C is used to develop core components of operating systems such as Windows, Linux and mac operating system.
- C is applied in embedded systems in small machines/devices such as microwave ovens, washing machines and printers.
- C is used to create game engines.
- C is applied to develop database engines, MYSQL database is implemented using c.
- C is employed to create programs for devices and sensors of IOT.
- C is employed to create desktop applications.

Eg: Notepad++.

3)What is variable? Explain about variable?

Ans. A **variable** is a named memory location in a program that stores data which can be changed during program execution. It acts as a container for values that the program can manipulate.

Rules for Declaring Variables:

1. **Valid Name:** the variable name must start with a letter (A-Z, a-z) or an underscore(_). It cannot begin with a digit.
2. **No Keyword:** Variable names cannot be the same as reserved keywords or special words in the programming language (e.g. ,int, return).
3. **No Spaces or Special Characters:** variable names cannot contain spaces or special characters like @, #, \$, %, etc. only letters, digits, and underscores are allowed.
4. **Case Sensitive:** variable names are case sensitive, meaning Variable and variable are considered different.
5. **Meaningful Names:** Although not mandatory. Variables names should be meaningful and describe the purpose of the data for better readability.

Eg: `int a=10;`

Here 'a' is a variable.

4)What are the different types of datatypes in C?

Ans. Data types refers to the type of data that we are using in a C program. Whenever we utilize a data type in C program. We define the variables or functions used in it.

Data types in C are classified as:

1. Basic [int, float, char, double]
2. Derived [array, pointers, structure, union]
3. Enumeration [enum]
4. Void

5)What is format specifier?

Ans. Format specifiers in C are placeholders used in input and output functions like printf() and scanf() to define the type and format of the data being read or displayed. They always start with a percentage sign (%) followed by a character that indicates the data type.

The appropriate format specifier must be used for each data type to ensure the compiler correctly interprets the data.

DATA TYPE	FORMAT SPECIFIER	DESCRIPTION
int	%d or %i	Signed integer
Unsigned int	%u	Unsigned integer
Short int	%hd	Short integer
Long int	%ld	Long integer
Long long int	%lld	Long long integer
float	%f	Floating-point number
double	%lf	Double precision
Long double	%Lf	Long double
char	%c	String character
Char[] or string	%s	String of characters

pointer	%p	Memory address(pointer)
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