Technical Training

Mission 2024

C-TRAINING

DAY-01

BATCH 2023-2024

DILIP BHARTI

C-TRAINING

ABES Engineering College

C-PROGRAMMING LANGUAGE:

- INTRODUCTION
- DATA TYPE AND VARIABLS
- STEP OF PRORAMMING
- INPUT / OUTPUT
- FORMATE SPECIFIRE /ESCAPE SEQUENCE
- HACKERRANK QUESTIONA AND SOLUTIONS
- ASSIGNMENT FOR PRACTICE

C-TRAINING

ABES Engineering College

INTRODUCTION:

What is C?

•C is a general-purpose programming language created by Dennis Ritchie at the Bell Laboratories in 1972.
•It is a very popular language, despite being old.
•C is strongly associated with UNIX, as it was developed to write the UNIX operating system.

Why Learn C?

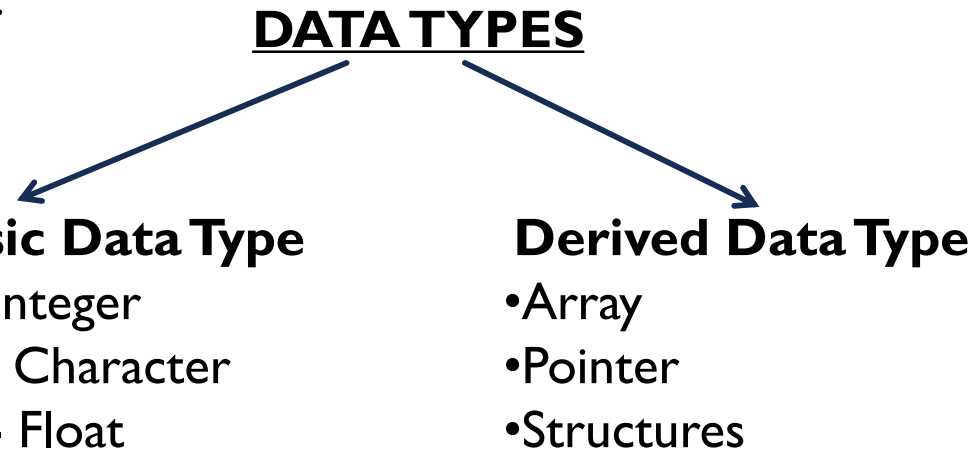
•It is one of the most popular programming language in the world
•If you know C, you will have no problem learning other popular programming languages such as Java, Python, C++ etc, as the syntax is similar
•C is very fast, compared to other programming languages, like Java and Python
•C is very versatile; it can be used in both applications and technologies

C-TRAINING

ABES Engineering College

DATA TYPES :

Data types are the type of data stored in a program. Data types are used while defining a **variable** or **functions** The compiler needs to understand the type of predefined data it will encounter in the program. A data type is an attribute that tells a computer how to interpret the value.



VARIABLES:

Variables are used to store the value during the execution of a program.
The variables are stored in Main Memory i.e. RAM (size depending on the data type).

- The 1st letter should be alphabet.
- Variables can be combination of alphabets and digits.
- Underscore (_) is the only special character allowed.
- Variables can be written in both Uppercase and Lowercase or combination of both.
- Variables are Case Sensitive.
- No Spaces allowed between Characters.
- Variable name should not make use to the C Reserved Keywords.
- Variable name should not start with a number.

C-TRAINING

ABES Engineering College

STEPS OF PRORAMMING :

VARIABLES

↓

INPUT

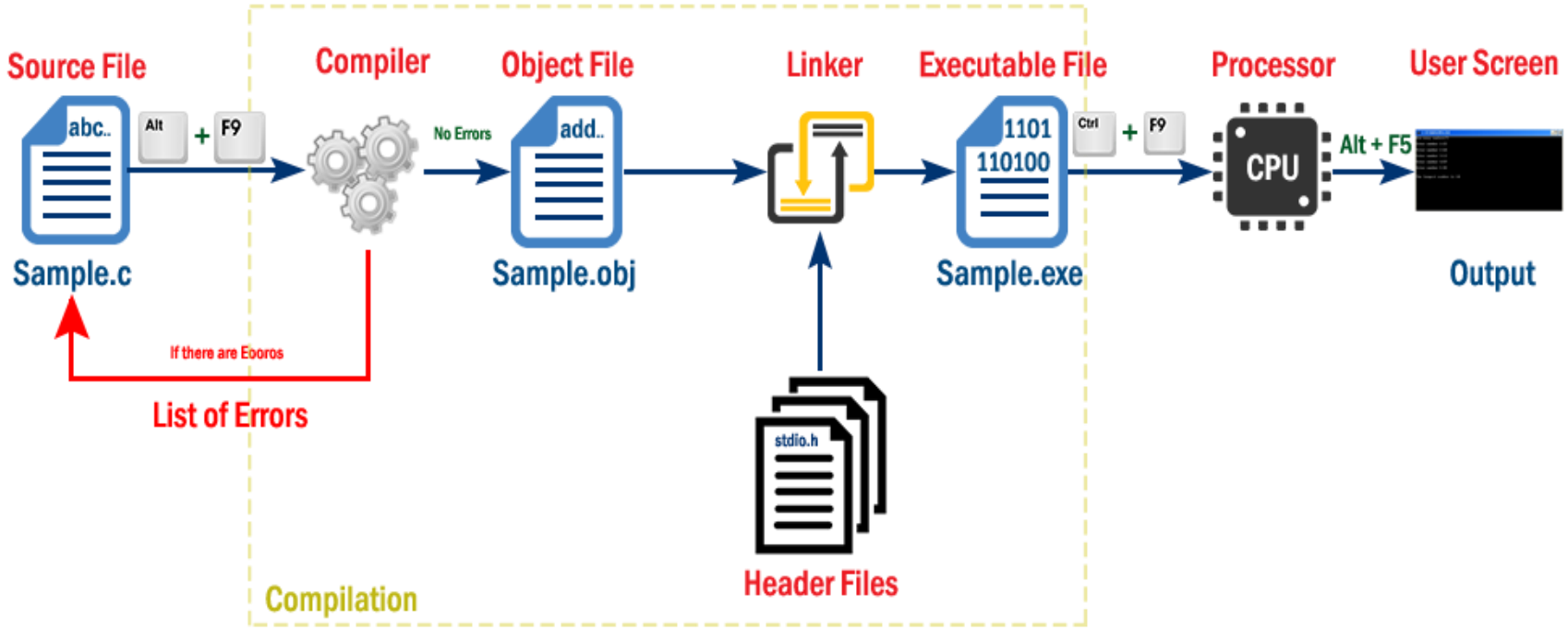
↓

LOGIC

↓

OUTPUT

EXECUTION OF PRORAMMING :



C-TRAINING

ABES Engineering College

INPUT / OUTPUT :

Input:

When a programmer says input, it would mean that they are feeding some data or info in the program. They can give this input from the command line or in the form of any file. The C programming language comes with a set of various built-in functions for reading the input and then feeding it to the available program as per our requirements.

Example: scanf(),gets(),getch(),

Output:

On the other hand, when a programmer says output, they mean displaying some data and information on the printer, the screen, or any other file. The C programming language also comes with various built-in functions for generating the output of the available data on any screen & printer, and also for saving the output in the form of binary files or texts.

Example: printf(), puts().

C-TRAINING

ABES Engineering College

FORMAT SPECIFIER /ESCAPE SEQUENCE:

FORMAT SPECIFIER:

An escape sequence is a sequence of characters that are used in formatting the output. They are not displayed on the screen while printing. Each character has its specific function. For example, \t is used to insert a tab, and \n is used to add a new line

Escape Sequence	Description
\t	tab space
\b	backspace
\n	new line
\'	single quote character
\"	double quote character
\\	backslash character

ESCAPE SEQUENCE:

A format specifier in C programming is used to define the type of data we are printing to the output or accepting through the input. Through this, we tell the compiler what type of variable we are using for input while using scanf() or output while using printf(). Some examples of format specifiers are %d, %c, %f, etc.

Format Specifier	Type
%c	print a character
%d	print the signed integer
%f	print the float values
%lu	print the unsigned long integer
%s	print the string
%u	print the unsigned integer

C-TRAINING

ABES Engineering College

Character Set, Format Specified, Logical Terms :

Practice Questions:

1. **Print ASCII values.(48-57 0-9|65-90 A-Z|97-122=a-z).**
2. **Print different Scope Values (Existence of variable).**
3. **Swap tow Number without and with third variable.**
4. **Sum of digits without using loop(use number of variables and single Variable).**
5. **Reverse digits without using loop (use number of variables and single Variable).**

C-TRAINING

ABES Engineering College

Character Set, Format Specified

Example: DAY01/HR01

```c
#include <stdio.h>
#include <string.h>
int main()
{

    char s[100];
    scanf("%[^\n]%*c", &s);
    printf("Hello, World!\n");
    printf(s);
    return 0;
}
```

Sample Input:

Welcome to C programming.

Sample Output:

C-TRAINING

ABES Engineering College

Character Set, Format Specified

Example: : DAY01/HR01

```c
#include <stdio.h>
#include <string.h>
int main()
{

    char s[100];
    scanf("%[^\n]%*c", &s);
    printf("Hello, World!\n");
    printf(s);
    return 0;
}
```

Sample Input:

Welcome to C programming.

Sample Output:

Hello, World!

Welcome to C programming.

Use the format string "%[^\n]%*c" with scanf();, it will read a line of text until it encounters the Enter key (newline character), store that line in a character array, and then discard the newline character from the input buffer. This is a common way to read entire lines of text from the user while ensuring that the newline character does not interfere with subsequent input operations.

C-TRAINING

ABES Engineering College

Character Set, Format Specified

Example: : DAY01/HR02

```c
#include <stdio.h>
#include <string.h>
int main()
{
    char ch;
    char s[24];
    char t[100];

    scanf("%c", &ch);
    scanf("%s", s);
    getchar();
    scanf("%[^\n]%*c", t);
    printf("%c\n", ch);
    printf("%s\n", s);
    printf("%s\n", t);
    return 0;
}
```

Sample Input:

C

Language

Welcome To C!!

Sample Output:

C-TRAINING

ABES Engineering College

Character Set, Format Specified

Example: : DAY01/HR02

```c
#include <stdio.h>
#include <string.h>
int main()
{
    char ch;
    char s[24];
    char t[100];

    scanf("%c", &ch);
    scanf("%s", s);
    getchar();
    scanf("%[^\n]%*c", t);
    printf("%c\n", ch);
    printf("%s\n", s);
    printf("%s\n", t);
    return 0;
}
```

Sample Input:

C
Language
Welcome To C!!

Sample Output:

C
Language
Welcome To C!!

C-TRAINING

ABES Engineering College

Character Set, Format Specified

Example: : DAY01/HR03

```c
#include <stdio.h>
int main()
{
    int a,b;
    float c,d;
    scanf("%d %d",&a,&b);
    scanf("%f %f",&c ,&d);
    int int_sum = a+b;
    int int_diff = a-b;
    float float_sum = c+d;
    float float_diff = c-d;
    printf("%d %d\n",int_sum,int_diff);
    printf("%0.1f %0.1f", float_sum,float_diff);
    return 0;
}
```

Sample Input:

10
4
4.0
2.0

Sample Output:

C-TRAINING

ABES Engineering College

Format Specified

Example: : DAY01/HR03

```c
#include <stdio.h>
int main()
{
    int a,b;
    float c,d;
    scanf("%d %d",&a,&b);
    scanf("%f %f",&c ,&d);
    int int_sum = a+b;
    int int_diff = a-b;
    float float_sum = c+d;
    float float_diff = c-d;
    printf("%d %d\n",int_sum,int_diff);
    printf("%0.1f %0.1f", float_sum,float_diff);
    return 0;
}
```

Sample Input:

10
4
4.0
2.0

Sample Output:

14 6
6.0 2.0

THANK YOU

* * * * *