**Day-02**

**18-02-2025**

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**Programming Fundamentals**

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**Languages**

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-> Languages we can use for the interactions (for sharing the data among group of people)

-> Languages are classified into two types:

1) Natural Languages

2) Programming Languages

-> When group of people want to communicate for exchanging the information, natural languages can be used.

Ex: Telugu, Hindi, English, Marathi, Urdu etc.,

-> Programming languages can be used to make interactions between user and system/computer/machine.

Ex: Java, C++, C#, PHP, Python etc.,

-> Programming languages are classified into three types:

1) Binary languages

2) Assembly Languages

3) High-level languages

1) Binary languages

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-> Binary languages are allowed to defined with only two letters, those are:

0 and 1

Ex: "A" ==> ASCII (American Standard Code Information Interchange) value ==> 65

Upper case alphabets ==> 65 to 90

Lower case alphabets ==> 97 to 122

Digits ==> 0 to 9 ==> 48 to 56

binary for "A" ==> 1000001

-> Drawback with binary languages is:

difficult to handle or maintain or develop by the users/programmers.

2) Assembly Languages

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9 + 7 = 16

add 9,7

sub 9,7

mul 9,7

div 9,7

mov a,9

-> Assembly language is easier to develop or to maintain by the users.

Because these are the combination of binary instructions and tokens which are easily understood by the users.

Drawback:

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-> Assembly languages are processor independent.

When any application (app) developing with assembly language, that application may or may not be execute on all the processors as same.

We need to develop the same application from processor to processor independently.

3) High-level languages:

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-> These are user-friendly languages

because these allow to develop with English like words.

-> Processor dependent languages

-> Platform dependent languages.

**Translators:**

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Source Program ============>Translator ==========> Object code ===========> Computer

-> Translator is a program/software

which we can use to translate the source program into object program.

-> Source program ==> the program which was developed by the user using any programming language.

-> Object program ==> Machine code in the format of 1's and 0's

-> There are two types of translators:

1) Compiler

2) Interpreter

**Compiler Vs Interpreter:**

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-> Compiler can do block by block execution.

-> Interpreter can do line by line execution.