**Day-02**

**21-02-2025**

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**Programming Fundamentals:**

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**Language**

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-> Language can be used to make the communications between different objects.

Ex: Person to person communication

Person to Computer communication

-> Languages are classified into two types:

 1) Natural Languages

 2) Programming Languages

-> When communications between two or more persons, we need "natural languages".

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

-> When communications required between person and computer, we need to use "programming languages".

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

-> Programming languages are classified into three types:

 1) Binary languages

 2) Assembly languages

 3) High level languages

-> Binary language can always define with only two letters, those are:

 1 and 0.

Ex: Person ===========> Computer

 A = 65 ==> 1000001

ASCII (American Standard Code Information Interchange)

 Upper case alphabets ==> A to Z ==> 65 to 90

 Lower case alphabets ==> a to z ==> 97 to 122

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

Drawback: maintenance and handling of binary language is too difficult for humans.

-> Assembly language ==> Middle level language

-> Assembly language ==> combination of binary codes and user codes (tokens)

Ex: addition ==> add

subtraction ==> sub

multiplication ==> mul

division ==> div etc.

add 9,7

sub 9,7

mul 9,8 etc.,

drawback: Processor dependent

ex:

C1 c2 c3

x y z

application -> i

is developing on the computer 'c1' which is running with 'x' processor

-> client has given an instruction:

 'i' ==> need to run on 'x' and 'y' also

i ======> Assembler =======> Machine code/object code (code in 1's and 0's)

-> The application which was developed for "C1' with X processor may or may not be run on C2 with 'y' processor. In this case, to reach the client requirement, we need to develop the same application for all systems and processors uniquely and independently.

-> High level languages are user-friendly languages

-> Processor independent and Platform independent.

-> High level languages are working with two types of translators:

 1) Compiler

 2) Interpreter

High-level language code ======================> machine-level code

 Compiler/Interpreter

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

**Different Types of Applications:**

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-> three types:

 **1) Desktop applications**

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 Ex: Notepad, Calculator etc.

 -> can be used by single person

 **2) Web applications**

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 Ex: Youtube, gmail etc.

 -> can access over the internet.

 -> can allow to access by more than one user.

 **3) Distributed applications**

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 Ex: Phonpe

Let us assume, there are two persons:

p1 ===> ICCIC bank subscriber

p2 ===> Kotak

p1 =======> phonepe

p2 =======> phonepe

p1 ==================> p2

4000 phonepe

 p2's number => 5000

 confirm

 amount

 p1's upiid

phonepe (software) <==============> ICICI Bank server (software)

transaction complete/insufficient balance

**Different Working Domains:**

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Banking

Healthcare

Insurance

Ecommerce etc.,