Basic of programming.

⇒ Programming is the process of giving instructions (Code) to a Computer to perform specific tasks.

⇒ Algorithms :- A step by step procedure to solve a problem.

⇒ Syntax :- The rule & structure of programming language.

⇒ Variable :- Container that store data.

eg - x = 5 Tushar = 95

⇒ Data Types :- Type of value that can be stored in variable.

x = 5 → int (integer)

x = 5.5 → float

x = "Tushar" → Strings (" " → Quotation mark)

x = True / False ⇒ Boolean.

⇒ operators :- Symbols that perform operation.

(+, -, *, /, %, //, <, >, <=, >=, ==)

⇒ Conditional Statement :- = Decision-Making Statement
(If, else, elif)

⇒ Loops :→ Repeating Tasks (for, while)

⇒ Function :→ Reusable block of Code.
(inbuilt / definable)

⇒ Input / output :→ input() / print()

⇒ Error Handling :→ Managing error (try, except)

Type of programming Language.

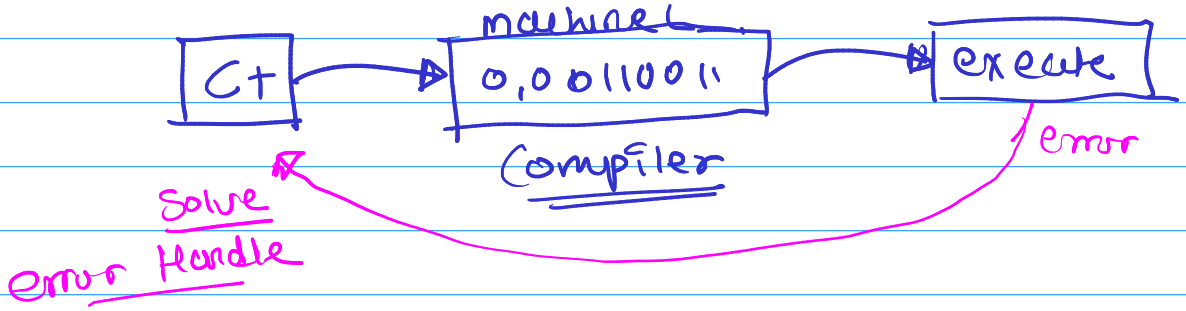
① Low level programming Language.
↳ Machine Code / Assembly Language.
010101 ----- PLC / SCADA / 8085.

② High level programming Language
↳ Python, Java, Java Script, C, C++ etc.

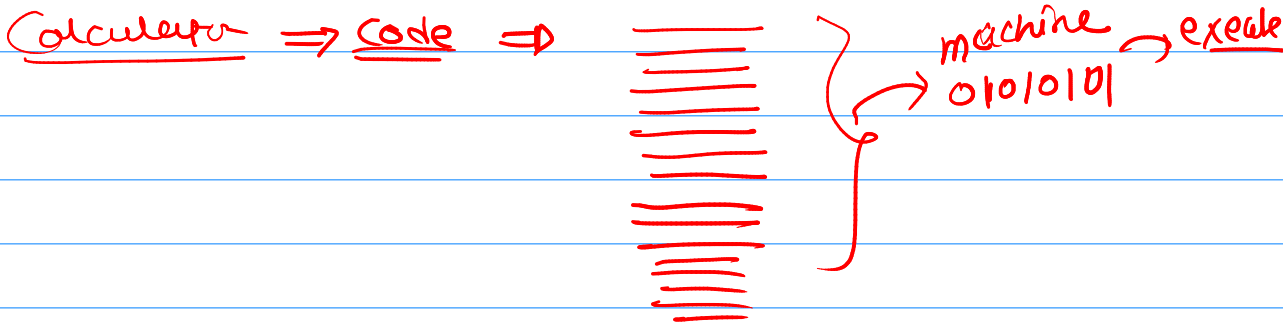
Compiled Vs Interpreted Language

Compiled :→ Code is translated into Machine Language before execution ((010101)

eg- C, C++



- Code not executed line by line.



Interpreted :→ Code is executed line by Line.

eg - Python, JavaScript.

———×———

Python =(R)

→ Python is high level, Interpreted and general purpose programming language.

→ It is widely used for Web development, app developments, automation, Data Analysis, data science & AI.

Why Python :-

(i) Easy to learn & Use - Simple syntax Similar to english.

eg- "Hello world"

JAVA

```
Public class HelloWord
{
Public Static void main (String[]
  arg)
{
 System.out.print ln ("Hello, world");
}
}
```

C

```
# include <stdio.h>
# include <conio.h>
int main ()
  {
 printf ("Hello, world"\n);
 return 0
  }
```

Python →

```
Print ("Hello World")
```

② Versatile :— use to web delopment, app develoment, AI, Data Analysis, Data SCie, Automation etc.

③ Huge Community Support :→ millions of developers & Libraries & Std. doccumentation.

④ Cross-platform :→ Work on Windows, Mac, Linux, android, IOS.

⑤ Libraries & Framework :→ powerful tools like numpy, pandas, TensorFlow, Matplotlib, Seaborn.

Libraries — Math Library - Math

Pandas — data Manipulate. -

Web develop - Flask, django

Libraries are Collection of pre-written code that provide useful functions.

⑥ Productivity and efficiency :→

Less code, faster development.

⇒ **Module** :→ A module in python is a file containing python code that can be imported and reused in other program.

Modules = (function, class, variable)

↳ Built-in-module :— pre installed.
eg-(math, random, os)

↳ user defined — User customize —

→ External module — we need to install & import.
eg- numpy, pandas.

! pip install pandas. → pip install pandas.
import pandas.

pip → python installing package.

= IDE (Integrated Development Environment) is software that helps programmers write, test & debug the code.

↳ PyCharm
VS code
Jupyter Notebook
python.org
Spyder

Laptop - install.

Google Colab.