Program

The computer must be given an appropriate set of instructions called a program, to process a set of data.

→ First, we need to store it in the memory.

→ Only a stored program can be executed/processed.

(1) A set of input data is entered into the computer.

(2) The input data is processed to produce certain desired results called output.

(3) Output may be printed using a printer or displayed on a monitor.

Types of programming language

Basic language : Machine language / Low-level language

↓

A collection of very detailed, cryptic instructions that control the computer's internal circuitry.

add a,b,c

General language : High level languages

Ex: C, BASIC, FORTRAN, PASCAL, JAVA, PYTHON, ...

TRANSLATORS :

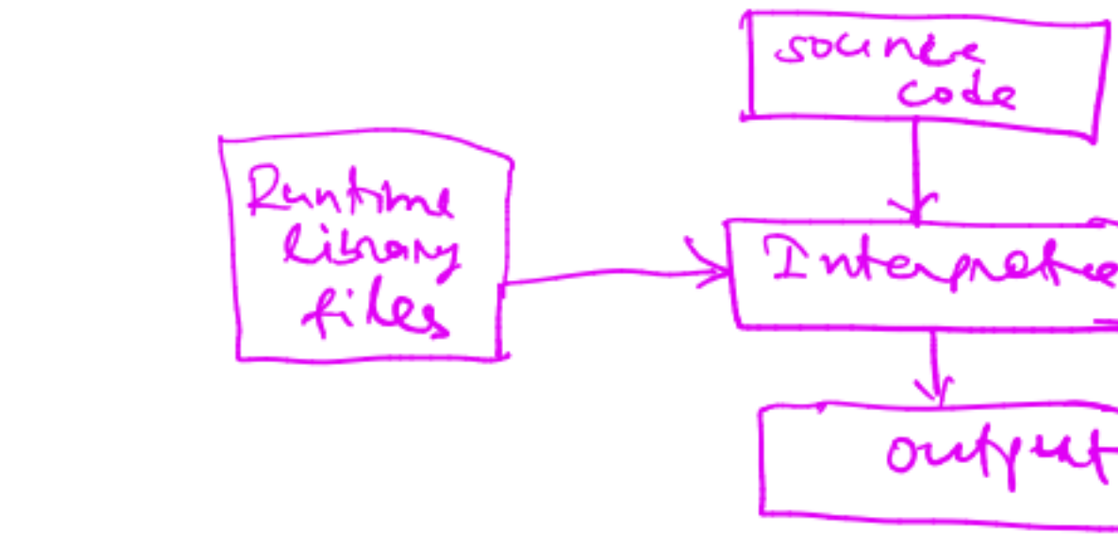
Converts High-level language to machine level language.

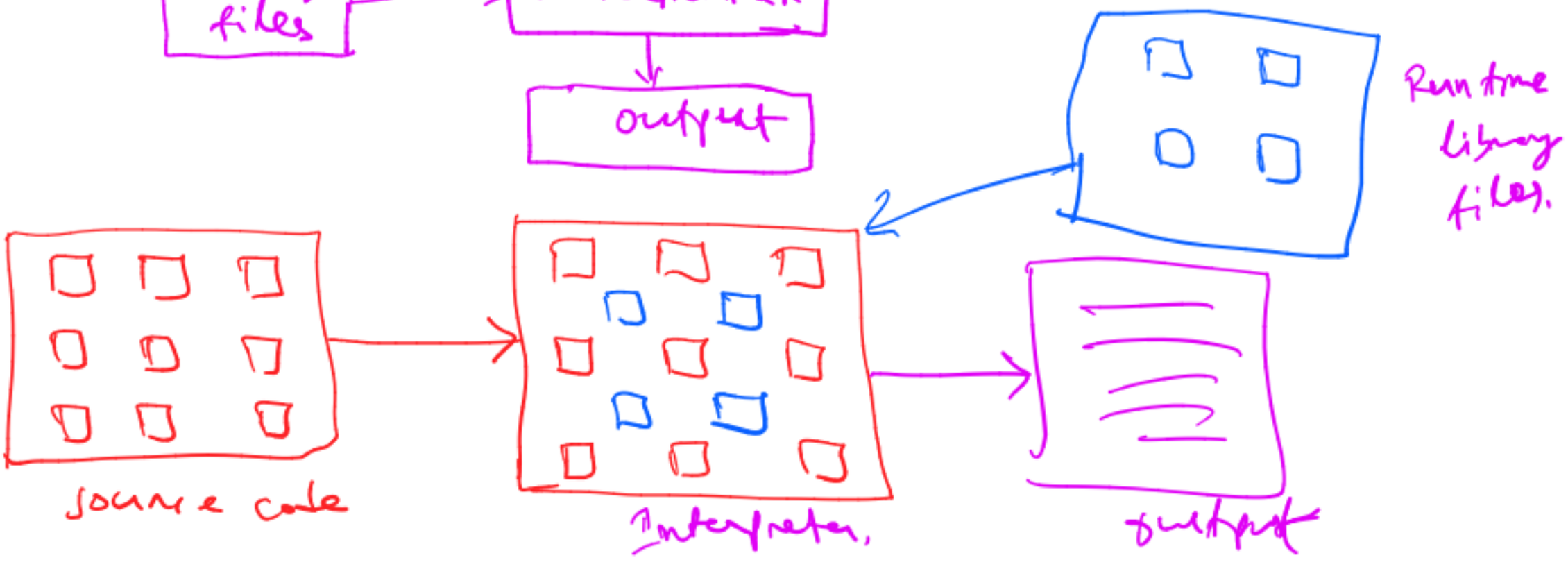
1. Compiler : Translates the entire program.
2. Interpreter : Translates Line by Line.
3. Assembler : Assembly language to Machine language.

Interpreted programming languages : (Python) / Perl

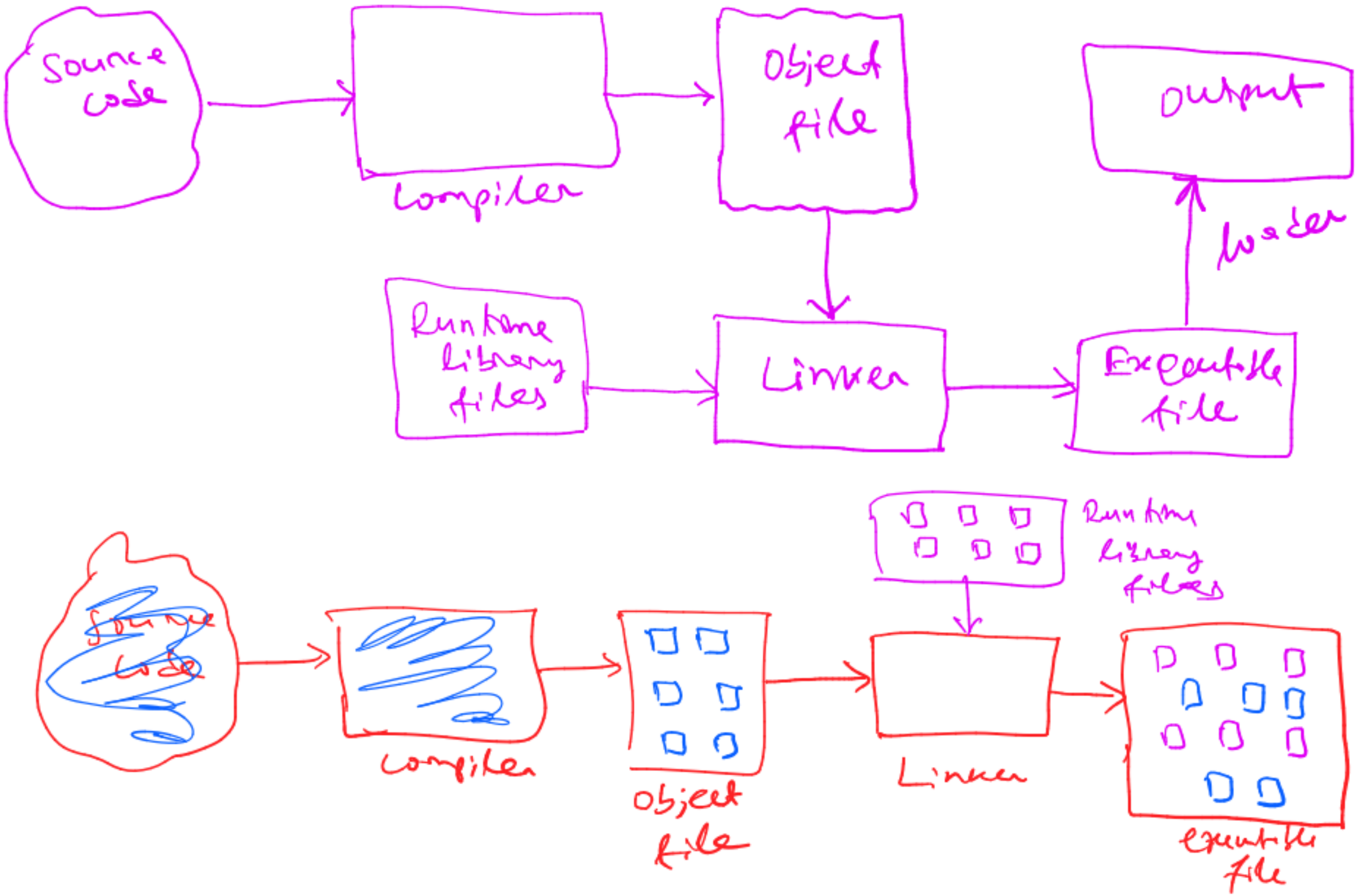
The source code (program) is translated into machine language before the executable file is created.

An interpreter converts the source code into machine language at the same time the program runs.





Compiled programming languages (C , C++)



Compiler → Source code to object file →

↳ Assembly code → Assembler

+ Runtime library files

Linker

executable file.

Loader

RAM

100
102
103
104
105
106
107
128

Void main()
{
int a,b,c;
printf
Scanf
}

C = a+b.

1002

IR

PC

IR → instruction Register

PC → Program Counter.

R0 → R15

R1 → R15

int a;
int b;
int c;