Programming Language

Ⓐ What is a programming Language?

→ Jebabe khabar kavar Jonno Ammu/Abbu ke bolte hoi tik senokom we must instruct our computer to perform some task for us.

→ More formally, a programming Language is a way to communicate with a computer. It is a formal Language which consists of sets of string that produce various kinds of Machine output.

Eg: C, C++, Java, Python, R, GO etc.

```
#include<iostream>

using namespace std;

// main function
// where the execution of program begins
int main()
{
    // print hello world
    cout << "Hello world";

    return 0;
}
```

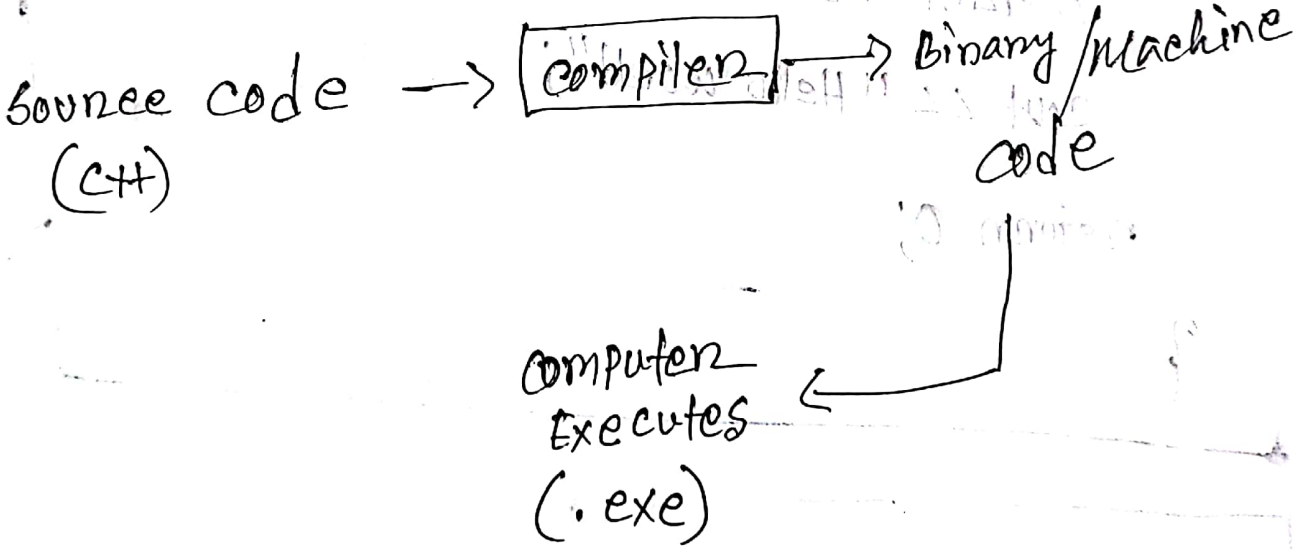
output:

Hello world

→ This code in c++ instructs our computer to print "Hello world" on our screen.

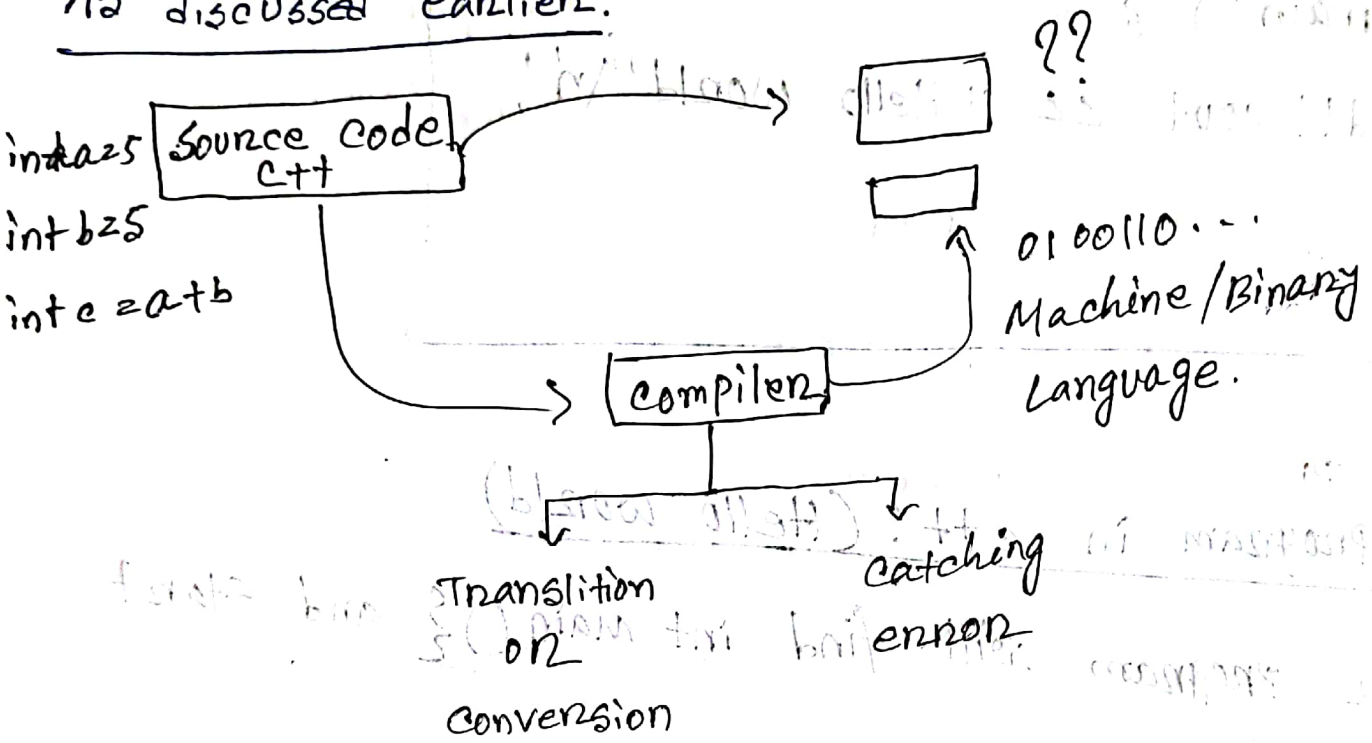
→ Every language must be written following some rules called syntax of that language.

→ A computer essentially only understands binary codes of 0 and 1. A compiler process the statement of a programming language into machine code (Binary).



First program in c++

As discussed eanlier:



IDE (Integnated Development Envinoment)! An Envinoment that helps you write, run and even debug (in some cases) code in a programming language. Eg! VS code, Code Studio, Eclipse, NetBeans etc.

```
#include <iostream>
int main() {
    std:: cout << " Hello world" "\n";
}
```

~~first p~~

first program in c++: (Hello world)

① our program will find int main(){ and start executing } from there.

② int main(){ these brackets show the 'scope' of the }

main function i.e. the code which belongs to / is defined within int main() function.

③ In c++, we use 'cout' to print something

Eg: cout << "Hello world";

④ This cout is already defined in a file (header file)

⑤ which must be included before using cout

⇒ #include <file name> is a preprocessor directive which runs before the program is compiled and includes the file to be used later in the source code.

A file called 'iostream' has cout defined in it

So:

#include <iostream>

Hint: i/o means input/output.

⑤ ~~No~~ Namespaces:

using namespace std;

⑥ Using cout:

we use '<<' after 'cout' to display something to

Standard output (your screen) within std namespace

```
#include <iostream>
using namespace std;
int main () {
    cout << "Ami Naymul";
}
```

output!

Ami Naymul

④ endl; used to enter new line. Just like ENTER, ent endl is like "\n" which is an escape sequence character used in new line various languages including c++.

```
cout << "Hello world" << endl;
```

```
#include <iostream>
using namespace std;
int main () {
  cout << "Ami Naymul " << endl;
}
```

output:

Ami Naymul

→ new line

⑧ endl (;) ; is used to terminate statements.

Data type: Different types of data to be stored in memory. Eg - integer, float, character, double etc.

Eg - int: stores integers like - 5, 0, 8 etc.

char: single character like - 'a', 'f', '$', '7' etc

float: Floating point values like - 2.014, 1.0000, 6.7800 etc.

Different types of data types use different amounts of memory. Amount of memory use also depends