INTRODUCTION TO C

C is a

1. **It is a high level / middle level programming language.**
2. **It is a compiler based programming language.**
3. **It is a procedure oriented programming language [POP].**
4. **It is a general purpose programming language.**

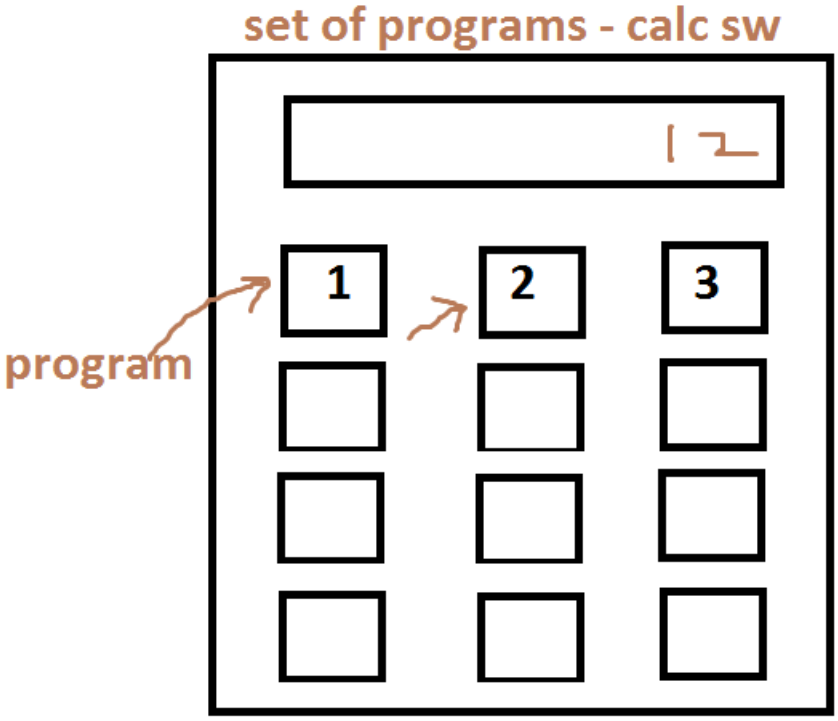
Why C is a high level / middle level language?

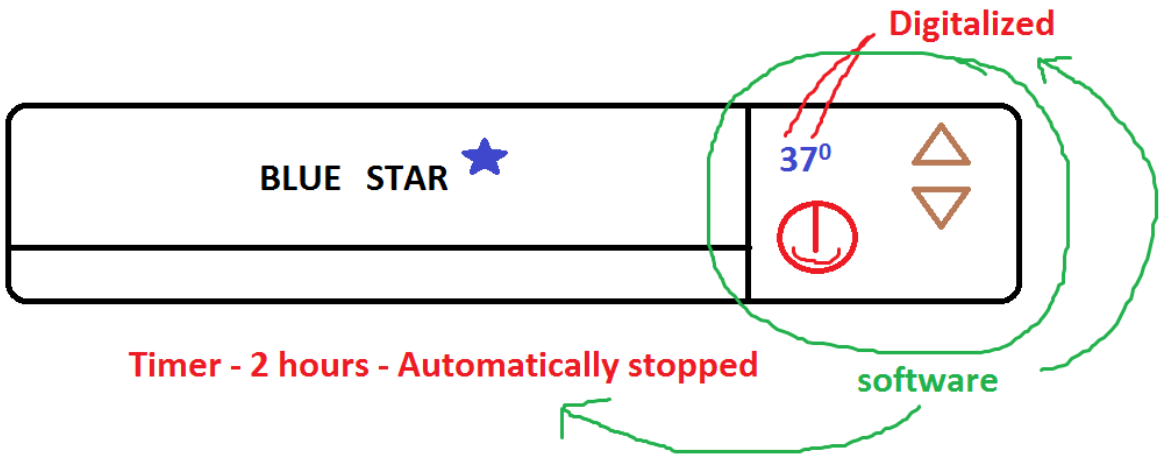
What is a program?

Set of instructions is called program.

What is a software?

Set of programs is called software. As per the it industry software is a digitalized and automated process.





We are having 2 type of software.

1. System software

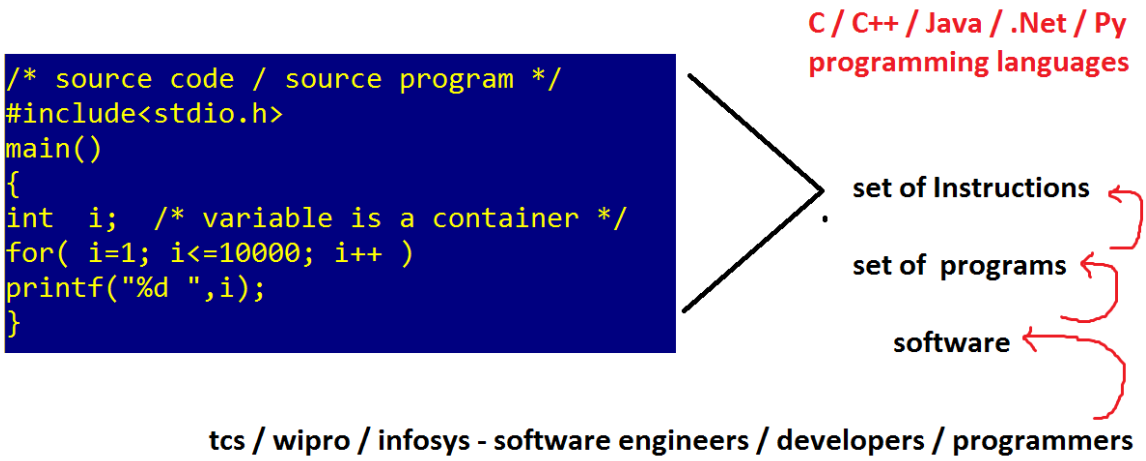
   Eg: os, device drivers, translators

2. Application software

   Eg: fb, googlepay, phonepe, whatsapp,…

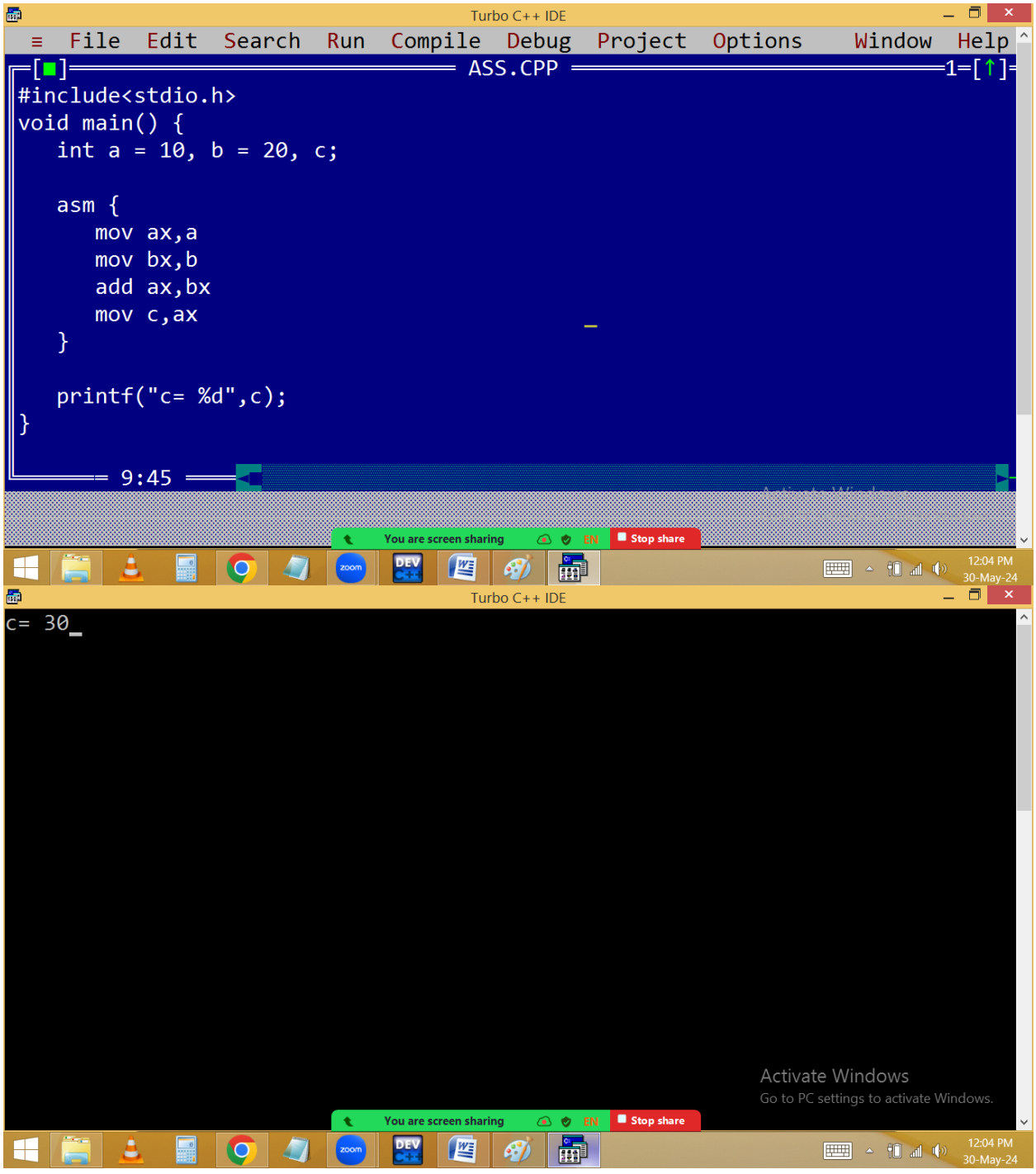
What is a language?

Generally the languages like telugu / English / hindi / Marathi are used to communicate with humans. Hence they are called **human languages**. To communicate with the machines we have to create the **programs** [**software**] and for this we are using the **computer programming languages** like C / C++ / Java / .Net / Python etc.



Basically the computer languages divided into 3 types.

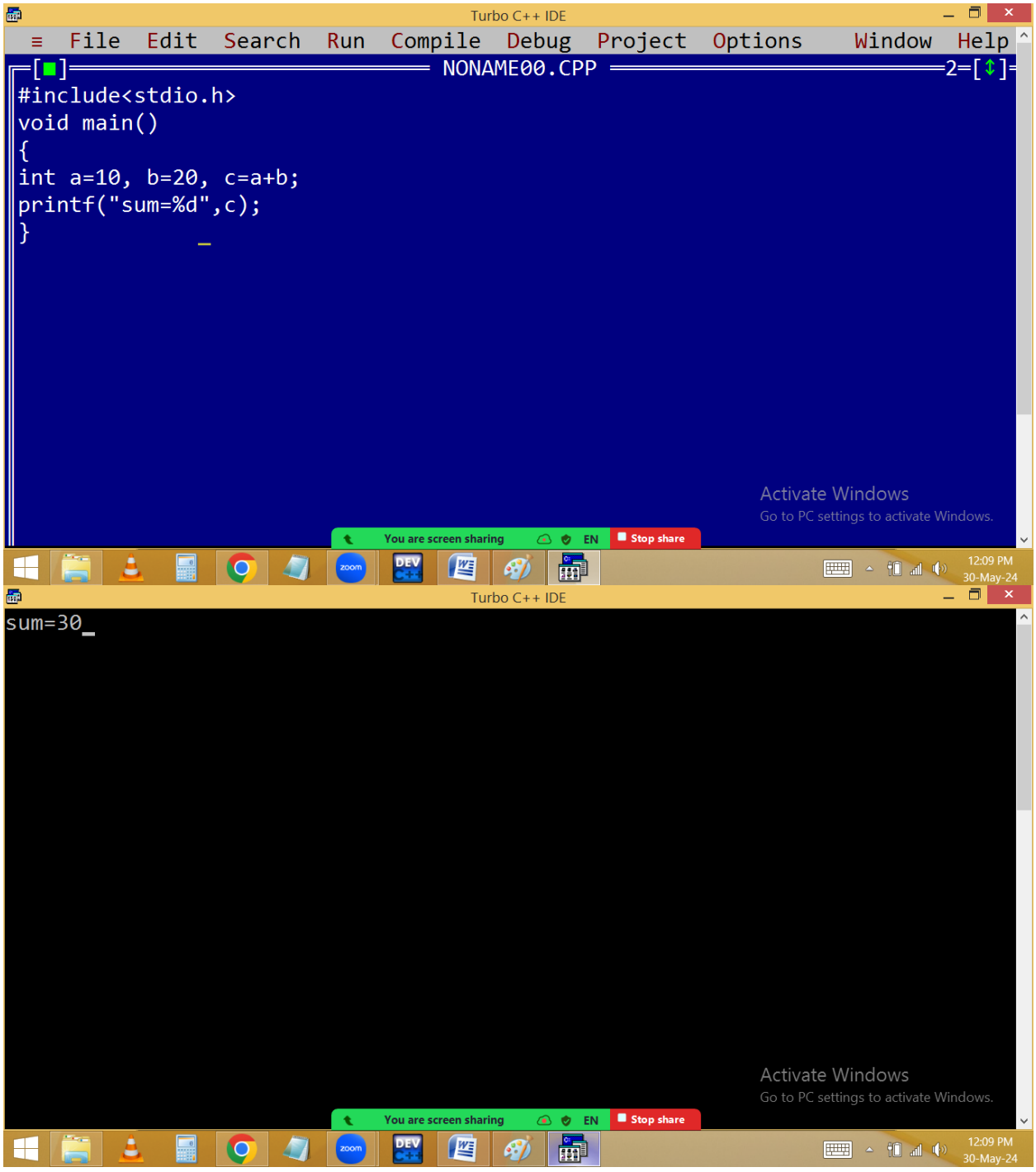
1. **Machine language**: Created with binary code [0,1]. Hence they are also called binary languages.
   Eg: 10001111
2. **Low level / assembly language: Created with English like shortcuts called MNEMONICS.**



Eg: gd mrg, add, sub,…

3.High level language: Created with simple English and easy to understand.

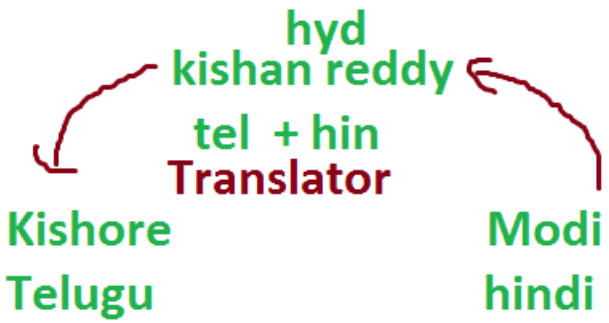
Eg: Good morning, addition, subtraction



C is having both low level and high level features. Hence C is a middle level language.

C low level features are used to develop system software and High level features used to develop application software. Hence C is called it is a multipurpose programming language

What is a translator?



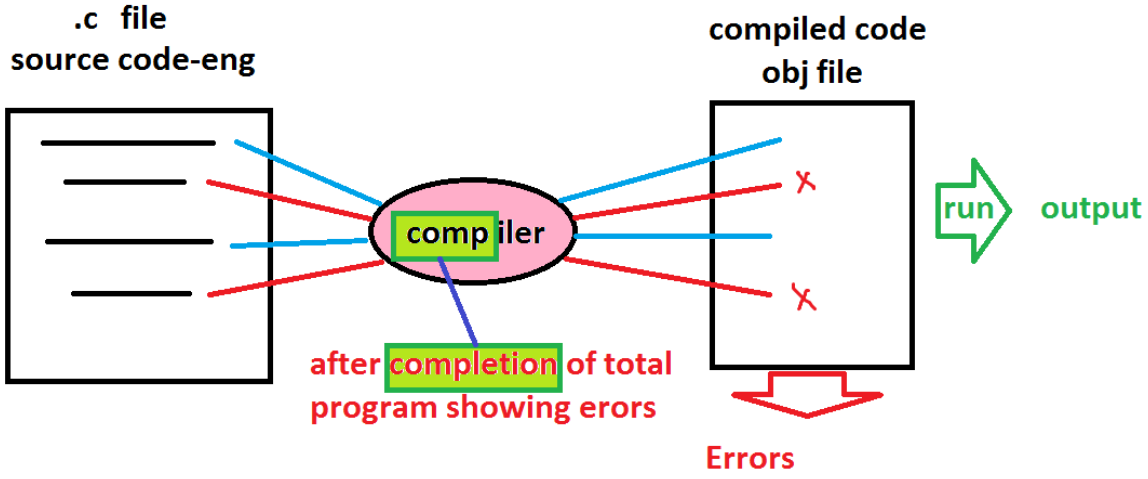
Always the user given input [program] is in English, which is called source code / source program. But the computer is not able to understand English. Due to this we have to convert this source code to binary code and to check the errors [programming mistakes] with the help of translator.

We are having 3 types of translators.

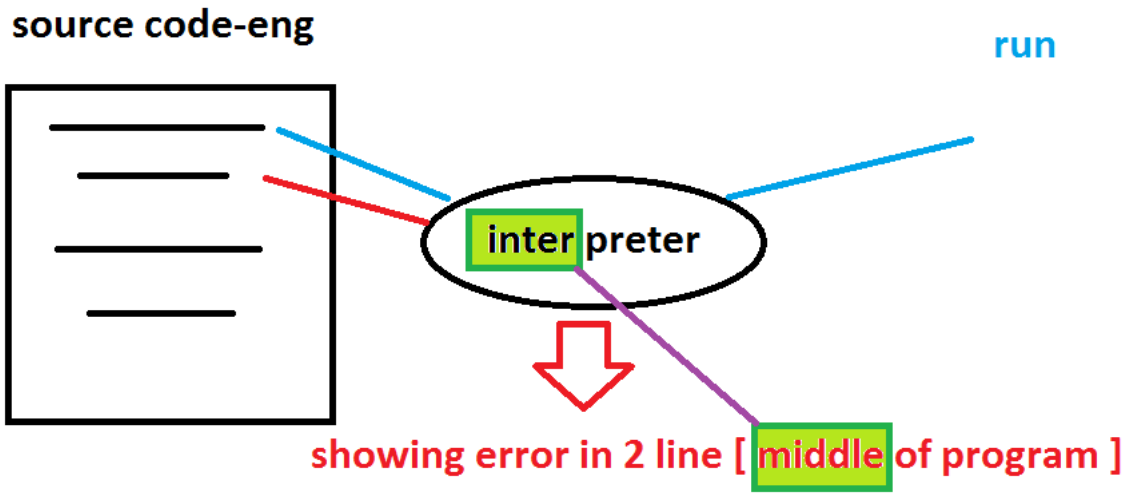
1. Compiler
2. Interpreter
3. Assembler

Compiler and interpreter both used to convert high level languages to binary code.

Compiler converts the total source code into binary code at once by leaving error lines.



Interpreter checks line by line.



Assembler working style is similar to the compiler.

C and c++ are using compiler. Hence they are called compiler based programming languages.

In java , .net , python we are using both compiler and interpreter. Hence they are called compiler based interpreted languages.

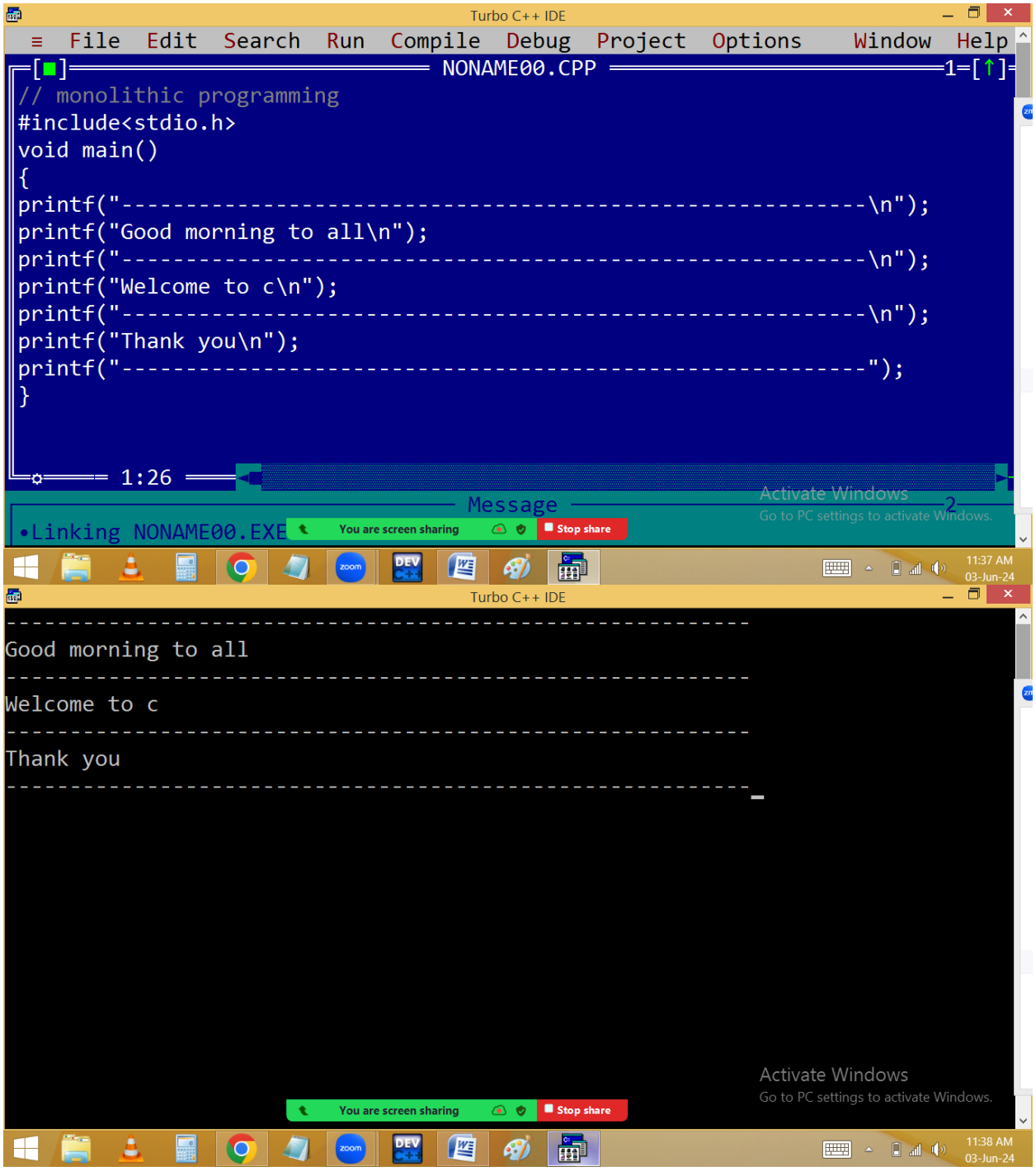
Programming mistakes are called errors and they are of two types.

1. Compile time errors / syntactical errors
2. Runtime errors

What is programming paradigm?

Every programming language comes with certain rules and regulations with a structure, which is technically called programming paradigm.

Before c language the programming languages are using monolithic programming paradigm. In this paradigm the entire program they are creating with single [mono] program. Due to this it is very difficult to identify the errors, takes more memory and due to this performance is low. We can't use part of the program in monolithic program.

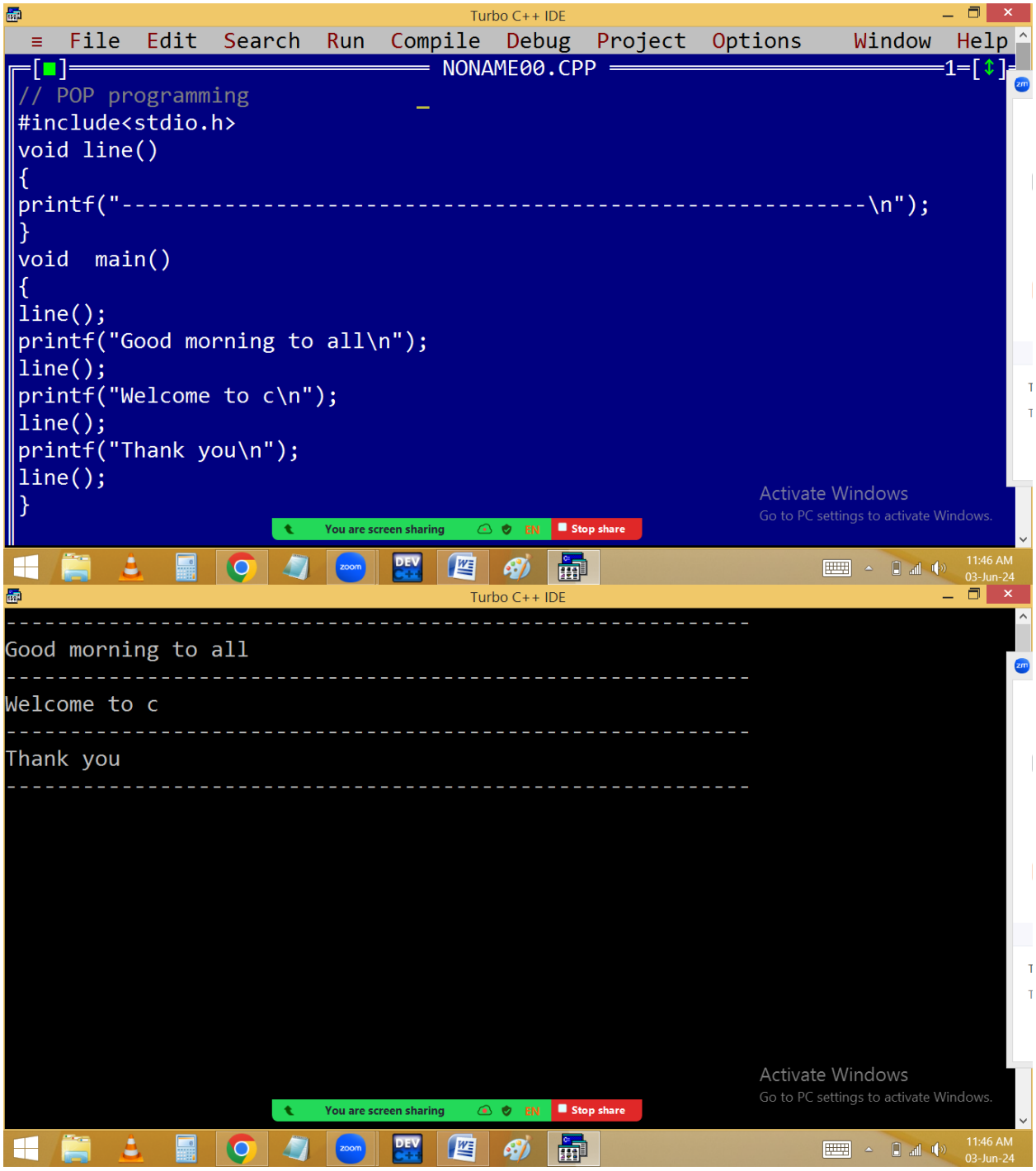


to avoid this problem, they have introduced pop [procedure oriented programming structure]. In

pop a big program is divided into several small sub programs / sub routines / procedures / functions / modules / structures.

POP Advantages:

1. **Modularity: Dividing a big program into small pieces according to the project requirement**
2. **Simplicity: easy to read and understand.**
3. **Reusability: write once, use many times.**
4. **Efficiency: performance is high.**


Turbo C++ IDE
File Edit Search Run Compile Debug Project Options Window Help
NONAME00.CPP
// POP programming
#include<stdio.h>
void line()
{
printf("--\n");
}
void main()
{
line();
printf("Good morning to all\n");
line();
printf("Welcome to c\n");
line();
printf("Thank you\n");
line();
}
You are screen sharing
Stop share
Activate Windows
Go to PC settings to activate Windows.
11:46 AM
03-Jun-24
Turbo C++ IDE
Good morning to all
Welcome to c
Thank you
You are screen sharing
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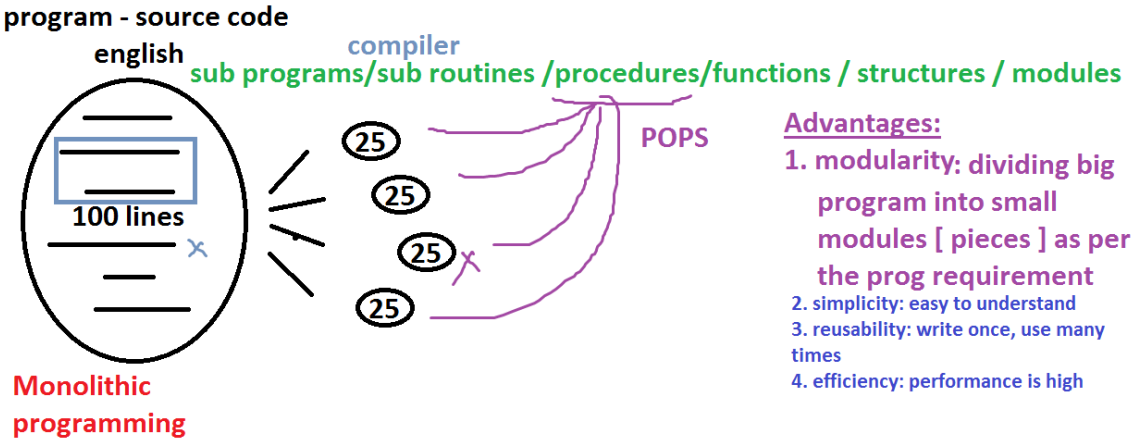
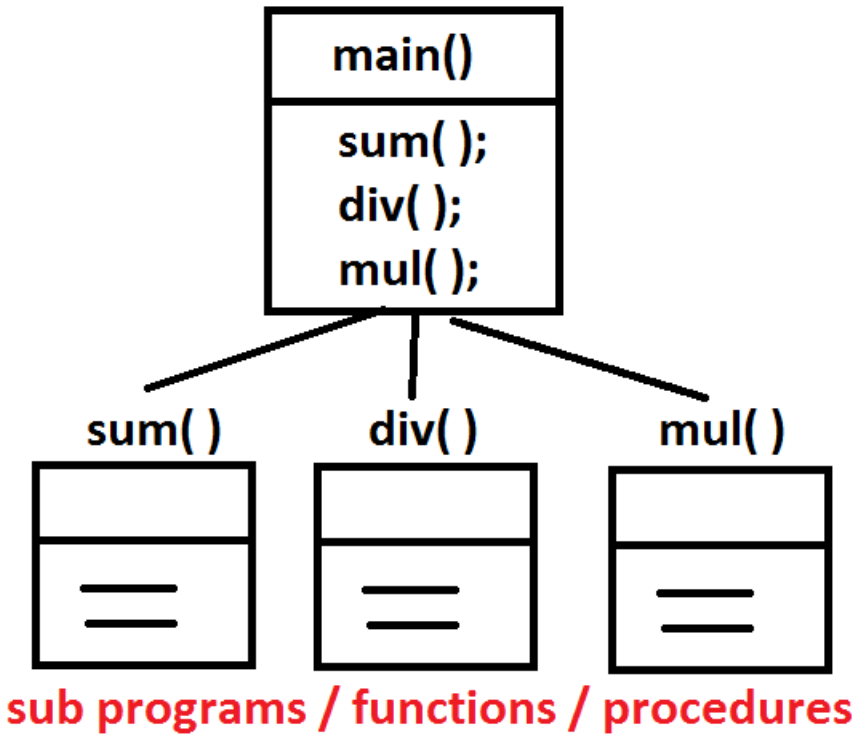
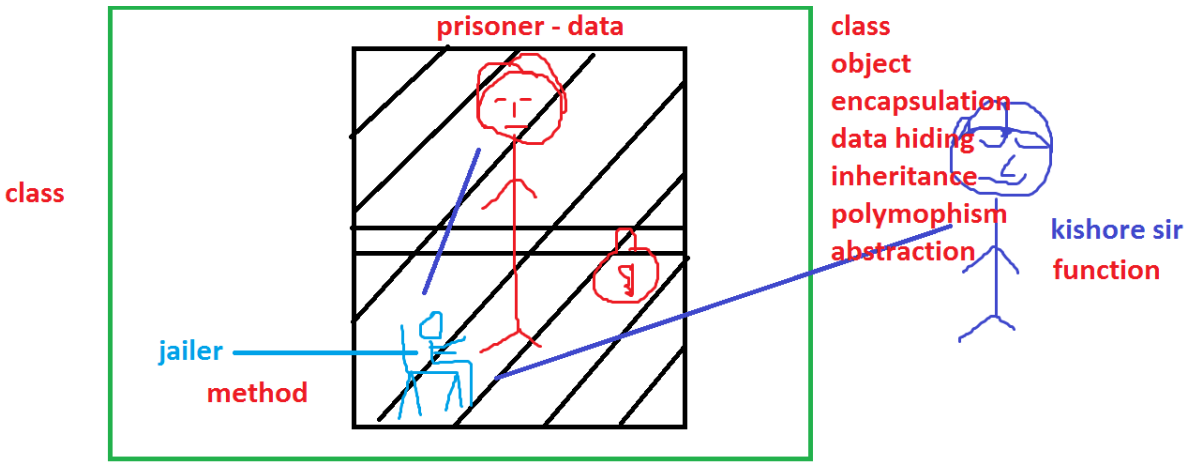


Function oriented programming structure:



What is OOP's: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jailer
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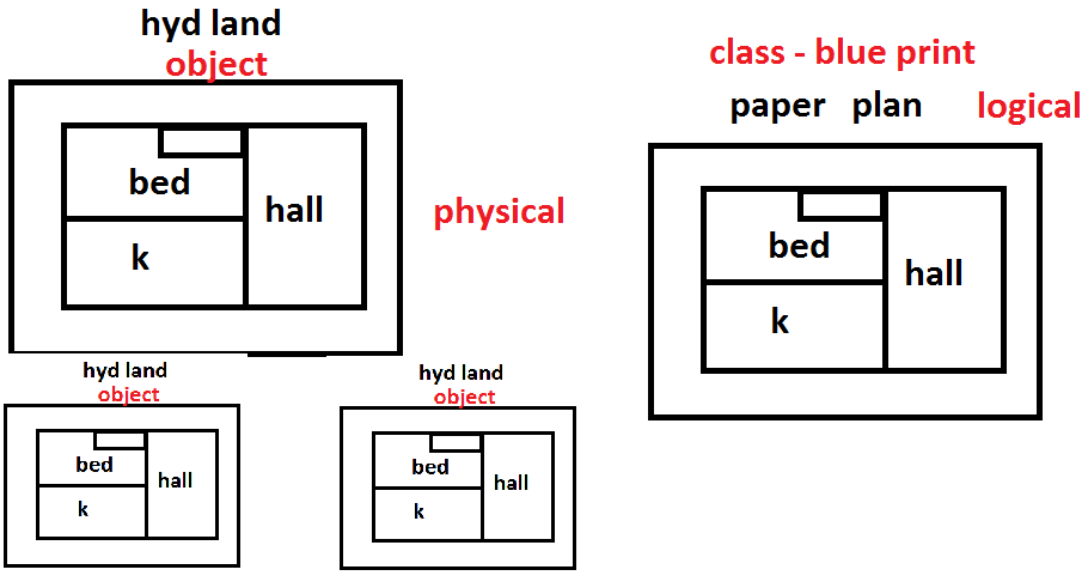
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Why C is a general purpose language?

Using C language we can develop the applications like

1. **Operating systems**

Eg: windows, unix, linux, android, mac, ios,…

2. **Translators**

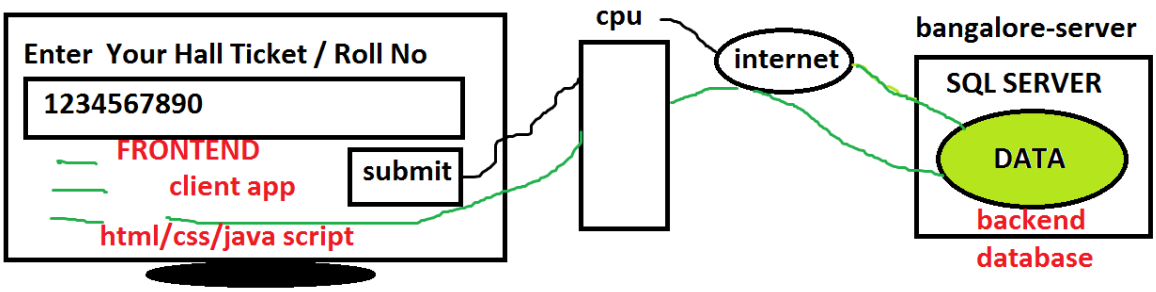
   Eg: compiler, interpreter, assembler

3. **Device drivers**

Eg: audio / video / usb / printer drivers

4. Data base

Eg: oracle, My SQL, SQL Server, mongodb,…

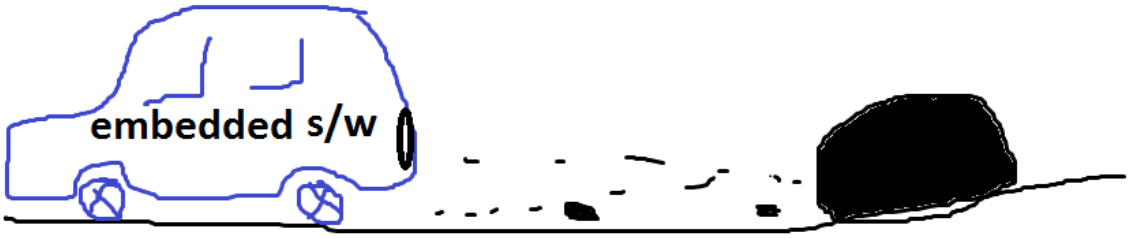


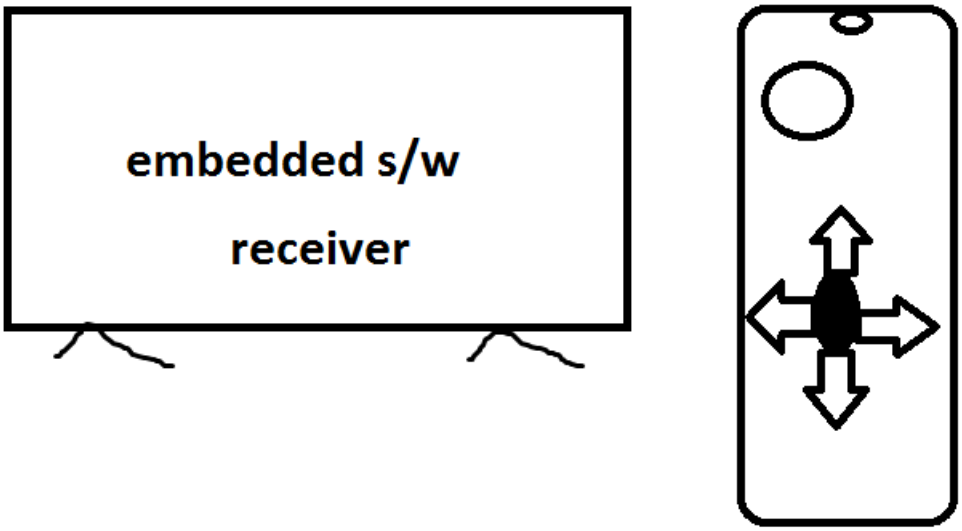
5. Commercial applications

Eg: hotel / super market / college / atm / google pay,…..

6. Embedded applications

Eg:





7. PC & Mobile games
8. Antivirus

   Eg: quick heal, macfee, avast,…
9. Media players

   Eg: vlc, mx-player, windows media player,..
10. Editors

    Eg: ms-word, notepad, wordpad,…
11. Browsers

Eg: chrome, firefox,….

12. Any type of standalone applications.

Eg: ms-office, calendar, calculator

Hence c is also called it is a multipurpose programming language.