

1) .

- I. A computer program is a set of instructions that can be executed by a computer to perform a specific task.

A computer program is usually written by a computer programmer in a programming language. A computer program may be executed with the aid of an interpreter.

Ex for computer programs:

- Operating systems

There are 3 steps in a computer program. They are input, process and output.

- Data are input in to the program.
- The program will process the input data.
- The program will process the input data (different) data.

Example:

If we think a software for word processing. We need to type a letter using that software. Then,

- The letters and symbols are the inputs.
- Bolt, Italic, Page setting etc. Those options are done the processing part.
- Finally, the letter is the output.

- II. Programming language serve as the communication medium between natural human language (Eg: English, Sinhala) and computer language. (0/1)

Every programming language is defined by syntactic and semantic rules.

Programming languages are categorized by following ways.

1. Low level programming language

A low-level language is a programming language that provides little or no abstraction of programming concepts and is very close to writing actual machine instructions.

Low level languages used to write programs that relates to the specific architecture and hardware of a particular type of computer. It is very close

to machine language. It is very easy to convert low level language to machine language.

Ex: Assembly language

2. High level programming language

A high-level language is a programming language with strong abstractions from the details of the computer and takes more time to run.

This may use natural language elements hide details of CPU operations and memory management details and it is easier to program.

Ex: C, Java, C++, Fortran

III. Interpreting

Interpreting means translating the code to machine language in line by line. Interpreter languages are slower than compiled languages.

Ex: PHP, Python

Compiling

Compiling means translating all code at once before executing any of commands. As a result, they tend to be faster and more efficient to execute than interpreted language.

Ex: C++

IV. Syntax

Syntax is whether the statement satisfies language rules.

Ex:

In English

- Sampath has a doll. Syntactically correct
- Doll has Sampath Syntactically incorrect

Semantic

Semantics means whether the statement is meaningful.

- Sampath has a doll. (Semantically correct)
 - Doll has a Sampath (Semantically incorrect)
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- For a program to execute and give the output, It should be both syntactically (order) and semantically correct.

V. Class Name

```
{  
    Public static void main(String args[])  
    {  
        For(int i=0; i<args.length;i++)  
        System.out.println (args [i]);  
    }  
}
```

Compile

javac Name.java

Run

java Name

2) .

I.

- a) `int n = 56;`
- b) `double a = 75.5;`
- c) `boolean Y = continue;`
`boolean n = quit;`
- d) `boolean P = Pass;`
`boolean F = Fail;`

II. Type conversion is indeed the conversion of variables from one data type to another. In java, there are two main conversion.

1. Implicit type conversion

Java converts shorter data type to larger data types. When they are assigned to the larger variables,

Implicit casting will take place if following two conditions are met.

- The two types are compatible.
- The destination type is larger than the source type.

2. Explicit type conversion

Java program to illustrate the working of explicit conversion in java.

Whenever we want to explicitly convert the value of a certain data type to one lesser in size then we use the name of the data type bound by round bracket in front of the variable name.

- In explicit needs when data items are of same type but the destination type is smaller than the source.
- This is call casting.

III.

- a) `sum +=5;`
- b) `++count`
- c) `answer%=3`
- d) `age*=3`

IV.

V.

- a) `no_of_legs == no_of_hands`
- b) `days_for_week!= months_for_year`
- c) `mass_of_lorry < mass_of_car`
- d) `lifetime_of_elephant >=lifetime_of_toties`