Introduction to Programming Language

What is Language?

A **language** is a structured system of communication. The structure of a language is its grammar and the free components are its vocabulary. Languages are the primary means of communication of humans, and can be conveyed through speech, sign, or writing.

Define Program, Programming, Programming Language

A set of instructions given to a computer to solve a particular problem is known as program and the task of developing program is known as programming, and the software in which you are writing program is known as programming language.

Types of Programming languages?

1) **Low Level Language**
   - Machine Language
   - Assembly Language
2) **High Level Language**

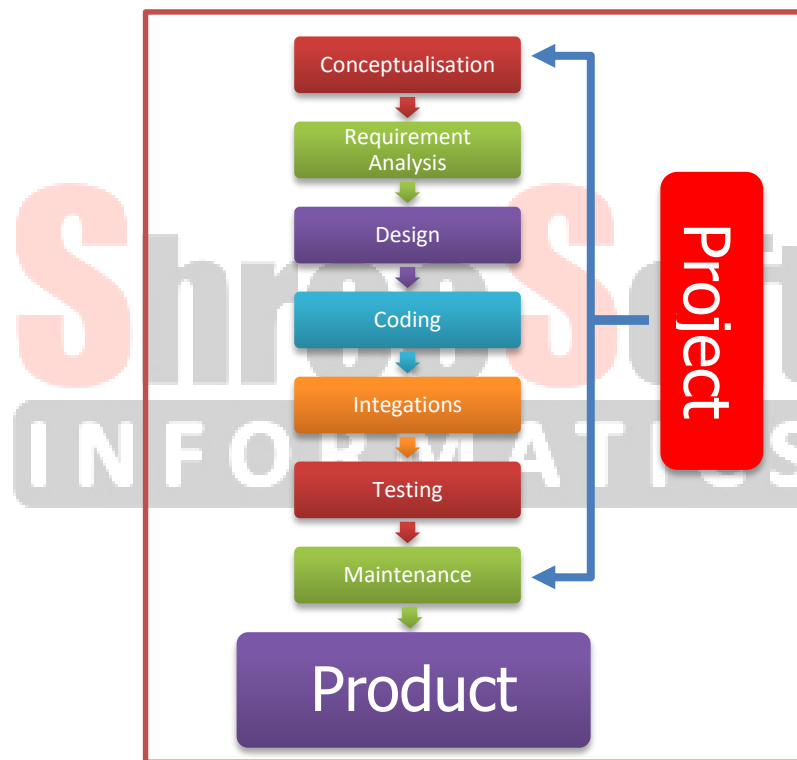| Low Level Language		High Level Language
Machine Language	**Assemble Language**	
1. Use Symbol 1's and 0's	1. Use Operation code like ADD, MOVE, AL Etc.	1. Use words and some special character of English language.
2. Difficult to write, read and understand.	2. Easy as compared to machine language to write, read and understand.	2. Very easy to write, read and understand.
3. No need to convert.	3. Need to convert. (Assembler)	3. Need to convert. (Compiler and Interpreter)
4. Difficult to Maintain, Modify and Debug.	4. Easy as compared to machine lang. to Maintain, Modify and Debug.	4. Very easy to Maintain, Modify and Debug.
5. Less time and memory to execute.	5. More time and memory as compared to machine language.	5. More time and memory to execute.

Difference Product and Project.

1. **Project :**

   Also known as a software project comprises the steps involved in making a product before it is actually available to the market. The project can be handled by people which are as less as one person to the involvement of a lot of people (over 100). These are usually assigned by an enterprise and are undertaken to form a new product that has not already been made.

2. **Product :**

   The study of products is a part of Software engineering. The software is built by developers on requests from the customer. After the customer is satisfied with the development process, he launches the software by manufacturing it. This can be a problem-solving software or computer based system. This is the result of a project. The software project, when completed, is called a product after it is available to the market for usage.

Difference Between Procedure Oriented and Object Oriented Programming

Procedural Oriented Programming	Object Oriented Programming
In procedural programming, program is divided into small parts called functions.	In object oriented programming, program is divided into small parts called objects.
Procedural programming follows top down approach.	Object oriented programming follows bottom up approach.
There is no access specifiers in procedural programming.	Object oriented programming have access specifiers like private, public, protected etc.
Adding new data and function is not easy.	Adding new data and function is easy.
Procedural programming does not have any proper way for hiding data so it is less secure.	Object oriented programming provides data hiding so it is more secure.
In procedural programming, overloading is not possible.	Overloading is possible in object oriented programming.
In procedural programming, function is more important than data.	In object oriented programming, data is more important than function.
Procedural programming is based on unreal world.	Object oriented programming is based on real world.
Examples: C, FORTRAN, Pascal, Basic etc.	Examples: C++, Java, Python, C# etc.