Characteristics of a Good Programming Language

These are various factors, why the programmers prefer one Language over another. and some of very good Characteristics of a Good programming Language are.

1.) Clarity, Simplicity, and Unity : A programming Language Provides both a Conceptual framework for algorithm planning and means of expressing them. It should provide a clear, simple, and unified set of Concepts that can be used as primitives in developing algorithms.

It Should have → • Minimum No. of different concepts.
• with Rules for their combination being • Simple and Regular

This attribute is called **Conceptual integrity.**

2.) Orthogonality :- It is one of the most important feature of PL Orthogonality is the property that means "**Changing A does not change B**".

If I take Real world example of an Orthogonal System

would be a **Radio**, where changing the **Station** does not change the **Volume** and vice-versa.

When the features of a language are orthogonal, language is **easier to learn** and programs are easier to write because only few exceptions and special cases to be remembered.

3) Support for Abstraction:- There is always found that a substantial gap remaining between the abstract data structure and operations that characterize the solution to a problem and their particular data structure and operations built in to a language.

4) Programming Environment:-

An appropriate programming environment adds an extra utility and makes language to be implemented easily like

The availability of
- Reliable
- efficient
- well-documentation

Speeding up Creation & Testing by
- Special Editors
- Testing packages

Facility
- Maintaining & Modifying

— Multiple version of program | Software

5) Ease of Program Verification :- Reusability

The reusability of programs written in a language is always a central concern.

A programs is checked by various testing techniques like

Formal verification Method

Desk checking

Input - output test checking

We verify the program by many more techniques.

A language that makes program verification difficult may be far more troublesome to use.

Simplicity of Semantics and syntactic structure is a primary aspect that tends to simplify program verification.

6) Portability of Programs:-

Programming Language should be portable means it should be easy to transfer a program from which they are developed to the other computer.

A program whose definition is independent of features of a particular machine forms can only support Portability.

Eg:- Ada, FORTRAN, C, C++, C#, Java.