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| **Feature** | **C** | **C++** | **Java** | **Python** | **Rust** |
| **Paradigms** | Procedural | Procedural, OOP, Generic Programming | OOP, Generic Programming |  |  |
| **Type Checking** | Weak and Statically Typed (Casting) | Weak and Loosely Typed (Casting) | Strong and Statically Typed | Strongly and Dynamically Typed | Strong and Statically Typed |
| **Encapsulation (Data Hiding)** | No | Yes; private; protected; friend | Yes; protected private | No (semantics is to use double underscore but does not truly provide data hiding |  |
| **Abstraction** | No | Yes | Yes | Yes |  |
| **Polymorphism** | No | Yes | Yes | Yes |  |
| **Inheritance** | No | Multiple Class Inheritance | Single class inheritance, multiple interface implementation | Multiple Inheritance |  |
| **Form of Compiled Source Code** | Executable Native Code | Executable Native Code | Java Byte Code | Python Byte Code |  |
| **Memory Management** | Manual | Manual | Automatically Managed, using a garbage collector | Automatically Managed, using a garbage collector |  |
| **Pointers** | Used | Used | No pointers, references used instead | No |  |
| **Preprocessors** | Yes #Define and #Include | Yes #Define and #Include | No | No |  |
| **String Type** | Char arrays | Char arrays and Strings | Objects |  |  |
| **Complex Data Types** | Structures, Unions | Structures Unions | Classes |  |  |
| **Operator Overloading** |  | Yes | No |  |  |
| **Headers** | .h | .h, .hpp |  |  |  |
| **Files** | .c | .c, .cpp | .java | .py and .pyc |  |
| **Platform** | dependent | dependent | Independent | Independent |  |
| **Compiler/Interpreter?** | Compiler | Compiler | Compiler and interpreter JVM | Interpreter |  |
| **GoTo Statement?** | Yes | Yes | No | no |  |
| **Virtual Keyword** | No | Yes | No | No |  |
| **Destructor** | No | Yes | No (uses garbage collector) | Yes \_\_del\_\_() but not commonly used as it uses a garbage collector |  |
| **Constructor** |  | Yes | Yes | Yes \_\_init\_\_() |  |
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