

GLOBAL JOURNAL OF ENGINEERING SCIENCE AND RESEARCHES COMPARATIVE EVALUATION OF PROPRIETARY AND FREE / OPEN SOURCE PROGRAMMING LANGUAGES

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ABSTRACT

Today a vast variety of programming languages are being used by expert ,experienced as well as novice programmers. Each language has its own pros and cons. These languages can be categorised in two types: Proprietary and free/open source programming languages. This paper studies many such languages by comparing one programme in different languages under study. At the end of paper all comparisons has been tabulated for quick reference.

Keywords: FOSS, Free and Open Source Software, programming, python.

1. INTRODUCTION

Python is created through Guido van Rossum, in past due in 1980's. Python is a free/open source language i.e of FOSS category. It is probably the maximum bendy programming language i have visible and it's miles used for numerical computations, clinical computing, writing and working with web applications, application software and bundle management systems. Its design philosophy emphasizes code clarity and concision. It additionally routinely performs some duties that customers should carry out manually if they had been running with lower-stage languages like C. There are various programming languages. every language has personal residences as well as function. As Python is one of the only programming languages, it's also called as novice's language. The syntax of Python is quite without problems comprehensible as evaluate to others programming languages inclusive of C, C++, JAVA, php. Python is used for growing many famous web products: Youtube, Google, Yahoo! map, Shopzilla, Ultraseek.

2. PYTHON VS JAVA

- Python runs a lot slower in assessment to Java.
- Python takes very less reminiscence in contrast to Java. That's why space complexity of python is higher than Java.
- Python required a lot effort compared to Java.
- Python for a specific capability requires much less number of lines or statements in evaluation to Java.
- Python is three-five instances shorter than a Java for the identical functionality.
- Python can be used as scripting language in addition to programming language rather than JavaScript is handiest used for scripting language.
- Java is classified as low-stage implementation language; on the other hand, Python is excessive-stage or glue type language.
- Python include 33 keywords as compare to java includes fifty three keywords.

Example:

Python

Print ("goodbye world!")

JAVA

```
public magnificence GoodByeWorld
public static void main(String[] args)
{
    system.out.println("good-bye world!");
}
```

Output-

Good-bye world!

3. PYTHON VS C++

- Python is relatively 5-10 times shorter than a C++ for the identical functionality.
- Python is a high-degree language and C++ is center stage.
- Python acts as a glue language that used to mix components written in C++.
- Python affords a whole lot flexibility in calling features and returning values in comparison to C++.
- C++ work quicker than Python.
- Python is interpreted whilst C++ is a pre-compiled.
- Python uses rubbish series while C++ doesn't.

Example:**Python**

Print ("good-bye world!")

C++

```
#include <iostream.h>
void imp()
{
    cout <<"good-bye world!";
}
}
```

Output-

good-bye world!

4. PYTHON VS JAVASCRIPT

- JavaScript is all about classes even as Python deals with easy capabilities and variables without getting engaged in class definition.
- Python gives higher code reusability than JavaScript.
- Python is better in scalability and maintainability.
- Python is excessive-degree language whereas JavaScript is low stage.
- Python consist of 33 key phrases as compare to JavaScript includes 63 key phrases.

Example:**Python**

Print ("goodbye global!")

JavaScript

```
<html>
<head></head>
<body>
<script>
    alert('good-bye, world!')
</script>
```

</body>
</html>
Output-
good-bye world!

5. PYTHON VS C

- Python is comparatively five-10 instances shorter than a C for the equal functionality.
- Python is a excessive-stage language and C is low degree.
- Python acts as a glue language that used to combine additives written in C.
- Python offers an awful lot flexibility in calling features and returning values in evaluation to C.
- C work faster than Python.
- Python is interpreted whilst C is a pre-compiled.
- Python uses garbage collection whereas C doesn't.

Example:

Python

```
Print ("goodbye international!")
```

C

```
#include <stdio.h>  
void most important()  
Printf("good-bye global!");
```

Output-

Good-bye global!

6. PYTHON VS C#

- Python is a whole lot extra bendy, easier to research, multiplatform and, final however not least, it is usable both as a procedural and object-oriented language. C# limits you an excessive amount of if you need to put in writing medical packages.
- C# consists of extra steady syntax and formatting regulations as compare to Python.
- there's any inconsistencies in C#, but right away wrote this listing of inconsistencies in Python.
- C# is terrific for writing GUI programs for the home windows platform. however, Python is tremendous for computational duties (below any platform).
- C# lacks accurate and examined free and Open supply libraries for maximum computational obligations. Python code is quick to write and calls for no compilation.
- Python include 33 keywords as examine to C# includes seventy nine keywords.

Example:

Python

```
Print ("goodbye world!")
```

C#

```
MessageBox.show("goodbye","crucial Message");
```

Initialization and usage of various Array

	PYTHON	JAVA	JAVASCRIPT	C	C#	C++
Create an Array	Variable=[];	type[] arrayName;	var vehicle=['Car',Jeep']; console.log(vehicle.length);	type A[size];	type[] arrayName;	type Arrayname[size];
Indexed array	Arr=[1,2,5,8,9,7]; Arr[0]; Arr[1];	Arr=new int[5]; Arr[0]; Arr[1];	var first=vehicle[0];	int b={60,50,30,80};	int[] fruits=new int[] {98,88,66,11};	int a={10,20,30,40,50};

Examples:**a. Python**

```
~$python
>>>from array import *
myarray=array('i', [1,2,3,4,5])
for i in myarray
print(i)
```

b. JAVA

```
class test
{
public static void main (String[] args)
{
// declares an Array of integers.
int[] arr;
// allocating memory for 5 integers.
arr = new int[5];
// initialize the first elements of the array
arr[0] = 10;

// initialize the second elements of the array
arr[1] = 20;
//so on...
arr[2] = 30;
arr[3] = 40;
arr[4] = 50;

// accessing the elements of the specified array
for (int i = 0; i < arr.length; i++)
    System.out.println("Element at index " + i + " : "+ arr[i]);
}
}
```

c. JAVASCRIPT

```
<html>
<body>
<h2>JavaScript Array Methods</h2>
```

```

<p>The toString() method returns an array as a comma separated string:</p>
<p id="demo"></p>
<script>
var vehicle = ["Volvo", "Maruti", "BMW"];
document.getElementById("demo").innerHTML = fruits.toString();
</script>
</body>
</html>

```

d. C

```

#include<stdio.h>
int n,result, a[]={ 16,26,36,46,56};
void main()
{
for(n=0;n<5;n++)
{
Result+=a[n];
}
cout<<result;
}

```

e. C#

```

// Initialize array for example
char[] array = new char[5];
array[0] = 'A';
array[1] = 'B';
array[2] = 'C';
array[3] = 'D';
array[4] = 'E';
for (int i = 0; i < array.Length; i++)
{
    MessageBox.Show (array[i].ToString ());
}
Array.Resize(ref array, 3);
for (int i = 0; i < array.Length; i++)
{
    MessageBox.Show(array[i].ToString ()); }

```

f. C++

```

#include<iostream.h>
int n,result, a[]={ 16,26,36,46,56};
void main()
{
for(n=0;n<5;n++)
{
Result+=a[n];
}
cout<<result;
}

```

7. CONCLUSION

A Comparison of Common Programming Languages

Language	Extension(s)	Level	Developer(s)	Date	Implement	Paradigm(s)	Purpose	Free?	Script?	Speed
C	.C, .h	Low	Dennis Ritchie	1972	Compiled	Imperative, structured	General	Yes	No	10
C++	.cc, .Cpp, .cxx, c++, .hh, .hpp, .hxx	High	Bjarne Stroustrup	1983	Compiled	Procedural, functional, object-oriented, generic	General	Yes	No	10
C#	.cs	High	Microsoft Corporation	2000	Compiled	Concurrent, event-driven, functional, generic, imperative, object-oriented, reflective, structured, etc.	General	No	No	7-9
Java	.java, .class, .jar	High	Sun Microsystems	1995	Compiled	Object-oriented structure	General	Yes	No	7-8
JavaScript	.js	High	Brendan Eich	1995	Interpreted	Functional, imperative, object-oriented	Web	Yes	No	10
Python	.pyc	High	Guido van Rossum	1991	Interpreted	Object-oriented Programming	General	Yes	No	

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