C – Python BST

Python and C are some of the most used programming languages. There are some differences between them.I coded the binary search tree array implementation in both languages and found several differences. In this report, I will share with you the differences and performance tests about these 2 programming languages.

Introduction

C is a compiled language but python is a interpreted language. Compiled languages converte source code directly into machine code, so we expect C to be more efficient and faster. Python is run by reading it line by line by a program.Whereas usage of python is much eaiser than C because of its straightforward syntax.

Usage

Having built-in functions into Python made my job a lot easier. For example, while I could solve my work with the split () function in python, I had to write an algorithm myself for this in C.

Task ( Binary Search Tree)

To accomplish my task, I first created a 100 random numbers file called randomNumber100.txt. In both Python and C, I have done the operations of reading files, split operations, creating a tree and adding a tree function, creating an in order traversal function and writing file. Since C's execute time is 0.0000 in the 100 random number list, I have also created 350 and 1000 random number files and all tests are done over a 1000 number file.

Performance

Based on my research, I was expecting C to be faster due to the direct convertion of machine code, and it also happened. When I performed the performance tests of the parts other than the file read and file write parts, I could perform it in a period of approximately 0.005 seconds in C, while I measured this time as approximately 0.7 seconds in Pyhon. This shows that there is a performance difference of approximately 140 times between them.

As I said before, Python is an interpreted language so it increases the number of actual CPU instructions required in order to perform a given statement. However, C communicates directly with the CPU, and these differences make up the difference in performance.

Source:

https://realpython.com/python-timer/  
 https://www.w3schools.com/python/python\_file\_open.asp

https://www.programiz.com/c-programming/c-file-input-output

https://www.youtube.com/watch?v=j9egu\_VB1j4

 https://www.geeksforgeeks.org/binary-tree-array-implementation/