Programming Languages and Their Popularity

Computer program is a sequence of instructions, written to perform a specified task with a computer. [1] Computer needs a program which written in machine code (“0“and “1” sequences ) to do an action. Writing programs with machine code level is available to make mistakes and it takes long time to develop. So, programming languages are developed and categorized named high-level languages. Coders develop programs with these languages easier than machine level. Because these languages similarly looking like human languages (Especially English).[2]  
 C, C++, Java, Scheme … All of them high level languages and there are a lot of languages too. But why they are so many? What are their differences? Why don’t we use only one of them? The answer can be find out with these questions’ answers: “What will we do with the program which we will write?” and “What is the subject of our project?” .The program can be scientific or business application, or can be artificial intelligence or system programming project, or a web software. For all of these subjects, there are programming languages which are used commonly. Like for scientific apps: ALGOL 60, business apps: COBOL, for Artificial Intelligence: LISP, Scheme which dialect of LISP, or C. For system Programming: C and C++, and finally for Web JavaScript or PHP which the named “scripting languages”. [3]

Criteria that makes differences between languages are concepts of the languages. Programming languages are often categorized into four bins: imperative, functional, logic, and object oriented. It doesn’t mean all of the languages are different from each other completely. They can have common and different parts, usages and concepts.

The Properties which affect popularity of a language are “Readability”, ”Writability” and “Reliability”. Readability is vitally important to read and understand a program. Because coders read codes for many purpose like debugging code, for improve performance or just for learn the algorithm. Writability affects language property of being ease to use and create programs easily. Writability depends on “readability” criteria. If language hasn’t readability we can’t say it has writability. Reliability is a criteria which includes topics “Type checking”, ”Exception Handling”, ”Aliasing”. These topics makes coders’ life better. Reduces mistakes which is easily made. But they have costs to coders and computers. [4]

Concepts of languages and balance with properties (“Readability”, ”Writability” and “Reliability”) change usage of language. Trade-offs between them also affect languages performance. That’s why there are many programming languages. With concepts, properties and program subject, we need to make choice good languages for our project.

Conclusions of articles [5] [6] show us to most popular languages are C, C++, Java. C# and Python have good improvement. And JavaScript has good place in this race. But I think these ideas aren’t showing us true situation. Because review of collected data can be very subjective. Like as writer’s opinion “There’s no definitive source of information on programming language usage and popularity, but looking at a cross-section of data sources can offer some ideas about overall trends, in terms of popularity with developers and popularity with employers.“

References:

[1] <http://en.wikipedia.org/wiki/Computer_program>

[2] <http://en.wikipedia.org/wiki/Programming_language>

[3] <http://www.computerhope.com/jargon/p/proglang.htm>

[4] Concepts of Programming Languages 10th ed., Robert W. Sebesta, Chapter 1.

[5] <http://cplus.about.com/od/introductiontoprogramming/p/programming.htm>

[6] <http://readwrite.com/2012/06/05/5-ways-to-tell-which-programming-lanugages-are-most-popular#awesm=~ohwTLdKv0dAaQ3>

Okan Akdoğan  
121044017  
Gebze Institute of Technology

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