

Methodology for the execution of programs based on different programming languages

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ABSTRACT

Abstract: Currently, in the programming ecosystems, there are different programming languages, each of the languages work with their libraries dedicated to special tasks, among the most used languages are Python, R, Matlab, C, C++ among others, in this work, we demonstrate a method to perform work with the use of different programming languages, in order to exploit the benefits of each one, all of them in a single development environment, which takes advantage of the available hardware that we can have in the workstations, as is the case of CPUs and GPUs that may have. As a result we present the architecture and programming modes that can be developed with each language, the programming mode considered is to perform partial jobs, defined in taking the file to work, perform the necessary processes, then store them in new files so that it can be worked by another language, the method can be applied in multiple tasks mainly in those that can work with matrices and vectors.

CCS CONCEPTS

• Insert your first CCS term here; • Insert your second CCS term here; • Insert your third CCS term here;

KEYWORDS

Language, programming, CPU, GPU, hardware

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1 INTRODUCTION

Nowadays we find many programming languages, for the development of computer programs, that is why each of the languages have exclusive applications and uses, in the development of source code migration is a very critical issue, due to the functionalities of the programming languages, the libraries they use and the file formats they work with. In a literature review we found works related to the use of different programming languages, we found works related to the teaching of programming, through the use of an online tool, where students can verify the syntax of the programming language [1]. The use of programming languages is very diverse, but always resorts to the use of a particular language, programming with its own libraries, in this sense we found works related to image and video processing with the exclusive use of the python programming language [2].

Programming languages are becoming more and more specialized as is the case of the exploitation of them in simulation-based computational models, as is the case of the simulation of mechanical models where the exclusive use of their own libraries is resorted to [3]. With the development of technology, programming languages have migrated to many functionalities, so we have interpreted languages such as Python, Java and R, among others, leaving aside the classic programming languages such as C and C++; new applications and models of work and development as in the case of IoT, have allowed to return to the use of these classic languages, due to their practicality of execution in embedded devices that require their programming logic [4]. As well as the development of applications in embedded devices are allowing the use of C and C++ languages; the development of new hardware architecture models are allowing the development of programming models called parallel programming, these models use C and C++ languages as general purpose languages [5].

The applications where images and video are exploited are developed based on the Python programming language, due to its practicality and the power of its libraries, which is why its use has become widespread [6]. As well as working with images and videos based on the analysis of data organized in matrices, we find works where signals are analyzed such as medical signals, which are based on the use of data organized in vectors [7]. In the development of applications related to Artificial Intelligence, we find many applications related to the exploitation of large-scale data, that is why they work with high performance hardware as well as accompanied