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Editorial

Methodology Development: The Need for a New Paradigm

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Recently, it has been seen a dramatic increase in the amount of information or data being stored in electronic format. This accumulation of data has taken place at an explosive rate. Many domains started collecting and sorting data from different sources. The massive amounts of information from many fields, such as math, biology, medical science, business, banking, engineering, education, medical and DNA technology, have led to the accumulation of tremendous amounts of data. Never before in the history data has been generated at such high volumes as today. Computing has been the fastest-growing technology in human history. The performance of computing hardware has increased by more than a factor of 1010 (10,000 million times) since the commercial exploitation of the electronic technology developed for the ENIAC 50 years ago, first by Eckert and Mauchly Corp., later by IBM, and eventually by many others. In the same amount of time, programming performance and algorithm development has increased.

As a result, low reliability and unacceptable development delays. In addition, the incredible increase in available computer hardware cycles has forced a demand for more and better method to develop, improve and introduce new algorithms. Much of the increase in information age, technology and productivity has, as you might expect, been due to be increased automation in algorithms production. Increased internal use of this enormous hardware largesse to offset shortcomings in software approaches and methods have accounted for most of the gain. Unfortunately, it is dwarfed by productivity gains in hardware. It is further marred by low satisfaction resulting from algorithm development methodology and this initial chaos has led to look for proposing suitable algorithm development method to help.

Researchers in algorithm development need to be more effective today to face the information flooding by developing and proposing new algorithms because they can make the program faster and better. However, they have to concern and pay attention of the sophisticated tools such as compilers, operating systems, program development environments, integrated development environments and method, as they are trying to achieve the goal. They may aim as problems as by developing new algorithms.

Nowadays, despite the growing volume of data collected, the effectiveness of algorithm development methods still needs to be improved to help for proposing, introducing and developing new necessary algorithms that needs to interpret or solve different problems within the scope of particular discipline. The general algorithmic development methodology is a broad principle, rules and phases from which easy-steps and clear-procedures. Therefore, General algorithmic development methodology provides a remarkably easy-to-understand and apply methodology for propose algorithm defect reduction.

Computer and software are used in critical applications and many areas too. In a computerized embedded world, the quality and reliability of software methodology is a matter of life and death. In addition, in the past few years there has been a blossoming of a new style of software methodology that can be used it in many disciplines.