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Summary of Building secure software: Your language matters!

Problem Statement:

Nowadays, it is common to see that the company patch software to prevent or fix bugs. Reliability is very important when people develop any software. If the software does not have any security-critical system, terrible results may happen, such as people may lose their lives, the house may be on fire, the company may lose uncountable assets, or the society may be a mess. Besides, the system or software in some areas needs to prevent some harmful hacking or attacks.

Proposed Solution and results:

The authors show that Ada and Spark language can help people design security from the start. Spark language also contains Ada-based language. The authors mention that Ada and Spark language are easy to maintenance. Ada and Spark language can read and write easily. Besides, Ada and Spark language provide modularization facility. It is convenient to design, compile, and test each module. Ada and Spark language can set the range on scalar data. If Ada has integer overflow, it will throw an exception. It is easy to understand whether integer overflow causes the bugs. Ada language's concurrency can avoid a lot of problems such as race condition, data corruption, deadlock, and starvation. Besides, Ada is easier than other programming languages to subsetting.

Evaluation:

The advantage of this paper is that the authors describe a lot of advantages of Ada and Spark language. It is attractive for people to choose to use Ada and Spark language. Besides, the authors mention that detecting the bugs during the testing is not enough. Ada can also help people identify the weakness of the programs.

The disadvantage of this paper is that the authors mention that Ada and Spark language are easy to read and write and said that C and C++ language’s succinctness sacrifice the understandability. However, the authors do not mention that if people who use C and C++ can be suitable to use Ada and Spark language. Also, the authors do not mention whether Ada and Spark language's succinctness sacrifices the understandability. It may be difficult for some people to understand and use the Ada language.

Synthesis:

The authors should consider talking about several weaknesses of Ada and Spark language. Besides, the authors should introduce how to use Ada or Spark language. The authors also need to use several data and results to prove that Ada and Spark language is more convenient and secure than other languages. The authors need to prove how much the security of the software or program has improved by using Ada and Spark language.

Reference:

Dewar, R. B., & Chapman, R. (n.d.). Building secure software: Your language matters! Retrieved from http://people.cs.ksu.edu/~hatcliff/890-High-Assurance/Reading/Dewar-Chapman-Building-Secure-Software-AdaCore.Win06.pdf