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Title: Foundations of Spreadsheets

Astract

Abstract: Spreadsheet tools can be viewed as programming environments for non-professional programmers. These so-called "end-user" programmers vastly outnumber professional programmers. In fact, spreadsheets, when viewed as a programming language, are one of the largest. It can be characterized as a particularly low-level one: there is no support for abstraction, testing, encapsulation, or structured programming. As a result, numerous studies have shown that existing spreadsheets contain errors at an alarmingly high rate.

In this project we will study the foundations of spreadsheets from two perspectives: from a software engineering point of view, we will study and propose techniques for testing, slicing, refactoring, reuse and quality assessment of spreadsheets; from a theoretical point of view we will study formal models, type systems and support for abstraction in spreadsheets. The results of this project will be a set of theories, techniques and tools that will help "end-user" programmers to efficiently test, maintain and construct correct spreadsheets.