Developing a Visual Studio Code Language Support Extension for the Snail Programming Language

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Abstract

A high quality programming environment (often an integrated development environment, or IDE) can be vital to enhancing developer productivity. Visual Studio Code (VS Code) is a popular, open-source text editor maintained by Microsoft. VS Code delivers language-specific features through freely dowloadable, community-built extensions on an online marketplace. Many of these extensions allow developers to take advantage of editing features such as syntax highlighting, code-autocompletion, or debugging support. The snail language (Strings Numbers Arrays and Inheritance Language) is a simple, object-oriented programming langauge meant to be implemented in a one-semester undergraduate course. We present a new VS Code extension to provide language support for the snail language. The extension implements support for syntax highlighting, rudimentary auto-completion, and static error-checking diagnostics using VS Code's Langauge Server Protocol. This report summarizes the contents of a VS Code extension and gives an overview of how an extension runs, particularly highlighting the functions of VS Code's Langauge Server Protocol. I also discuss how this extension can be futher developed to make use of VS Code's Debug Adapter Protocol to implement a debugger with breakpoints, start/stop behavior, and variable inspection.