

Extending the Eclipse IDE for Freshmen Computer Science Students

Researcher

Steve Naumov: naumovs1@calumet.purdue.edu

Faculty Mentor

Roger L. Kraft: roger@calumet.purdue.edu

Department of Mathematics, Computer Science, and Statistics
School of Engineering, Mathematics, and Science
Purdue University Calumet

ABSTRACT

Eclipse is an open-source, extensible, and universal integrated software development environment (IDE) initially developed by IBM Corporation. Eclipse is based on perspectives, which are sets of editors and/or views arranged in an initial layout for a particular role or task. The use of Eclipse is not intended for beginning computer science students, instead it is meant for professional software developers. A key in learning how to develop good software is to write many small programs and/or inquisitively modify existing programs and analyze the results. To allow Eclipse to become a friendlier tool for beginning students, a new Eclipse perspective needs to be developed to allow for non-project based software development. Therefore, the goal of this project was to design an Eclipse perspective geared toward the learning needs of freshmen computer science students.

To develop the proposed Eclipse perspective, an understanding of the underlying architecture and user interface of Eclipse was required. Typical freshmen-level programs were designed, written, and debugged to determine which advanced features from the existing Eclipse perspective(s) could be removed, thus accommodating the needs of freshmen students. In addition, articles and books were researched to develop a thorough understanding the framework of the Eclipse IDE in order to properly extend the Eclipse IDE with proposed perspective. Enough understanding was developed of the Eclipse framework that a simple extension was designed. The extension added a menu item and a toolbar button to the C/C++ Development

Perspective. The tool allowed Windows developers the ability to lookup Windows API documentation with the click of a button. A more sophisticated understanding of the Eclipse architecture is required to fully accomplish the goal of an Eclipse perspective geared toward freshmen computer science students.