Intermediate Milestone 3

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CS 6460: Educational Technology
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Week #	***Due Date***	***Milestone or Task***
11	3/27/16	Design visual representations of the trace output. Focus on intuitive representations of objects and arrays.
12	4/3/16	*Intermediate Milestone 3* - Deliverables: (1) GUI program that translates text output into visuals. (2) Documentation containing examples.

Overview

This is the third milestone of a project to develop a Java interpreter that can step through code segments and produce line-by-line code traces and visualizations. The motivation for this work is to provide a tool that can assist new computer science students in doing code traces, debugging, and problem solving. The tool can also be used by instructors in preparing example code walk throughs for lectures or tutors and teaching assistants when demonstrating code for students in one-on-one sessions.

Previous Documents

- Proposal REVISED
- Milestone 1
- Milestone 2

Progress

In the past two weeks, I've completed work on the Java interpreter that will become the backbone of this project. In short, `Trace` is a program that uses BeanShell (http://www.beanshell.org/) to evaluate Java code line by line. The Java code need not be a part of a class and can be executed on its own. The goal is to create a sort of Java "playground" where short code segments can be tested and debugged.

In addition to being able to interpret Java at runtime, `Trace` outputs "snapshots" of variables and objects after each line is evaluated as a debugger would. Currently, `Trace` supports most of the basic programming structures in Java.

Code

Repository: https://github.com/tao-wang/JavaCodeTrace

The repository contains an Eclipse project with the current version of the project as well as this document and others.

Video Demo

I made a short video (~8.5 min) demonstrating the current prototype and how a user can step through three different code segments. I also speak to some of the remaining work necessary for this project at the end.

https://youtu.be/HnP8posx5ls