

“Code reading and analysis review” Exercise

Learning Objectives: How to read and analyze someone else’s code. The goals are to ensure the students know how to:

- (1) Use Eclipse, or the IDE of your choice,
- (2) Read code,
- (3) Analyze its logic,
- (4) Debug code, and
- (5) Abstract parts of the program that are not important to the logic of the code they are analyzing.

Activity: This activity will be best if it is customized to a code base that you understand well and the student will need to modify for their project. The time to do it will greatly depend on the choice of example code. Trying it first with a small example is probably wise!

1. Pick a subset of the functionality of some large code base that is central to the application, but is manageable in size, e.g., one class that implements dataflow analysis in a compiler.
2. Pick several test inputs that exercise standard and unique aspects of this subset.
3. Ask the student to prepare by reading the code and then drawing a diagram of the methods in the class and/or classes of the functionality.
4. Schedule a meeting in which the student explains the goals, interface, and algorithms of the code base in words first, and then shows it to you using the IDE of choice.
5. Prepare key questions about the abstractions and algorithms that the code implements.
 - a. What is it trying to do at the highest level?
 - b. How does it do it?
 - c. What is the complexity of the algorithms it uses?
 - d. What libraries does the code use for its data structures?
 - e. Are these appropriate?
6. Ask the students to step you through the code on some of the test cases.