

CSC 300

Fall 2007

Prof. Stearns

Lab Project #3 – Copyright Violations

Part 2a files due by Oct. 12 by 4:00 (archived files via email)

Report due Wednesday, Oct 17 by 4:00 (paper report to CSC drop box)

**Note: there is an individual part (counts as Individual Assignment #2)
and team part (counts as 3 Labs)**

last updated 10/9/07

Important Notes – this is not an academic exercise!

1. Nearly every year, CSC students lead the university in number of reported cheating violations (most are software copyright violations)
2. Several Cal Poly professors, including Prof. Stearns, have served as expert witnesses on court cases involving software copyright issues. Such issues can and have destroyed many small companies.
3. Several former students of Prof. Stearns have been involved in copyright violations. Some lost their jobs and, in one case, lost a personal fortune.

Objectives:

1. Understand obligations under software copyright law
2. Analyze how the ownership of code can be determined.
3. Understand the unique issues involved in copyright for executable code.

Procedure:

Part 1a: Warm up

Sample 1:

```
for(temp = mHead; temp.next != null &&  
    mCompr.compare(temp.next.data, newNode.data) >= 0;  
    temp = temp.next);
```

Sample 2:

```
temp = mHead;  
while(temp.next != null &&  
    mCompr.compare(temp.next.data, newNode.data) >= 0)  
    temp = temp.next;
```

1. What qualities about these two code fragments reflect copied code?
2. What qualities about these two code fragments reflect unique code?

3. Would you consider the similarities of this simple algorithm to be a case of cheating or not? Why?
4. What would you do if someone copied your code without your permission?

Part 1b: SECOE

What sections(s) in the Software Engineering Code of Ethics apply to this lab?
Give a brief justification for each section

Part 2: Hands-on Copyright Violations

a. Write and test a program (Java or C) to maintain a list of individuals (name and age.) Keep the list sorted by age, with the oldest individuals first. This program is known as the Part A program.

Requirements:

- Use a linked list data structure
- Implement the following methods must be implemented (return values may vary):

insert(name, age) -

inserts new node into linked list

- insert in age descending order

- ties are dealt with by inserting at the first occurrence of tied age

- names must be unique

delete(name)

- removes node with given name

b. Obfuscate a provided code solution

You will be provided a solution by Prof. Stearns. Modify that solution so it appears to be an original piece of code (to be known as the Part B solution) The Part B code must maintain the same functionality and work identically to the provided solution. The goal is to hide your copyright violation from other people.

You are restricted to the following code transformations

1. rewrite the overview so it looks like your team wrote the code
2. change variable names
3. relocate blocks of code
4. modify (add or remove) comments
5. add additional, non-functional code
6. modify loop structure (while -> for, etc.)

When the provided code is modified, execute your tests against both versions (provided and Part B to be certain that both operate identically. Then, email Prof. Stearns the clearly identified Part A and Part B code.

c. Compare and Analyze

Your team will be given two solutions (Part A and Part B) from another team. Imagine you have been hired as expert witnesses to determine if the team has violated copyright. You will need to do some research to discover what constitutes a software copyright violation.

Your task is to analyze the team's Part B code and analyze their copyright violation. The basic question: could they, would they be caught?

1. You must use [MOSS](#) in your analysis. Note that MOSS's license doesn't allow it to be used commercially. But you can use it for this work and Cal Poly professors can use it to detect cheating.
2. You must enlist a CSC/SE/CPE major who isn't in our course. Preferably find someone who has completed CSC 300. This person is your expert witness; ask him or her a set of appropriate questions.
3. Consider the test scripts and output in your analysis. If two programs produce identical output, is there a likely copyright violation?
4. Use the information you found in your copyright violation research. You must discuss a minimum of one real copyright violation case.

Write an excellent, complete report of your findings. Imagine you will be paid \$500/hour for this work (not atypical). Focus on your conclusion: has the other team been busted? or did they get away with a copyright violation?

Part 3: Scenario Analysis (each individual does this part separately)

Consider the scenario below

In the course of his work on a project, a consultant was asked by the client to copy a copyrighted software product he needed to perform his tasks. The consultant told the client that this was forbidden by his employer and was not in conformance with his code of ethics. In front of the consultant, the client copied the software, handed it to him, and told him that now he could work. Knowing that the client was at fault, the consultant used the pirated software¹.

Using the Software Engineering Code of Ethics, explain whether or not the consultant's behavior was ethical. What would you do if you were the consultant in this situation?

Part 4: Conclusions (each individual does this part separately)

1. Has cheating affected your life as a student at Cal Poly? Have you seen it affect your peers? What are the similarities between copyright violations and cheating on programs in college? Differences?
2. If code is copied with permission from a peer or co-worker, is it still unethical or objectionable? How does this fit into SECOE (provision 7.02, 7.08)?
3. Two implementations can be almost identical, but not a result from copying, while two others might only have a passing resemblance, but one is the product of rampant copying. How does this fact complicate the task of a teacher, or lawyer, or juror trying to determine what is copied and what is original? Address this issue in a substantial paragraph response.

Part 5: Deliverables

1. Part A code, test program and test scripts
2. Part B code, test program and test scripts
3. Part C test scripts
4. Final report including Part 2 analysis, MOSS reports, friend's interview transcript, copyright analysis, research bibliography and responses to questions in Part 1b and 2c
5. Appendix: Individual responses to questions Part 3 and Part 4

1) Parker, Donn B., Susan Swope, Dr. Bruce N. Baker. Ethical Conflicts in Information and Computer Science, Technology, and Business. Wellesley, Massachusetts. 1990.