

Assignment 8
CSCI 3136: Principles of Programming Languages
Due April 9, 2018

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Assignments are due on the due date before class and have to include this cover page. Plagiarism in assignment answers will not be tolerated. By submitting their answers to this assignment, the authors named above declare that its content is their original work and that they did not use any sources for its preparation other than the class notes, the textbook, and ones explicitly acknowledged in the answers. Any suspected act of plagiarism will be reported to the Faculty's Academic Integrity Officer and possibly to the Senate Discipline Committee. The penalty for academic dishonesty may range from failing the course to expulsion from the university, in accordance with Dalhousie University's regulations regarding academic integrity.

Question 1 (5 marks) Automatic garbage collection is by far the most common approach to memory management in programming languages with a reference model of variables. Is this a coincidence? Justify your answer. (Hint: Think about the (in)convenience of programming in a language with a reference model of variables but with manual allocation and deallocation of heap-allocated objects.)

Question 2 (5 marks) Neither Algol 60 nor Algol 68 employs short-circuit evaluation for Boolean expressions. In both languages, however, an if-then-else construct can be used as an expression. Show how to use if-then-else to achieve the effect of short-circuit evaluation.