CSCI 305 Participation Event 4

Due Date: March 9, 2018 @ End of Class

Group Members:_____

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Exercise 1

Consider a block-structured language implemented using nesting links. Suppose a function nested `n` levels deep makes a legitimate reference to a local variable of a function nested `m` levels deep. Describe exactly how to find the variable at runtime. *Hint*: You do not have to worry about the cases where `m > n`; be sure you explain why not.

Exercise 2

Write the shortest ML function you can that would not work correctly if implemented using statically allocated activation records. Explain why it would fail.

Exercise 3

For each of the following ML functions, could the activation record for the function be deallocated as soon as the function returns? Explain why or why not.

- `fun f x = x + 1;`

- `fun f x = map ~ x`