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S2 Discussion Questions

1) What is a “Stream?”

I/O. I have seen this symbol my entire life but I never knew its meaning. In C++, I/O is a sequence of bytes, called a stream, from a source to a destination. The I in I/O represents an input stream, which is from an input device, like a keyboard, to the computer; likewise the O represents an output stream from the computer to an output device, like a monitor. To tell the program to send streams to and from devices C++ requires the header file iostream which contains two important variable declarations, cout and cin, which stand for common output and common input, respectively.

2) What is “short circuit evaluation?” Why is it important – what benefits does  
it provide?

The textbook describes short-circuit evaluation as a process in which the computer evaluates a logical expression from left to right and stops as soon as the value of the expression in known. This is done through the use of Boolean logic, where a statement is either true or it is false, as soon as the computer arrives at desired value it does not need to evaluate the remainder of the expression. This is done through the operands OR and AND, when evaluating a statement each part of the statement is either true or false, when using an OR operand if any or the statement is true then the entire statement evaluates as true, all of the parts of the statement would have to be false to arrive at a false value for the statement. True OR True = True, True OR False = True, False OR False = False. However, the operand AND evaluates False if any of the statement is False. True AND False = False. This is important because it allows for the programs to complete more complex operations and it is a more efficient way to program because it allows the program to move onto the next statement without having to evaluate the entire previous statement. For example, if (x == 3) && (y == 9), then if x does not equal 3 then the statement would evaluate false and the program wouldn’t need to evaluate whether or not y equals 9. This makes the program run faster.