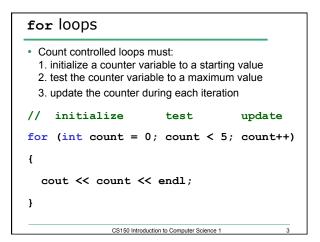


### **About Loops**

 pre-tested loops execute zero or more times (while loop and for loop)

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- conditional loop executes as long as a particular condition is true (while loop)
- count-controlled loop executes an exact number of iterations (for loop)



# for vs while This for loop for (int count = 0; count < 5; ++count) { cout << count << endl; } is equivalent to what while loop?</pre>

## Example

• Write a for loop that outputs the odd integers less than 10 and greater than 0

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# Problem

• Write a program segment that asks the user to enter a positive integer. If the number is not positive, print "Illegal Input"; otherwise, output the integers from the integer entered to 1.

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- · Do this with a for loop
- Do this with a while loop

### Practice

- Write a program that computes the factorial of a number. The factorial of a number is given by the formula below. The user will input a value for N.
- N! = N \* (N-1) \* (N-2) \* ... \* 2 \* 1 • Where 0! = 1, 1! = 1, 2! = 2, 3! = 6, ...

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## Localized Declarations for (int i = 0; i < 10; i++) { cout << i << endl; } cout << i << endl; // This will cause an error • i is declared and known ONLY in the loop • a localized declaration is the only place where a single character variable name is OK CS150 Introduction to Computer Science 1 8

# Potential Pitfalls • What is the output of the following loop int count; for (count = 0; count < 5; count++) { cout << count << endl; count++; }</pre>

# Problem

- Write a program that allows the user the ability to enter 20 integers, you should then print out the following:
  - o The sum of all integers inputted
  - o The average of all integers inputted
  - o The largest integer of all integers inputted