for Repetition Structures

Last Time
- We discussed
  - Counter and sentinel-controlled repetitions
  - Type casting
  - Formatting output
  - Top-down, stepwise refinement
- Today we will
  - Examine different ways of writing assignments
  - Learn about the increment and decrement operators
  - Start looking at the for repetition structure

Assignment Operators
- We’ve seen that C++ provides the ability to abbreviate an assignment operator in which the same variable appears on either side of the operator
- sum = sum + num;
- Can be abbreviated to
- sum += num;

Increment and Decrement Operators
- ++ is the unary increment operator
  - x++; is the same as x = x + 1;
- -- is the unary decrement operator
  - x--; is the same as x = x - 1;

Pre-increment vs. post-increment
<table>
<thead>
<tr>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>k = –x;</td>
<td>k = x--;</td>
</tr>
<tr>
<td>k = ++x;</td>
<td>k = x++;</td>
</tr>
</tbody>
</table>
Increment/ decrement x | Assign value of x to k, then increment or decrement x value of x to k

Example

09.1: What is the output if i = 2?

cout << “Value of x is” << i;
cout << “Value of i++ is” << i++;
cout << “Value of ++i is” << ++i;
cout << “Value of --i is” << --i;
cout << “Value of i-- is” << i--;
Equivalent Logic

09.4: Rewrite the following for loop as a while loop.
```
for (i = 5; i < 10; i+= 2)
    cout << i;
```

09.5: What does this output?

Problem

09.6: Write a program that will print the sum of the odd integers between 1 and 50 inclusive. Write one program using a while and the other using a for loop.

Problem

09.7: Write a program that allows the user to enter an unknown number of integer values one at a time. When the user enters -999, you are to terminate the loop and print the following:
- The sum of all integers inputted
- The average of all integers inputted
- The largest integer of all integers inputted

Summary

In today’s lecture we covered
- Abbreviating assignment operators
- Increment and decrement operators
- for repetition structures

Readings
- P. 98 Assignment operators
- P. 99 - 102 Increment and decrement operators
- P. 104 - 113 for repetition structures