CSE 8A Lecture 11

• Reading for next class: 6.6-6.8

• Today’s topics:
  – Precedence and Associativity
  – Increment Operator
  – More practice with if-statements and while
  – Logical Operators  &&  ||  !
  – boolean data type
  – Building more complex programs
Precedence and Associativity of Operators

1) PRECEDENCE

A) 20

2 + 3 * 4 --->

6

2) ASSOCIATIVITY

B) 14

2 + 3 - 4 + 5 --->

6

C) 14

-4

TABLE of PRECEDENCE and ASSOCIATIVITY

Operator | Associativity
----------|-----------------|
- (unary) | right to left   |
* / %     | left to right   |
+ -       | left to right   |
< <= > > = | left to right   |
== ! =   | left to right   |
=          | right to left   |


int i = 1, j = 2, k;

++i;

System.out.println( i );

j--;

System.out.println( j );
i = j = 2;
k = ++i;

System.out.println( "i:" + i + "  k:" + k );
k = j++; System.out.println( "j:" + j + "  k:" + k );
int x = 4;

if( --x < 4 )
    if( x++ > 2 )
        System.out.println( x + 3 );

if( x > 0 && x < 10 )
    System.out.println( x += 3 );

2. What does the code above print?
   A. 7  B. 6  C. 7  D. other
      7  7  10
int x = 4;

if( --x < 4 )
  if ( x++ > 3 )
    {
      x += 3;
      System.out.println( x );
    }
    else
      System.out.println( x );

2. What does the code above print?

A. 3
B. 6
C. 7
D. other
2. What does the code above print?

A. 8     B. 6     C. 7     D. other

8     9
Review: If-statements

Which statement is most true about ONE execution of this code?

```java
if (Math.abs(topAv - botAv) < 10)
    topP.setColor(Color.WHITE);
else
    topP.setColor(Color.BLACK);
```

A. It is possible BOTH Section A AND Section B will be executed

B. Either Section A will be executed, OR Section B will be executed, but NOT BOTH

C. It is possible neither Section A nor Section B will be executed.
Review: If-statements

Which statement is most true about ONE execution of this code?

A. Exactly one of Section A, Section B, or Section C will be executed

B. It is possible that both Section B and Section C will be executed

C. It is possible that both Section A and Section C will be executed

D. It’s possible Sections A, B, and C will be executed

if (Math.abs(topAv - botAv) < 10)
    topP.setColor(Color.WHITE);
else if (Math.abs(topAv - botAv < 50)
    topP.setColor(Color.GREY);
else
    topP.setColor(Color.BLACK);
If-statements and pretty pictures
Image courtesy of Aaron Gable, CS 5 Black
Image courtesy of Aaron Gable, CS 5 Black
```cpp
if ( absValZ < 2.0 )
{
    return true;
}
else
{
    return false;
}
```

Which of the following is equivalent to the above code?
A. `return absValZ;`
B. `return absValZ < 2.0;`
C. `return absValZ >= 2.0;`
D. None of these
int x = 6;

while(--x > 2)
    System.out.println(x - 2);

System.out.println(x);

2. What does the code above print?
   A. 4    B. 3    C. 3    D. other
   3  2  2
   2  1  2
boolean b = false;

while (b == true)
{
    System.out.println("hi");
}
System.out.println("bye");

2. What does the code above print?
   A. hi  B. bye  C. hi
d. other
   bye  hi
2. What does the code above print?

A. hi    B. bye    C. hi    D. other
   bye                hi
Summary of Concepts

• if-statements and while loops
• Precedence and Associativity
• Increment Operator
• Logical Operators  &&  ||  !
• boolean data type
TODO

• Reading for next class: 6.6-6.8

• Finish PSA5