CSE 8A Lecture 20

• LAST WEEK! You made it! (Almost… 😊)

• PSA 9 due tonight (yayy!! Last one)

• Bring graded Exam #4 to Wed 3/13/13 lecture for review
  – Graded Exam #4 returned in lab tomorrow

• Exam #4 Statistics
  – Median: 72.5% (14.5/20)
    • High: 100% (5 students) WOW!
    • 90% or above - 59 students (20% of the class) - GOOD job!
  – CSE 8a class Median: 85.95%
    • High: 100.5% (11 students)
    • 90% or above 103 students (34% of the class)
Unraveling the magic of **main**

- No more mystery!
- Doesn’t return anything
- Parameters (how are these passed in?)

```java
public static void main(String[] args)
```

- Who “owns” the method…
- Method name
About the Final

• Like a larger in-term exam

• **B00 Wed 3/20/13 11:30am–1:30pm @ TBA**

• **A00 Fri 3/22/13 8am–10am @ Pepper Cyn 106**

• Same format but 3-4x as long

• You will have 2 hours, but we will aim to create an exam the average student can finish in 1.5 hours

• You will fill in code (classes, constructors, basics)

• What will be on it? You tell me…
Major topics in CSE 8A

• With your group, list as many topics as you can think of for CSE8a.
Studying for the final

1. Redo (i.e. write out on paper):
   A. Interim Exam #1-#4 and Exam practice problems
   B. PI (clicker) questions
   B. Lab quiz questions
   C. Reading quiz questions

   Do this WITHOUT looking at the book. If you get stuck, STOP. Reread the relevant material in the book, maybe peek at the answer, then put the book away and try again

2. Get together with your friends (or post on Piazza for a group) and come up with new study questions. Then do those (using the same method)
How many objects are created in this code?

World world1 = new World (200,100);
Turtle maria = new Turtle(25, 25, world1);
Turtle jose = new Turtle(100, 50, world1);
maria.forward( 25 );
jose.forward ( 10 );
maria.turnLeft( );
maria.forward( 50 );
jose.forward ( 5 );

A. 1
B. 2
C. 3
D. 4
What is the output of this code?

```java
int x = 3, z;
Turtle y = 2;

System.out.println( x == 3 );

z = x + y;
System.out.println( z );
```

A) 3  B) true  E) None of the above.
5      5

C) 3  D) true
false  false
What does this code draw?

```java
World world1 = new World(200,100);
Turtle maria = new Turtle(25, 25, world1);
Turtle jose = new Turtle(100, 50, world1);
maria = jose;
maria.forward(50);
jose.turn(90);
jose.forward(50);
```

A)  
B)  
C)  
D)  

1) Solo (30 secs)  
2) Discuss/Group (1 min)
public void drawSquare()
{
    turtle1.turnLeft();
    turtle1.forward( 100 );
    turtle1.turnLeft();
    turtle1.forward( 100 );
    turtle1.turnLeft();
    turtle1.forward( 100 );

    turtle1.turnLeft();
    turtle1.forward( 100 );
    turtle1.turnLeft();
    turtle1.forward( 100 );
    turtle1.forward( 100 );
}
Primitives vs. Objects: Review

What does the following code print?

```java
int remzisAge = 19;
int rominasAge = 25;

remzisAge = rominasAge;
rominasAge = 20;

print( "Remzi is " + remzisAge + " and Romina is " + rominasAge );
```

A. Remzi is 19 and Romina is 25
B. Remzi is 20 and Romina is 20
C. Remzi is 25 and Romina is 20
D. Remzi is 25 and Romina is 25
E. Remzi is 19 and Romina is 20
A. Decreases the blue component of a picture
B. Sets the green component of each pixel to be the same as the blue component
C. Sets the blue component of each pixel to be the same as the green component
D. Loops over all pixels in pixelArray. For each pixelObj calls getGreen and stores that into value. Then sets value into blue.
E. None of the above.
int      index, value = 0;
Pixel    p = null, q = null;
Pixel[]  pixelArray = this.getPixels();

for( index = 0 ; index < pixelArray.length-1 ; index++ )
{
    p = pixelArray[ index+1 ];
    q = pixelArray[ index ];
    p.setRed  ( q.getRed() );
    p.setBlue ( q.getBlue() );
    p.setGreen( q.getGreen() );
    p.setGreen( q.getGreen() );
}
**Nested Loops: How do they work?**

What order are pixels changed?

A method in Picture.java… what does it print if width is 2 and height is 3?

```java
int foo, bar;
Pixel p;

for( foo = 0 ; foo < getWidth() ; foo++ )
    for( bar = 0 ; bar < getHeight() ; bar++ )
        System.out.println( foo + " " + bar );
```

<table>
<thead>
<tr>
<th></th>
<th>0 0</th>
<th>B. 0 0</th>
<th>C. 0 0</th>
<th>D. 0 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0 0</td>
<td>0 1</td>
<td>0 1</td>
<td>1 1</td>
</tr>
<tr>
<td></td>
<td>0 1</td>
<td>1 0</td>
<td>0 2</td>
<td>1 1</td>
</tr>
<tr>
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<td>1 0</td>
<td>2 0</td>
<td>0 1</td>
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<td></td>
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<td>1 1</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 1</td>
<td>2 1</td>
<td>1 2</td>
<td></td>
</tr>
</tbody>
</table>
In a method in Picture.java... assume height = 50, width = 100

```java
int bar, foo;
Pixel p;

for( bar = 0 ; bar < getWidth() ; bar++ )
    for( foo = 0 ; foo < getHeight() ; foo++ )
    {
        p = getPixel(foo, bar);
        p.setColor(Color.BLACK);
    }
```

A. It doesn’t, this loops across rows, top to bottom
B. It doesn’t, this loops down columns, left to right
C. It tries to index a pixel off the end of a row (x value too big)
D. It tries to index a pixel off the end of a column (y value too big)
What are the first \((x,y)\) coords for top\(P\) and bottom\(P\) to mirror around horizontal axis?

<table>
<thead>
<tr>
<th>(x)</th>
<th>(y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

A. \((0,0)\) \((0,3)\) \((0,1)\) \((0,2)\) \((1,0)\) \((1,3)\)

B. \((0,0)\) \((0,3)\) \((1,0)\) \((1,3)\) \((2,0)\) \((2,3)\)

C. either A or B will work

D. none of the above
What error will the code above produce?

A. This code will not compile

B. The line “Picture newCanvas = fish.copyRegionToNew…” in main will cause an error

C. The line newCanvas.show() will cause an error
Select the if statement to make bottom half of picture some color

```java
public void fillBottom( Color newColor )
{
    Pixel pix;
    for (int y = 0; y < this.getHeight(); y++)
        for (int x = 0; x < this.getWidth(); x++)
            {
                pix = this.getPixel(x,y); pix.setColor(newColor);
            }
}
```

A) if( y < this.getHeight() / 2 )
B) if( y > this.getHeight() /2 )
C) if( this.getPixel(x,y) < this.getHeight() / 2 )
D) if( this.getPixel(x,y) > this.getHeight() / 2 )
public void everyOtherColumn(Color newColor)
{
    int x, y;
    Pixel pix;
    for (y = 0 ; y < this.getHeight() ; y++ )
        for(x = 0 ; x < this.getWidth() ; x++ )
        {
            <<SELECT LINE OF CODE TO GO HERE>>
            pix = this.getPixel( x,y );
            pix.setColor( newColor );
        }  
}  

A) if( x < this.getWidth() / 2 )
B) if( x < this.getHeight() / 2 )
C) if(( x % 2 ) == 0 )
D) if( ( this.getPixel( x,y ) % 2 ) == 0 )
CS Concept: Booleans are values

```c
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
public void guess()
{
    int i, foo, a = 0, b = 0;
    SoundSample[] noiseArray = this.getSamples();

    for( i = 0 ; i < noiseArray.length ; i++ )
    {
        SoundSample sample = noiseArray[i];
        foo = sample.getValue();
        if (foo > a)
        {
            a = foo;
            b = i;
        }
    }
    System.out.println(a + ""," + b);
}
TODO

- Study
- CAPES and Supplemental survey (if you haven’t already)