The Quest (Quiz 5 + Test)

Quiz 5 Review questions

2D-array practice questions:

[http://programmedlessons.org/java5/Notes/chap49C/chap49CquizRev2.html](http://programmedlessons.org/java5/Notes/chap49C/chap49CquizRev2.html" \t "_blank)

More 2-D array practice questions:

* Write two unrelated methods for the Picture class.
  + a. Write a method int getCountRedOverValue(int value) that returns a count of the number of pixels in the current picture that have a red value more than the parameter value.
  + b. Write a method setRedToHalfValueInTopHalf() that sets the red value for all pixels in the top half of the picture to half the current red value.
* Write two unrelated methods for the Picture class.
  + a. Write a method clearBlueOverValue(int value) that sets the blue value to 0 for every pixel that has a current blue value great than the parameter value.
  + b. Write a method int[] getAverageForColumn(int col) that creates and returns an array of integers the size of the number of columns that contains the average of the red, green, and blue values for each pixel in the column at index col.

1. Which of the following will compile without error?

I.

DigitalPicture p = new Picture();

II.

DigitalPicture p = new SimplePicture();

III.

Picture p = new SimplePicture();

a. I, II, and III  
b. II only  
c. III only  
d. I and II  
e. II and III

2. If the following code is in a method in the Picture class, what will the value of count be after the following code executes?

int count = 0;

for (int row = 5; row < 12; row++) {

for (int col = 8; col < 13; col++) {

count++;

}

}

a. 13  
b. 25  
c. 35  
d. 42  
e. 48

3. Which of the following sets the blue value to zero for all pixels in the bottom half of the picture?

I.

public void method1() {

Pixel[][] pixels = this.getPixels2D();

Pixel pixelObj = null;

int height = pixels.length;

for (int row = 0; row < height / 2; row++)

{

for (int col = 0; col < pixels[0].length; col++)

{

pixelObj = pixels[row][col];

pixelObj.setBlue(0);

}

}

}

II.

public void method2() {

Pixel[][] pixels = this.getPixels2D();

Pixel pixelObj = null;

int height = pixels.length;

for (int row = height / 2; row < height; row++)

{

for (int col = 0; col < pixels[0].length; col++)

{

pixelObj = pixels[row][col];

pixelObj.setBlue(0);

}

}

}

III.

public void method3() {

Pixel[][] pixels = this.getPixels2D();

Pixel pixelObj = null;

int height = pixels.length;

for (int row = height-1; row >= height / 2; row--)

{

for (int col = 0; col < pixels[0].length; col++)

{

pixelObj = pixels[row][col];

pixelObj.setBlue(0);

}

}

}

a. I, II, and III  
b. II only  
c. III only  
d. I and II  
e. II and III

# ArrayList and For-each loop questions

**Which of the following declarations would be appropriate for a list that is expected to contain integers?**

a. ArrayList<String> list = new ArrayList<String>() ;

b. ArrayList<int> list = new ArrayList<int>() ;

c. ArrayList<Integer> list = new ArrayList<Integer>() ;

d. ArrayList list = new ArrayList() ;

Examine the following code:

ArrayList<String> list = new ArrayList<String>();

list.add( "Andy" );

list.add( "Bart" );

list.add( "Carl" );

list.add( 0, "Eve" );

**What element will be at index 2 of the list?**

Examine the following code:

ArrayList<String> list = new ArrayList<String>() ;

list.add( "Andy" );

list.add( "Bart" );

list.add( "Carl" );

list.add( "Doug" );

list.add( "Elmo" );

**What code would you write to change the list so that it looks like**:

Andy

Bart

Carl

Doug

Oscar

Elmo

Examine the following code:

ArrayList<String> list = new ArrayList<String>() ;

list.add( "Andy" );

list.add( "Bart" );

list.add( "Carl" );

list.add( "Doug" );

list.add( "Elmo" );

**What code would you write to change the list so that it looks like**:

Andy

Bart

Carl

Doug

Examine the following code:

ArrayList<String> list = new ArrayList<String>() ;

list.add( "Andy" );

list.add( "Bart" );

list.add( "Carl" );

list.add( "Doug" );

list.add( "Elmo" );

for( \_\_\_\_\_\_\_\_ name : \_\_\_\_\_\_\_\_\_\_\_ )

System.out.println( \_\_\_\_\_\_\_\_\_\_\_ );

**Fill in the blanks so that the list is printed.**

**List two advantages and two disadvantages of an ArrayList as compared to an array.**

The following code has compile errors because randIntsForTan is an ArrayList and not an array. **Rewrite the code so that it works for the randIntForTan ArrayList.**

int sum = 0;

for(int i= 0; i<randIntsForTan.length, i++) {

if (randIntsForTan[i]%2==0) {

sum += randIntsForTan[i];

}

}

**Rewrite the following code with a for each loop (enhanced for loop) instead of a regular for loop.**

int sum = 0;

for(int i= 0; i<randIntsForTan.length, i++) {

if (randIntsForTan[i]%2==0) {

sum += randIntsForTan[i];

}

}

**The following code is intended to remove all the odd numbers from an ArrayList called arrList. Explain why the following code may produce an error.**

for(Integer num : arrList) {

    if(num % 2 != 0)

    {

        arrList.remove(num);

    }

}

You are given the following StockItem class to model items in stock on the shelf of a store.

public class StockItem

{

    private String myDescription;

    private int myIdNum;

    private double myPrice;

    private int myNumOnShelf;

    public StockItem(String description, int id, double price,                      int numOnShelf)

    { implementation }

  public int getIdNum()

    { implementation }

    public double getPrice()

    { implementation }

    public int getNumOnShelf()

    { implementation }

    public void setPrice(double newPrice)

    { implementation }

    public void remove(int quantity)

    { implementation }

    public void add(int quantity)

    { implementation }

}

Consider the class Store, which represents a list of all the StockItem objects in the store. The Store class is partially specified below:

public class Store {

    private ArrayList<StockItem> myStockList;

//all stock items in this store

//constructors and other methods not shown

        ...

//Precondition:  myStockList contains StockItem with

//               identity number idNum.

//Postcondition: All instances of StockItem with

//               identity number idNum have been

//               completely removed from the shelf.

//               This StockItem, however, is still in

//               myStockList.

    public void removeAll(int idNum)

    { /\* to be implemented in this part \*/ } }

**Write the Store method removeAll, which searches for the StockItem in myStockList whose identity number matches idNum and removes all instances of that item from the shelf.** You may assume that myStockList does contain the StockItem with identity number idNum.  
  
In writing removeAll, you may use any of the methods of the StockItem class above.

# What will be on the Test?

Here is a link to the AP Java Subset: [https://apstudent.collegeboard.org/apcourse/ap-computer-science-a/about-the-exam/java-subset](https://apstudent.collegeboard.org/apcourse/ap-computer-science-a/about-the-exam/java-subset" \t "_blank)

You are responsible for the sum total of human knowledge since the beginning of recorded history with particular emphasis on the contents of this course and the AP Java Subset.

The test will consist of half of a full AP exam; it will have 20 multiple choice questions and 2 free response questions.

See practice AP exam: [https://secure-media.collegeboard.org/digitalServices/pdf/ap/ap-computer-science-a-course-description-2014.pdf#page=23](https://secure-media.collegeboard.org/digitalServices/pdf/ap/ap-computer-science-a-course-description-2014.pdf" \l "page=23" \t "_blank)