

CS125 Spring 2009 Exam 3 Review

Before you start, please note: it is possible to get strong clues for answering some of the questions in the review by referring to other questions. For example, converting from code to a flow chart and vice versa. In general, you should not depend on both versions of a question showing up in the exam.

Also note: this study guide is not comprehensive. I strongly suggest reviewing: the practice problems posted online, homework assignments, material from the last exam & the self check questions in the text.

Write a public method called `convertToArray` that takes an `ArrayList` of type `Integer` as a parameter and returns a corresponding array of type `int`.

```
// code goes here
```

Examine the following code:

```
int max = 4;
int n = 1;
int m = max;
for(int a=0; a<max; a++)
{
    for(int b=0; b<m; b++)
        System.out.print(" ");
    for(int b=0; b<n; b++)
        System.out.print("*");
    System.out.println("");
    n += 2;
    m--;
}
```

What is the final output displayed by the code:

Diagram the code using a flow chart:

Examine the code below. **Add** the necessary lines of code such that each new Player object will get its own unique idNum. Note: this should not be done by changing any of the existing code.

```
public class Player
{
    // instance fields
    int score;
    int idNum;

    /**
     * constructor - sets idNum
     */
    public Player()
    {

    }

    /**
     * returns idNum
     *@return the objects idNum
     */
    public int getIdNum()
    {
        return idNum;
    }

}
```

Write a `for` each loop that sums up the contents for an `ArrayList` called `values`, stores the result in `double` called `sum` & then prints it.

```
// code goes here
```

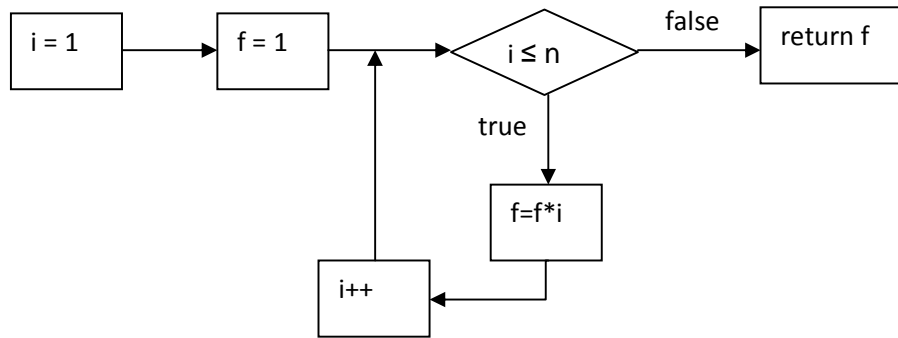
Write a `for` loop that finds the largest value in an array called `values`, and swaps it to the last position of the array

```
// code goes here
```

Write a `while` loop that examines all the values in an integer array called `values`, finds the number of the values that are odd, stores the result in a variable called `oddCount` & then prints it.

```
// code goes here
```

Examine the following flow chart & convert into a static method called `factorial` which takes a `int` parameter `n` and returns an `int` as an answer. Be sure to include documentation comments for the method.



// code goes here

Define coupling.

What is a postcondition? Give an example.

What does parameter recycling mean? Give an example.

Write a class called `MoreMath` with a static method called `GreatestCommonDenominator`. It should take two integers as parameters & return their greatest common denominator – that is, it should find the largest number that divides evenly into both numbers. Provide documentation comments including a precondition comment indicating the method does not take negative numbers.