

In requested outputs below, show all output in the order of execution, with correct line breaks, *without mixing in comments or intermediate steps*. You increase your chances of partial credit if you also clearly and *separately* show all significant steps to the answer. **Try these before you look at the answers on page 2!**

What is printed by this code fragment?

Output:

```
int x = 42, y = 33;           //1
int z = x + y;               //2
System.out.println(x + "+" + y + "=" + z); //3
```

What is printed by this code fragment? Be careful of your index/offset calculations.

```
String s = "whatever";
System.out.println(s.indexOf("hat"));
System.out.println(s.substring(4));
System.out.println(s.substring(1, 5));
```

Outputs:

What is printed by this code fragment?

```
int x = 5; //1
while (x > 2) { //2
    x--; //3
    System.out.print(x + "+"); //4
}
```

// Write the actual output here: _____

If x and y are ints, what is printed below if x is 4 and y is 3? If x is 1 and y is 0?

```
if (x != 1 || x < y) { //1
    System.out.print("A"); //2
}
else {
    System.out.print("B"); //3
}
System.out.println("!"); //8
```

Answer if x is 4 and y is 3: _____

Answer if x is 1 and y is 0: _____

What is printed by this code fragment? (nested loops) Write the output(s) in the space below

```
for (int i = 1; i < 3; i++) { //1
    for (int j = 1; j < 3; j++) { //2
        System.out.print(i*2 + 2*j); //3
    }
    System.out.println(); //4
}
```

Go on to page 2 for the final question!

Using Scanner and String methods, write Java statements that do the following:

- Using *next()*, read two words from the keyboard and assign them to String variables
- Print out the original first word, a comma and space, that word in upper case, a comma and space, then the original second word, a comma and space, and that word in lower case, all on the same line
- You may need more String variables in addition to the two String variables mentioned above. Pick any variable names you want.

Example: given words **Hello** and **World**, the output would be **Hello, HELLO, World, world**

Fill in your code below:

```
import java.util.Scanner;
public class MixedCaseWords
{
    public static void main(String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("type in two words and press Enter");
        // fill in your code here!!
    }
}
```

Fill in the answers for the following class definition and program:

```
public class Mystery
{
    private int mystery;
    private int unknown;
    public Mystery(int m)
    {
        mystery = m;
    }
    public void doIt(int n)
    {
        mystery = shazam(n*2) + 50;
    }
    private int shazam(int m)
    {
        unknown = m/3 - mystery;
        return unknown;
    }
    public static void main(String[] args)
    {
        Mystery m = new Mystery(42);
        m.doIt(7);
    }
}
```

What are the values of *m.mystery* and *m.unknown* after *main* runs? _____

For the following coding problems, remember the code should work for *any* appropriate parameters provided by the caller, not just the data in the examples. If you need more examples to understand what is requested, *ask*. You should be putting pretty standard building blocks together. Include all the appropriate parts that you can, and add an underlined English description in place of any parts you can't get into proper Java. Do *not* make us guess whether what you write is intended to be English or Java!

Complete the code for the method **doubler** that goes with the heading and description below.

```
/* Print each character of char [] ca twice, on multiple lines.
 * Examples: if ca is {'n', 'o'} then doubler prints (at the start of these lines):
 *
 *                               nn
 *                               oo
 *   if ca is {'h', 'e', 'l', 'p'} then doubler prints:
 *
 *                               hh
 *                               ee
 *                               ll
 *                               pp
 */
public static void doubler(char[] ca)
{ // do not prompt the user for input! Fill in your code below.
  // Hint: you can use an extended for or for-each loop
```

Answers

In requested outputs below, show all output in the order of execution, with correct line breaks, *without mixing in comments or intermediate steps*. You increase your chances of partial credit if you also clearly and *separately* show all significant steps to the answer.

What is printed by this code fragment?

```
int x = 42, y = 33;           //1
int z = x + y;               //2
System.out.println(x + "+" + y + "=" + z); //3
```

Output:

```
z == 42+33 == 75
42+33=75
```

What is printed by this code fragment? Be careful of your index/offset calculations.

```
String s = "whatever";
System.out.println(s.indexOf("hat"));
System.out.println(s.substring(4));
System.out.println(s.substring(1,5));
```

Outputs:

```
1 (start at 0)
ever
hate
```

What is printed by this code fragment?

```
int x = 5; //1
while (x > 2) { //2
    x--; //3
    System.out.print(x + "+"); //4
}
```

```
x == 4, then 3, then 2
print on one line, not separate lines
loop stops when x == 2 (not > 2)
```

// Write the actual output here:

4+3+2+

If x and y are ints, what is printed below if x is 4 and y is 3? If x is 1 and y is 0?

```
if (x != 1 || x < y) { //1
    System.out.print("A"); //2
}
else {
    System.out.print("B"); //3
}
System.out.println("!"); //8
```

```
Answer if x is 4 and y is 3: A!
first if condition is true, print A
always print !: println outside if's
```

```
Answer if x is 1 and y is 0: B!
first if condition is false, print B
always print !: println outside if's
```

What is printed by this code fragment? (nested loops) Write the output(s) in the space below

```
for (int i = 1; i < 3; i++) { //1
    for (int j = 1; j < 3; j++) { //2
        System.out.print(i*2 + 2*j); //3
    }
    System.out.println(); //4
}
```

```
46 → i is 1, j goes from 1 to 2
68 → i is 2, j goes from 1 to 2
print stays on same line

println each time j loop ends:
println moves to the next line
```

Using Scanner and String methods, write Java statements that do the following:

- Using *next()*, read two words from the keyboard and assign them to String variables
- Print out the original first word, a comma and space, that word in upper case, a comma and space, then the original second word, a comma and space, and that word in lower case, all on the same line
- You may need more String variables in addition to the two String variables mentioned above. Pick any variable names you want.

Example: given words **Hello** and **World**, the output would be **Hello, HELLO, World, world**

Fill in your code below:

```
import java.util.Scanner;
public class MixedCaseWords
{
    public static void main(String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("type in two words and press Enter");
        // fill in your code here!!
        String word1 = keyboard.next(); // next reads one word
        String word2 = keyboard.next(); // reads the second word
        String word1Upper = word1.toUpperCase();
        String word2Lower = word2.toLowerCase();
        String c = ", "; // to save a little typing
        System.out.println(word1 + c + word1Upper + c
                            + word2 + c + word2Lower);
        // can also do this with multiple System.out.print statements:
        // System.out.print(word1 + c);
        // System.out.print(word1Upper + c);
        // System.out.print(word2 + c);
        // System.out.println(word2Lower);
        // can also do this without using word1Upper and word2Lower:
        // System.out.println(word1 + c + word1.toUpperCase() + c
        //                    + word2 + c + word2.toLowerCase());
    }
}
```

Fill in the answers for the following class definition and program:

```
public class Mystery
{
    private int mystery;
    private int unknown;
    public Mystery(int m) // called with 42 from main
    {
        mystery = m; // mystery = 42 initially
    }
    public void doIt(int n) // called with 7 from main
    {
        mystery = shazam(n*2) + 50; // shazam(14) + 50 = -38 + 50 = 12
    }
    private int shazam(int m) // called with 14 from doIt
    {
        unknown = m/3 - mystery; // unknown = 14/3 - 42 = 4 - 42 = -38
        return unknown; // return -38
    }
    public static void main(String[] args)
    {
        Mystery m = new Mystery(42); // m.mystery = 42 intially
        m.doIt(7); // see above
    }
}
```

What are the values of *m.mystery* and *m.unknown* after *main* runs? 12 and -38

Complete the code for the method *doubler* that goes with the heading and description below.

```
/* Print each character of char[] ca twice, on multiple lines.
 * Examples: if ca is { 'n', 'o' } then doubler prints (at the start of these lines):
 *
 *                               nn
 *                               oo
 * if ca is { 'h', 'e', 'l', 'p' } then doubler prints:
 *                               hh
 *                               ee
 *                               ll
 *                               pp
 */
public static void doubler(char[] ca)
{ // do not prompt the user for input! Fill in your code below.
  // Hint: you can use an extended for or for-each loop

  for (char c in ca)
      System.out.println("" + c + c); // "" + c converts c to String
  // can also use a standard for loop and/or System.out.print + println
  // meaning: { System.out.print(c); System.out.println(c); }
  // or:      { System.out.print(ca[i]); System.out.println(ca[i]); }
```