Question 2

• Write a function `int getLargerValue(int x, int y)` in Java, where `x, y` are integer. This function returns the larger value of two integers `x` and `y`.

```java
int getLargerValue(int x, int y) {
    if(x >= y) return x;
    else return y;
}
```

• Common error: forgetting the case where `x` equals `y`
Question 3

• Write a function `int calcSum2(int n)` in Java. The function should return a value according to the parameter `n` as follows:
  
  • if `n` is less than or equal to 0, then it returns 0
  
  • otherwise, it returns the sum of the squares of all integers from 1 to `n` (inclusive)
  
  • For example, if `n=3`, the return value of the function should be 14 (the sum of $1^2$, $2^2$, and $3^2$)
Question 3 (cont’d.)

- `int calcSum2(int n){
  if(n < 1) return 0;
  int sum = 0;
  for(int i = 1; i <= n; i++)
    sum += i*i;
  return sum;
}

- Common error - not writing proper Java code
  - e.g., writing $i^2$ instead of $i*i$
Question 4

- Each of the following pieces of code has a problem/bug that causes either a compilation error or an execution error. Explain what the problem is in one sentence.

a) `int[] array = {1, 2, 3, 4, 5 }; System.out.println(array[5]);`
- Arrays begin their indices at 0. This array has 5 elements, indexed 0 through 4. The reference to `array[5]` will cause a runtime error since there is no such element.
b) String a;
   System.out.println(a);
   • The String a is declared but never initialized. It will compile and print out null.

c) int a = 5.0;
   System.out.println(a);
   • An int variable is declared but a double literal is assigned to it. This will cause a compiler error since information is potentially lost.
b) `switch(choice) {`
   case 0: System.out.println("choice 0");
   case 1: System.out.println("choice 1");
   case 2: System.out.println("choice 2");
   default: throw new Exception();
}

- Each of the case statements is missing a break statement. Whatever value `choice` takes, its corresponding case and all of the cases after it will be executed, including the default case.
Multiple Choice

(a) Consider a Java program that defines the following class:
   
   ```java
   import myLibrary;
   public class JavaExample {
       //code for the class
   }
   ```
   
   What should be the name of the Java file that contains this program?

   a) myLibrary.java
   b) JavaExample.java
   c) JavaExample.class
   d) JavaExample.txt
(b) Consider the following code:

```java
String river = new String("CS187");
System.out.println(river.length());
```

What would be the output of the code?

a) 5  
b) 6  
c) 7  
d) CS187
Multiple Choice

(c) Consider the following class definition:

```java
class MyObject {
    public int A;
    protected int B;
    private int C;
}
```

What members of `MyObject` have visibility to (can be accessed by) any other class?

a) only A  
b) only B  
c) both A and B  
d) none
Multiple Choice

(d) Given the same class definition:

```java
class MyObject {
    public int A;
    protected int B;
    private int C;
}
```

What members of `MyObject` have visibility to (can be accessed by) a class that inherits `MyObject`?

a) only A
b) only B
c) both A and B
d) all of A, B, and C
Consider the following code:

```java
for (int i=0; i < 4; i++) {
    System.out.print((i/4) + " ");
}
```

What would be the output of the loop?

a) 0 1 2 3
b) 0 0 0 0
c) 0/4 1/4 2/4 3/4
d) 0.0 0.25 0.5 0.75
Multiple Choice

(f) Consider the following code:

```java
int[] array = {1,2,3,4,5 };
for (int i=0; i < 4; i++) {
    array[i] = array[i+1];
}
```

What elements would `array` contain after the loop?

a) 2,3,4,5,5
b) 2,3,4,5,6
c) 1,1,2,3,4
d) 1,1,1,1,1
e) 5,5,5,5,5
Consider the following code:

```java
int[] array = {1, 2, 3, 4, 5};
for (int i = 0; i < 4; i++) {
    array[i+1] = array[i];
}
```

What elements would `array` contain after the loop?

a) 2, 3, 4, 5, 5
b) 2, 3, 4, 5, 6
c) 1, 1, 2, 3, 4
d) 1, 1, 1, 1, 1
e) 5, 5, 5, 5, 5
Multiple Choice

(g) Consider the following recursive function:

```c
int callme(int n) {
    if(n == 1)
        return 1;
    else
        return callme(n-1);
}
```

What would be the return value of `callme(4)`?

a) 4
b) 3
c) 2
d) 1
```c
int callme(int n) {
    if (n == 1)
        return 1;
    else
        return callme(n-1);
}
```
int callme(int n) {
    if(n == 1)
        return 1;
    else
        return 1 + callme(n-1);
}
Assignment 1

- Program that gives a smoothed average of the most recent n stock prices entered by the user
- Gives average of all prices if less than n numbers have been entered
- Several possible solutions:
  - ArrayList that grows indefinitely (wastes storage)
  - Array of fixed length (keep only most recent n values)
  - Single number (running average) that is updated at each step