Practice Exam 1

Tony Peng, Maddy Scandlen

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Tips: Don't get stuck on a problem too long, do everything that you know and then come back to the questions you skipped. If there are any unclear about the questions, raise your hand a TA will help you.

1. Expression Table

Write down the result of each expression in the output column and specify the datatype of the result. Datatype should follow the Java Standards. **If the output is a String, surround it with " "**; **if the output is char surround it with ' '. Floats should have an 'f' at the end, longs should have an 'L' at the end. If the expression results in error, write errors in both columns.**

Expression	Output	Datatype
7/2 + 9.2/2		
3.4 + 2.5f		
"whale".substring(2, 5)		
(int)9.2 + 6.0f		
(2 <= 1) && (5!=2) || (8 + 5 != 13)		
1.5f == 1.5? "false" : "true"		
"joey".charAt(4)		
"madmax".indexOf("a") + 7		
2 + 3 + "catdog" + 1 + 2		
String.format("%3.3f", 7.89672)		
"captain".indexOf("a", 2)		
true ? ++3: 3++		
new String[]{"tony", "josh"}[0]		
"patrick".substring(2) + "lucky".substring(4)		
"popFizz".indexOf("o") + 2.4 + 6L		
"pizza".indexOf("z")		
(int)9.5/3 + 7.2		

8==9 || 2 < 3 && 9<= 0		
“pineapple”.charAt(9)		

2. True/False

Put T/F in each blanks and give a short description of how to fix the question if it’s false.

1.____ In Java, for loops is consist of initializer, condition and update components. The code would not compile if you missed a component. For example for(int a; ;) will not compile.

2.____ When you declare an int variable inside main method, it would be defaulted to 0 if you didn’t assign a value to it.

3.____ To get the length of a String object called str, you can simply do str.length to get the length of the string.

4.____ int[ ] arr = new int[-5] would compile, but not run.

5.____ You would have to import Math libraries in order to use methods like Math.round(3.14).

6.____ You can iterate through the characters inside a String with a for each loop.

7.____ Since there will be no lossy conversion, you can put an integer inside a double array and it would compile and run.

8.____ float num, nums[]; will compile but not run.

9..____ Having a index at -1 like arr[-1] is a shortcut to access the last index in the array directly.

3. Short Answers

1. Write down the main method header for a class named GeorgiaTech.

2. What package/library is always included when you run a java program?

3. What does * mean inside a import statement (import java.io.* ;)? And why should we avoid it?

4. What does the keyword public mean?

5. What does the keyword static mean?

6. What libraries do you need to import to use Scanner objects?

7. How would you run a java file named Point.java in the command line with arguments 1.5, 4.0?

8. Write a short program that would assign a random number to a variable from -20 to 30 (inclusive at 20 and exclusive at 30) using Math.random. Hint: Math.random() gives you a double from [0.0, 1.0)

9. Try listing out all 8 primitive types, note that anything other than these 8 types are considered reference type.

10. Use a for-each loop to print out all elements inside a String array called arr.

11. How would you prompt a user to enter a price in the console and then read it into your program? (Assume all needed libraries have been imported.)

12. Write an Enum call TA and put in at least 3 names inside. You will have to follow the naming convention for enums.

13. In one line of code, create a variable favoriteTA and assign a value from your enum created above.

4. Multiple Choice

1. Which of the following will NOT produce an error?
    A. int i = 2.001f;
    B. float f = 4.5;
    C. float f = (int) 3.99;
    D. int j = (long) 55;
    E. None of the above;

2. What will the following code print?

```
int cookies = 15;
int hungerLevel = 2;
while(cookies > 3){
        System.out.println(cookies % 2 == 1? “Chocolate” : “Sugar”);
        cookies -= hungerLevel++;
}
```

    A. Chocolate
       Chocolate
       Sugar
       Sugar
    B. Chocolate
       Sugar
       Chocolate
       Sugar
    C. Chocolate
       Sugar
       Sugar
       Chocolate
    D. Sugar
       Chocolate
       Sugar
       Chocolate
    E. None of the above

3. Will the following code produce an error? If not, what will be printed to the console?

```
int num = 0;
if (num != 0 || 2 / num == 0){
        System.out.print("Terrible Twos");
        num += 2;
}
System.out.print(num);
```

   A. Yes, the code above will produce a compile error
   B. Yes, the code above will produce a runtime error
   C. No, the output will be: 0
   D. No, the output will be: Terrible Twos
   E. No, the output will be: Terrible Twos

4. How many lines will be printed after the following code is executed

```
System.out.println("January");
System.out.print("February\n\n");
System.out.print("March");
System.out.print("April");
System.out.printf("%s %s", "May", "June");
System.out.println("July");
```

   A. 7
   B. 6
   C. 5
   D. 4
   E. 3

5. You have been given a directory that contains a single Java file, Apple.java. What file will produce if you successfully compiled the code, and what does it contain?
   A. Apple.java, Java code
   B. Apple.class, Machine code
   C. Apple.java, Assembly code
   D. Apple.class, Byte code
   E. Apple.class, Java code

6. Which of the following is the correct **declaration** of an int array?
    A. int<> a;
    B. int a[];
    C. new int[10];
    D. Array(int) a;
    E. A[10];

7. What is the output of the following code?

```
int j = 10;
for(int i = 0; i < 5; i++) {
        j--;
}
System.out.print(i);
System.out.print(j);
```

    A. 104
    B. 100
    C. 04
    D. 00
    E. The code produces an error

5 Trace the program

If there is a error, state what the error is

1. What would this program output?

```
for(int i = 1; i < 6; i ++){
        for(int j = 0; j < i ; j++){
           System . out . print ("*");
        }
        System . out . println ("");

}
```

2. What would this program output?

```
for(int i = 4; i >= 0; i −−){
switch ( i ){
        case 1:
            System . out . print ( " Monday "  ) ;
        case 0:
            System . out . print ( " Tuesday  ") ;
        case 2:
            System . out . print ( " Wednesday  " ) ;
        case 3:
            System . out . print ( " Monday  " ) ;
        default :
            System . out . print ( " Other  " ) ;
        }
}
```

3. what would this program output?

```
for(int i = 1; i < 6; i ++){
    if(i % 2 == 0)
        System . out . println ("even");
    else
        System . out . println ( "odd");
}
System.out.println(" i ended at " + i);
```

4. What would this program output?

```
public static void main(String[] args){
        pizzaParty();
}
public static void pizzaParty(){
        String[] pizzas = {“cheese”, “pepperoni”, “veggie”};
        String favorite = “meat”;
        for(String pizza: pizzas){
                favorite = pizza;
                pizza = “anchovies”;
        }
        System.out.println(pizzas[1]);
        System.out.println(favorite);
}
```

5.What would this program output?

```
public static void main(String[] args){
        String animal = “cows”;
        int wordLength = animal.length();
        System.out.println(animalNums(“mooo”));
        System.out.println(wordLength);
        System.out.println(animal);
}
public static int animalNums(String word){
        int wordLength = word.length();
        String animal = “cat”;
        System.out.println(animal.length());
        return wordLength;
}
```

6. Short programming

1. Write a public method called compare.

```
/**Your program will take in two arrays of same length and compare
* the number at the same index. If the two numbers are the same,
 * print out the square of the number, otherwise, print out the sum
* divide by 3 and round it to two decimal points. * Your numbers should always be on a new line.
* For example, [2, 3 ,4 ] and [3, 3, 4] should print out
 *1.67
*9.00
*16.00
* @param a the first array
* @param b the second array
 */
public void compareTwoArray(int[] a, int[] b){









}
```

2. Convert the following do while loop to a for loop

```
int i = 10; int j = 0;
do{
        System . out . println ( j );
        j +=2;
         i −−;
} while(j < i );
```

3.

Write a method called sumInputsAndName with no args that would ask the user for a integer, ask for the user fullname, ask another int and return the full name and the sum of integer.

For example, if i input

```
*5
*Tony Peng
*7
* It would return ''Tony Peng12''
*@return the sum of the user input with the full name
 */
 public String sumInputsAndName(){




}
```

4. Write a Method called evenFloorOddCeil that takes in one parameter and return a double array: an array populated with doubles. Floor the values at even indices (0 is considered to be an even index), and ceil the values at odd indices. Replace the values in the original array. Do not create a new array.

Example #1:

evenFloorOddCeil(new double[]{10.7, 3.4, 2.1}); would return a double array [10.0, 4.0, 2.0]

Example #2

evenFloorOddCeil(new double[100.9, 9.2, 78.0, 190.8, 199.1); would return a double array

[100.0, 10.0, 78.0, 191.0, 199.0]

Hint: Math.ceil(double a), Math.floor(double a) may come in handy.

5. Write a method called reverseString that takes in a String value. Your method should reverse the characters in the String and store it in the variable "revString";

For example, if word is "CS1331" by the end of your program, revString should contain "1331SC"

Another example, if the word is "stressed", by the end of your program revString should be "desserts"

```
public String reverString(String word){
        String revString = "";  // this variable should contain the reversed String in the argument word.
        // your code here









        //end of your code here
        return reveString;
}
```

I wish you all best of luck on the test!