CS1111
Dr. Dobolyi

Final Exam S2022

Please **DO NOT START** the exam until instructed, out of fairness to all students. 75 minutes.

Score: _____ / 71 pts

Name: _____

1. Complete the code below that performs the following functionality: (10 points)

   Write code that converts the input of an array of characters into a `String`. It should return that `String`. Fill out the method below.

   For example, if the input is `{'h', 'e', 'l', 'l', 'o'}` your code would return "`hello`"

```
public _____________________________  convertArr(_____________________________ inputArray){

      String result = ""; //this creates an empty string









      return ____________________________________________ ;
}
```

2. Complete the code below that performs the following functionality: (15 points)

   Write code that checks if an input array of integers contains the numbers 123 in order, and returns true or false. Fill out the method below.

   For example, if the input is `{2, 1, 2, 3, 5}` your code would return `true`, and if the input is `{2, 1, 2, 4, 3, 5}` your code would return `false`.

```
public _____________________________  checkABC(_____________________________ inputArray){

      return ____________________________________________________ ;
}
```

3. Complete the code below that performs the following functionality: (20 points)

Write code that find the index of the first word in an `ArrayList` of `String`s that contains the substring AB. You must use generics correctly in all places in your answer. You may use any built-in methods of the `String` class (such as `String substring(int start, int end)` or `char chatAt(int index)`). Your code should return -1 if it doesn't find AB in any of the words.

For example, if the input is an `ArrayList` that contains (in this order):
`world`
`Dog`
`Cat`
`bird`**`AB`**`bird`
`snake`
`mouse`**`AB`**`CD`

your code would return `3`, because that is the index of `bird`**`AB`**`bird` in the `ArrayList`.

Hint: this problem is conceptually the same as our grid problems (quiz4) – pretend you have a 2D grid of characters at first if that helps with coming up with a solution (we will also give up to 16/20 points partial credit if you prefer to implement that solution instead of an `ArrayList` of `String`s).

```
import_____________________________________;

public _________________  firstAB(_____________________________________________ words){









      return ____________________________________________________ ;
}
```

Multiple choice (7 points) – circle the best answer

4. Which of the following is true about the constructors for a class called **`Person`**?
    a. You can call the default constructor **`Person()`** without having written one.
    b. You can write multiple constructors for the **`Person`** class.
    c. A constructor can be called without the **`new`** keyword, or with it, for **`Person`**.
    d. A and B
    e. B and C
    f. A, B, and C

5. A private method can only access private attributes/fields in the same class.
    a. True
    b. False

6. A private method can only access other private methods in the same class.
    a. True
    b. False

7. A static method can only access static attributes/fields in the same class.
    a. True
    b. False

8. A static method can only access other static methods in the same class.
    a. True
    b. False

9. A public method can only access other public attributes/fields and methods in the same class.
    a. True
    b. False

10. What gets stored in **`num1`** after the assignment **`int num1 = (int) 1.3;`**
    a. 0 (an integer)
    b. 0.0 (a floating point)
    c. 1 (an integer)
    d. 1.0 (a floating point)
    e. 1.3

scratch paper

11. What is the output of the following code? (19 points)

```
public class Exam5{
      private static int count = 3;
      private int[] ages = new int[2];
      private boolean found = true;

      public Exam5(int count, boolean foundIn){
            ages[0] = count;
            count++;
            found = foundIn;
            this.count++;
      }

      public int[] func1(int num1){
            this.ages[num1] = 11;
            num1++;
            return ages;
      }

      public static void main(String[] args){
            int num1 = 5;
            Exam5 exam1 = new Exam5(num1, false);
            System.out.println(exam1.found);
            System.out.println(exam1.count);
            System.out.println(exam1.ages[0]);
            System.out.println(exam1.ages[1]);

            num1 = 0;
            Exam5 exam2 = new Exam5(num1, false);
            System.out.println(exam2.found);
            System.out.println(exam2.count);
            System.out.println(exam2.ages[0]);
            System.out.println(exam2.ages[1]);

            System.out.println(exam1.found);
            System.out.println(exam1.count);

            exam1.ages[0] = 2;
            exam1.ages[1] = 3;
            System.out.println(exam1.ages[0]);
            System.out.println(exam1.ages[1]);
            System.out.println(exam2.ages[0]);
            System.out.println(exam2.ages[1]);

            int[] array = exam1.func1(num1);
            System.out.println(num1);
            System.out.println(exam1.ages[0]);
            System.out.println(exam1.ages[1]);
            array[1] = 4;
            System.out.println(exam1.ages[0]);
            System.out.println(exam1.ages[1]);
      }
}
```

WRITE YOUR OUPTPUT HERE

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SCRATCH PAPER

Extra credit (2 points):

Name one thing that didn’t work for you this semester, that we should change for next semester (you can say NONE and still get full extra credit here):

Name one thing that worked for you this semester, that we should keep doing next semester (you can say NONE and still get full extra credit here):