بسم الله الرحمن الرحيم

Information and Computer Science Department
Summer Semester 173
ICS 201 – Introduction to Computing II
Final Exam
Monday, August 13, 2018
Duration: 120 minutes

Name:

ID#:

Section:

Question #	Max Score	Score
1	25	
2	25	
3	25	
4	25	
Total	100	

Question # 1

Select the most correct choice for each of the following multiple-choice questions:

1) **Which of the following is NOT a key component of object-oriented programming?**

   a. Inheritance
   b. Data Encapsulation
   c. Polymorphism
   d. Multi-Tasking
   e. Data Encapsulation and Multi-Tasking

2) **Consider the following *array* definition:**

   int array = { 1 , 4 , 5 , 7 , 12 , 19 , 23 , 35 };

   If you are using *BinarySearch* algorithm to search for number 16 in *array* then what is the last element in *array* that you are going to compare just before stopping and reporting that the number is not found?

   a. 12
   b. 19
   c. 23
   d. 35
   e. BinarySearch can't be applied to this array

3) **What is true about inner classes?**
   a. Inner classes have to be instantiated only in the enclosing class
   b. Inner classes can access all the final variables of the enclosing class
   c. Inner classes cannot be static
   d. Inner classes cannot be anonymous class

4) **Consider the following pseudocode:**

```
for (k = 0 ; k < array.length – 1; k++) {
select the minimum element among array[k]...array[array.length – 1];
swap the selected minimum with array[k];
}
```

   Which sorting algorithm is it?

   a. Selection Sort
   b. Insertion Sort
   c. Quick Sort
   d. Merge Sort

5) **What is wrong with the following recursive code?**

```
int recursive(int n) {
  if (n <= 0)
    return 1;
  else
    return n + n - 1;
}
```

   a. There is no base case
   b. There is no recursive step
   c. Variable ***n*** should be declared as ***double***
   d. The method does not return any value

Question # 2

Write a static recursive method that removes all occurrences of the element from an array list.

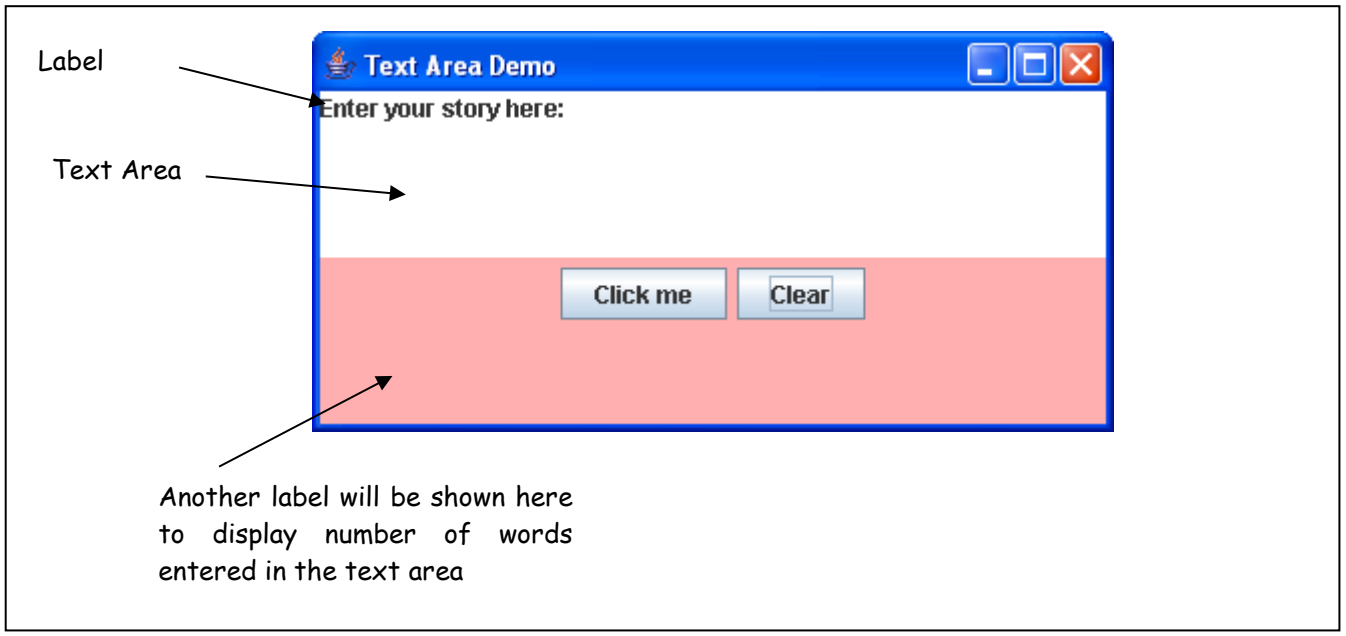
public static void removeAllOccurrences(ArrayList<Integer> list, Integer element)

Question # 3

Write a program that merges two **sorted** files of Ids into one sorted file without storing the Ids into an array or an array list.

Question # 4

A GUI application has the following interface.



It has two labels, a text area and two buttons 'Click me' and 'Clear'.

1) Write the code to create the user interface.

2) Complete the code such that when the user clicks the
   i) 'Click me' button, it will show a second label that displays the number of words (retuned from calling the getWordCount() defined in part (3)).
   ii) 'Clear' button, it will clear the text area and the second label.

3) Complete the code for the **getWordCount**() method. It should return the number of words in the text entered in the text area.