Review Lab -- CSCD211 Name_____

- Define “class”. Define “object”.
- What Java code is required for a class to properly implement the Comparable interface?
- What is the output of the code segment below (show answer in space to right)?

```
double a = 0;
while (a <= 10)
{
   System.out.print (a + " ");
   a--;
}
```

- Write a method that called createArray that is passed a single integer value (guaranteed to be greater than 0). The method should create an array of type int, fill it with values starting at 1 (so element 0 will have a value of 1, element 1 will have 2, etc.), then return the array.
- Yep. You guessed it. Write the 6 standard methods every self-respecting class should have for the Song class. Here’s the driver class:

```
public class SongTester
{

      public static void main(String args[])
      {
            private Song[] songs;

            songs = new Song[3];

            songs[0] = new Song(); //defaults to: "Untitled" for name of song, and
                                   // "Undetermined" for name of artist…
            songs[1]  = new Song("I Can't Stop Loving You", "Ray Charles");
            songs[2] = new Song("Daylight", "Matt & Kim");

            System.out.println(songs[0]); //toString called via this statement

            SortSearchUtil.insertionSort(songs);  // Make the Song object Comparable

            System.out.println("After sorting");
            System.out.println(songs[0]); // Is the first element the right value?

            if (SortSearchUtil.linearSearch(songs, "Chain Gang"))
            {
                  System.out.println("Already on file.");
            }
            else
            {
                  System.out.println("Not on file.");
            }
      }// end method
}//end class SongTester
```

- Which is more efficient for an array of elements:

  insertionSort or selectionSort..? Why?

  linearSearch or binarySearch…? Why?

- What condition must be met for binarySearch to work?

- What is the time-complexity formula for binarySearch?