Exercise - Generic Programming (write a generic class and a generic method)

1. The following files are provided for use in this exercise:
    a. Comparable.ts: Defines an interface named Comparable that classes can implement to make their objects "sortable". It is fashioned after Java's Comparable interface
    b. MyString.ts: Defines a class that contains a string value and implements the Comparable interface
    c. MyNumber.ts: Defines a class that contains a number and implements the Comparable interface

2. Write a generic class named Maximizer that can be used to calculate the maximum of a set of values. As shown in the code below, you should be able to:
    a. Instantiate a Maximizer for any data type that implements the Comparable interface (MyString, MyNumber, etc.)
    b. Pass the Maximizer a set of values one-by-one by calling its `updateValue` method
    c. Call the Maximizer's `getValue` method to retrieve the maximum value that was passed to its `updateValue` method
    d. Here's some sample code that shows how the Maximizer class is used:

```
let strMax = new Maximizer<MyString>();
strMax.updateValue(new MyString("a"));
strMax.updateValue(new MyString("z"));
strMax.updateValue(new MyString("m"));
console.log(strMax.getValue().value);

let intMax = new Maximizer<MyNumber>();
intMax.updateValue(new MyNumber(-22));
intMax.updateValue(new MyNumber(10000));
intMax.updateValue(new MyNumber(33));
console.log(intMax.getValue().value);
```

    e. Using the code above, write a short program that demonstrates that your Maximizer class works

3. Write a class named Algorithms that has one static, generic method named "calcStats" that can calculate the minimum and maximum values in an array of any data type that implements the Comparable interface. "calcStats" should return a "Stats" object containing the min and max values.
    a. Here's some sample code that shows how to call "calcStats":

```
let strArr: MyString[] = [
      new MyString("z"),
      new MyString("a"),
      new MyString("m") ];
let strStats: Stats<MyString> =
      Algorithms.calcStats(strArr);
console.log(`min: ${strStats.min.value}, ` +
                `max: ${strStats.max.value}`);

let intArr: MyNumber[] = [
      new MyNumber(10000),
      new MyNumber(33),
      new MyNumber(-22) ];
let intStats: Stats<MyNumber> =
      Algorithms.calcStats(intArr);
console.log(`min: ${intStats.min.value}, ` +
                `max: ${intStats.max.value}`);
```

b. Using the code above, write a short program that demonstrates that your "calcStats" method works

4. Zip up your code and submit it on Canvas