CS212 Lab 23 Chapters 12
Generics

Notes:

- Generics provide us a way to re-use the code with different types of inputs by writing the code using parameterized types.
- However, you cannot instantiate a generic class with parameterized type.
- At the time of instantiation of the class, you need to use the actual data type.
- This creates an advantage as we can only hold a single type of objects. It doesn't allow us to store other objects.
- That means there no need to typecast the object.
- stronger type checks at compile time.
- Compile-time errors are easy to eliminate unlike runtime errors.
- The generic algorithms work on different types of data structures, can be customized, are type safe and easier to read.

Goal

•To write a generic class.

Write a generic class named MyList, with a parameter of type T. The type parameter should accept any type that implements the Comparable interface (for now, Integers, Doubles, Strings). The class should have as a field ArrayList of T. Write a public method named add, which accepts a parameter of type T. When the argument is passed to the method, it is added to the ArrayList. Write a method to remove a list item. Write a toString. Test the class in a program that creates one instance of the MyList to store Integers, and another instance to store Strings. For reference you can look the PointList class posted on my webpage.

1. Import java.util.ArrayList.
2. Create a class called **MyList<T>**, where the T tells a user that it is a generic class, which means that it can take any data type.
3. Declare the class parameter or instance variable called list which is of type ArrayList<T>.
4. Write a default constuctor to create a new null list.
5. Write an add method to add data.
6. Write a get method to get inidividual item of the list.
7. Write a toString() method.
8. To test your class, you create an instance of MyList class of type Integer. To do this, type Integer inside the angled bracket. Then add the Integer data to this instance.
9. A second instance of the class needs to be declered using String type data.