Lab 7: Generics

Exercise 1: Create a Project

1. Create a project called “lab7”
   a) If you are using Eclipse create a project in Eclipse as we did in previous weeks.
   b) If you are using text editor, create a “lab7” directory in “java” directory which is in your home directory.
2. We will use the code we have developed in the previous lab.
   a) Copy the classes and interfaces located in lab6 project to lab7 project
   b) If you do not have the lab6 project you can download the code from the below link
      i. https://piazza.com/class_profile/get_resource/ik40jqi7ip06/ilnotzyxk8s6pb

Exercise 2: Modify the Stack Interface/Classes to support Generics

1. To update the Stack interface to use generics, you create a generic type declaration by changing the code "public interface Stack" to "public interface Stack<T>". This introduces the type variable, T, that can be used anywhere inside the interface.
2. Modify the StackDemo class to use the generic interface and run.
3. Update the StackArrayListImpl class to support generics.
4. Modify the StackDemo class to use the generic StackArrayListImpl class and run.
5. Modify the StackItem and StackImpl classes to support Generics
6. Test the StackImpl class

Exercise 3: Wildcards

1. Add the following method to Stack interface to extract content of a stack to a List.

```
public List<T> toList();
```

2. Add the following method to Stack interface to support adding contents of another stack to the current stack,

```
public void addAll(Stack<T> aStack);
```

3. Implement the methods in classes implementing the stack interface
4. Test the addAll method by creating two stack instances and add one to another
5. Try to add Stack<String> to Stack<Object>

6. Use Wildcards to handle step5