Umm Al-Qura university 2019/2020
Computer & Information Systems college
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Lab 08: Object Oriented Programming

Objectives:

- This lab will give you practical implementation and tests of generic programs

Exercise 1

Given (name, number) pairs *A* = {(Bob, 4), (Amber, 5), (George, 3), (Will, 7)}, write a Java class with method for:

(1) inserting these pairs into a pair of ArrayList structures called *NameAL* and *NumberAL*

(2) displaying the pairs to the screen as "My name is: " <name> "and I am in Year " <number> " at University."

You can choose what to name your class and method, but your solution should form a complete class that can be compiled.

Create another class for testing the pair class.

Exercise 2:

Write a class called `GenericBox`, which takes a generic type parameter `E`, holds a `content` of type `E`. The constructor, getter and setter work on the parameterized type `E`. The `toString()` reveals the actual type of the `content`.

The following class tests the class GenericBox

```
public class TestGenericBox {
  public static void main(String[] args) {
    GenericBox<String> box1 = new GenericBox<String>("Hello");
    String str = box1.getContent();
    GenericBox<Integer> box2 = new GenericBox<Integer>(123);
    int i = box2.getContent();
    System.out.println(box2);
    GenericBox<Double> box3 = new GenericBox<Double>(55.66);
    double d = box3.getContent();
    System.out.println(box3);
  }
}
```

Output:

```
Hello (class java.lang.String)
123 (class java.lang.Integer)
55.66 (class java.lang.Double)
```