Exercise 15 – Test Driven Development - JUnit

Objective

This exercise looks at how to use TDD and JUnit as well as write a test case on a POJO (Plain-Old-Java-Object) class. By the end of the exercise you should be more comfortable with TDD and JUnit.

Overview

PART A

Project Setup and creating a Class Under Test (CUT)

- Create a new java project and the package "com.qa"

- Create a class that describes an Account. It should have variables cardTypes (array of String objects), sortcode, accountNumber, and password.

- Account class should implement Comparable interface

  Ex:

  public class Account implements Comparable<Account>

  {

  }

- Write a constructor that sets all the fields in the class

- Create getter and setter methods for each of the fields in the class.

- Create toString method by selecting all fields

- Override compareTo method

  The above steps conclude the creation of Class Under Test

PART B

Creating a JUnit Test

- Generate test stub from CUT (Account.java)

  - Right click CUT -> New -> JUnit Test Case

  - 1st dialog: which general JUnit methods do you want?

    - setUp() usually sufficient

  - 2nd dialog: which methods in CUT (or general java.lang.Object methods) do you want to generate tests for?

    - For compareTo(), testCompareTo() will be generated

    - Method body: fail("Not yet implemented");

- Declare a private variable with Account class type

  - Ex: private Account act;

- Inside the setUp() method, create an object from Account class using constructor (Creating a user account)

- Inside the testCompareTo () method, create an object from Account class using sample input values

- Invoke assertEquals() by sending the corresponding arguments (check the slides for help)

- Execute the JUnit Test

Glossary of key terms

Object

An object is the combination of state and behaviour

Programming object

An instance of a class

Class

It is a specification of a real world object, acts as a placeholder for variables and methods.

Constructor method

It is a special member method which is called when the Java class is instantiated

Method

It is a block of code which can be declared once and called many times

Instantiation

The process of creating objects from the class

Unit testing

A unit can be a method, database query, stored procedure, transaction or a dynamic web page

Test Driven Development

It is a core of XP (eXtream Programming) and can be adopted within other methodologies. It relies on three main factors such as Red-Green-Refactor