**CE00527-5 Further Object Oriented Programming**

**Tutorial Week 5**

In this tutorial you will

* Practice using Exceptions and Assertions
* Learn to use JUnit testing

**Part 1 – Exceptions and Assertions –Basic Exercises**

1. Write a class containing two static methods with signatures

public static int inputInt()

public static double inputDouble()

which ask the user for input of a given type and return the data entered. The methods should not crash if the user inputs data of the wrong type – instead, they should catch the exception thrown, output an appropriate message, and prompt the user to try again. Add a main method to the class which tests these methods.

Hint: You can clear invalid input from a Scanner object using the Scanner next() method.

**Put in your portfolio the code listing for your class, and examples of output from testing the methods.**

2 Experiment with using assertions to test your code is valid. Find a suitable method in any of the classes you have made already (or make a new one) and put in an assertion. Test the method under conditions when the assertion evaluates to true, and others where it is false.

**Put in your portfolio the code listing of your method which includes an assertion, and an example of the output generated when the assertion is false.**

**Part 2 – Using JUnit for testing –Basic Exercise**

4 Create a new Netbeans project and put into it a Person class with only two attributes – firstName and lastName of type String. Person should have an appropriate constructor, get- and set- methods for each attribute, and a toString() method which returns the Person’s full name (first name and last name with a space in between).

Create a PersonTest class with JUnit tests for each method and use them to test your class.

**Put the code listing for the Person class, the PersonTest class, and a screen shot of the resulting JUnit Test Results window (with all the tests green!) in your portfolio**

5 In the same project as question 4, develop a DVD class which stores information about DVD. This class should have:

* a String attribute title
* an attribute leadActor of type Person
* an int attribute noOfStars (number of stars)
* a constructor with appropriate parameters to initialise all the attributes
* getter methods for each attribute
* A toString method, which returns the DVD title, lead actor’s name, and number of stars as a suitably formatted String.

Use JUnit to test your DVD class. You will need to write a class DVDTest. Declare a DVD object, d1, as an attribute of DVDTest. In the setup() method, construct d1 with the following attributes:

* Title: Inception
* Lead Actor: A Person with first name “Leonardo”, last name “DiCaprio”
* Number of stars: 5

Write methods to test each method of d1. Test the DVD getLeadActor() method by checking that the lead actor’s name is as expected, using the following test method

@Test

public void testGetLeadActor() {

Person leadActor = d1.getLeadActor();

assertEquals("Leonardo DiCaprio", leadActor.toString());

}

Ensure that all your tests pass.

**Put the code listing for the DVD class, the DVDTest class, and a screen shot of the resulting JUnit output (with all the tests green!) in your portfolio.**