American University of Science & Technology

Department of Computer Science

**CSI 311L – Java Programming Lab**

**Spring 2011/2012**

**Lab Work 11**

**Problem1:**

Write a java application to allow the user to input an integer **N** from a JTextField. The program should provide two buttons to compute either the **SQRT** of **N** or the **SQUARE** of **N.**  When the user presses one of the buttons the result should be displayed on a JTextField.



**Problem2:**

Write a java application to help an elementary student learning about the **m**, **dm** and **cm** measurement units.

The student should be able to enter a measurement value in any unit, and the program should display its equivalent values in the other units.

The program should have the following interface:



**Problem3:**

Write an inheritance hierarchy that enables polymorphism for the following classes:

**Insurance\_Policy:** an abstract base class that has the following method:

*Attributes (*declared as protected)*:*

1. policy\_num: an integer to identify each insurance policy.
2. acc\_p: to accumulate the price of all issued insurance policies.

*Methods:*

1. Constructor.
2. Get\_name( ): abstract method.
3. Calculate\_price( ): abstract method.
4. Get\_policy\_num(): to return a policy number.

II- Based on the above declared class write the implementation of the following classes.

**Medical-Insurance:** a concrete class derived from Isurance\_Policy.

*Attributes (*declared as private)*:*

1. degree: to classify the medical insurance type(1,2,or3).
2. name: a string to store the name of the insured person.
3. age: an integer to store the person age.

*Methods:*

1. *Constructor.*
2. Get\_name( ): returns the class name.
3. Calculate\_price( ): return the policy price calculated as follow: cost + 20% if the person age is greater 40. the cost =(200$ for 1, 250$ for 2, 300$ for 3)

**Car-Insurance:** a concrete class derived from the Insurance\_Policy:

*Attributes (*declared as private)*:*

1. Kind: an integer(1,2)
2. Car\_num: a string to store the insured car number.
3. Car\_year: a number to indicate the car-manufacturing year.

*Methods:*

1. *Constructor.*
2. Get\_name( ): returns the class name.
3. Calculate\_price( ): return the policy price calculated as follow: cost + 15% if the car was manufactured before the year 2000. the cost =(250$ for 1, 300$ for 2)

II- write a driver program create N Insurance policies. The user should input the type of a policy and its corresponding attributes.