American University of Science & Technology

Department of Computer Science

**CSI 311L – Java Programming Lab**

**Spring 2011/2012**

**Lab Work 14**

**Problem1:**

Write a CurrencyConverter class that is used to do the currency conversion between a foreign currency and the U.S. dollar.

A CurrencyConverter object is defined by:

* **Currency\_name:** a String of character to determine the currency name.
* **Exchange\_rate:** a double variable to determine how much $1 is worth in the foreign currency.

Provide a constructor to initialize an object currency\_name and Exchange\_rate.

Provide a method that will converts a given amount in dollars into equivalent amount in a foreign currency.

Provide a method that converts a given amount in a foreign currency into an equivalent dollar amount.

Provide set and get methods for the class attributes.

II- Write a java applet to create a CurrencyConverter Object (*choose a currency and an exchange rate)*. The program should allow the user to enter an amount in dollar and display its equivalent in the chosen foreign currency, and to enter an amount in the chosen foreign currency and display its equivalent in dollar. **Validate your input**.



**Problem2:**

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

**Bill:** an abstract base class that is defined as follows:

*Attributes (*declared as protected)*:*

* Bill\_num: a number to identify each bill.
* Date: a sting to store the issue date of the bill.

*Methods:*

* Constructors (*provide default values*)
* Bill\_Sum: an abstract method.
* Print: output a **Bill** characteristics.

The **Customer\_Bill** class is derived from the Bill class and is defined as follows:

*Attributes (*declared as private)*:*

* Customer: a string to store the name of the customer.
* charge: to store the money charging of a Customer\_Bill.
* Type: an integer to classify a customer as an old (1) or as a new (2) customer.

*Methods:*

* Constructors (*provide default values*)
* Bill\_Sum: returns a **Customer\_Bill** charge. Moreover an old customer will receive a 7% deduction on the bill charge.
* Print: output a **Customer\_Bill** characteristics.
* Destructor.

The **Supplier\_Bill** class is derived from the Bill class and is defined as follows:

*Attributes (*declared as private)*:*

* Supplier: a string to store the name of a supplier.
* charge: to store the money charging of a Supplier\_Bill.
* Local: a boolean attribute to classify a supplier as either local or not

*Methods:*

* Constructors. (*provide default values)*
* Bill\_Sum: returns a **Supplier\_Bill** charge. Moreover a tax of 5% will be added on a none local **Supplier\_Bill** charge.
* Print: output **Supplier\_Bill** characteristics.
* Destructor.

#### Write an application to store information about N Bills. The user should specify the type of each Bill to be created. (validate your input).

Then the program should output :

* The total of all bills.
* The data about all bills for a specific supplier.