

## Lab Week 12

Assume you are required to write an object-oriented program for purchasing household items for a new house. Identify at least five classes of household items such as decoration items, washroom items etc. Each of these classes must have at least two types of items. Draw a UML class diagram identifying the instance variables and methods of each class and the relationships (inheritance, composition) between the classes, if any. Each class must implement a method for calculating the cost incurred on each item. The cost might include the purchase price of the item, and shipping cost. Each class of household items and its types must have some differentiating features (instance variables) from the other classes, along with the common details. Some items might have installation charges, service charges, interior designing charges, insurance, or plumbing cost etc, depending on the type of the item. Electronic items might come with a warranty.

- Write Java code for the super class of the household items.
- Write the Java code that demonstrates the use of composition in the example.
- Write Java code for any three classes of household items.
- Write Java code for a class that inherits the class(es) you implemented.
- Make sure you use method overriding for all the methods that can be overridden.
- Write the test class that declares and polymorphically displays the objects of all your classes.
- Write part of the Java code that identifies the object for kitchen items from the array of objects and increases the price by 10% at runtime.