Application Engineering and Development

ISY G100

Exam I Makeup

3/30/2009

Exam Time: One Hour

Closed Book

Professor

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Teaching Assistants

**Please read the instructions:**

Consider the object model attached at the end of this document. The object model provides a way to define the classes without having to worry about writing java programming code. What makes it powerful is that the object model is sufficient for understanding the design of the application without getting entangled in unnecessary detail. The connections specify which objects need to communicate with which objects. Another important feature of an object model is that you can write java code for one class by looking at the attribute and method definitions of other classes. Again not necessary to know how the methods are implemented. However, the object model must include variable type information to write the java code.

Please note some of the methods define a return type while other methods leave the return type unspecified. It is your job to determine what the return type is in each of the cases that have no return types defined.

Ps: The person who designed and implemented an advanced version of the attached object model is now a CIO for a local medical company. He took the ISY 100 class two years ago. You will be next!

1. The **Business** Class

Provide a complete java class definition for the Business class. The definition includes attributes and methods, as well as the complete java code for the methods. Your java code must run and compile correctly.

1. The **CustomerDirectory** Class
   1. The CustomerDirectory class definition has an error. What is the error and how would you fix it?
   2. The return value of the getCustomers method is undefined. What is the class type returned by the getCusomers method?
   3. Write a complete java class definition for CustomerDirectory. Your java implementation must include attribute declarations and method definition and implementation. To facilitate your implementation use the Customer class definition provided in the object model but do not implement it.
2. Suppose a supplier is interested in knowing the total value of the inventory in dollar amounts. Suppliers use the product catalog to represent the products they have in inventory. The dollar value of a product in inventory is the product price times how many are available in inventory. Let getProductInventoryValue() be a method that returns the inventory value for a single product.

* 1. What is the most appropriate class for the method defined above?
  2. Write java code that shows how to implement the getProductInventoryValue.

1. The total value of the inventory is the dollar amount of the sum of: product price x product availability. Define a method called calculateTotalInventoryValue() which calculates the total inventory value.
   1. Given the information above what is the most appropriate class for adding/defining the calculateTotalInventoryValue() method.
   2. Provide a detailed java implementation of the calculateTotalInventoryValue() method.