

Study Guide CS265 Exam 1

Chapters covered: 7, 9, 10 and 11 with concentration on class, inheritance, secure coding discussion on the issue of shallow copy and deep copy.

Please review the followings:

- close labs #2 - #5,
- homeworks #1 - #2 or homeworks alternate #1 - #2,
- class notes
- For the secure coding practice discussion, please check back our class videos on the examples of Date.java and Employee.java. (Our sample exam doesn't include this question)

Programming. Write only code in the following. Do not write any comments.

Design a Java Product class (assuming in Product.java file) and a sub class of Product named Electronics (assuming in Electronics.java file).

The Product class has the following protected instance variables:

5-digit product ID number, 4-digit manufacturer's ID, wholesale price, percent markup from wholesale, .nn

and the following public instance methods:

constructor without parameters: initialize all of the instance variables to some default values

constructor with parameters: initialize all of the instance variables to the arguments

SetProduct: assign all of the instance variables to the arguments

RetailPrice: Returns the retail price, which is wholesale price increased by markup

LessThan: Receives a Product object. Returns true iff this product's ID number is less than the argument's product ID number

toString: Returns the values of all of the instance variables as a string

The Electronics class has the following private instance variables:

name of the electronics, warranty, warranty charge

and the following public instance methods:

constructor without parameters: initialize all of the instance variables to some default values, including Product class's instance variables

constructor with parameters: initialize all of the instance variables to the arguments, including Product class's instance variables

SetElectronics: assign all of the instance variables to the arguments, including Product class's instance variables

SalePrice: retail price plus warranty charge

An overridden toString: Returns the values of all of the instance variables as a string

Please write your complete Product class, Electronics class and a driver class below

a (50 pts) Write your complete Java code for the above two Java classes: Product, Electronics.

b (35 pts) Write your test Java class and its main method which will create two Electronics instances: e1 and e2, e1 is created with the default constructor, e2 is created with the explicit value constructor. Then update e1 with calling SetElectronics() method. Calculate both electronics' sale prices and output them. Output both electronics' detailed information.

c (15 pts) In your test Java class main method, add more operations: create an ArrayList of five electronics objects and find the one which has the smallest product ID and output all of its information.