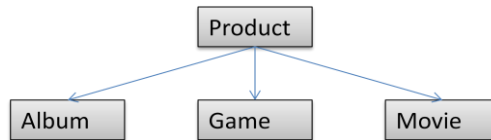


## JAVA 2012-2013

First Assignment [Should be handed back by 15 April]

Create a Java program with the following class hierarchy:



Super class **Product** is abstract with variables: **name** (String, the name of the product), **price** (double, price of the product) and **count** (int, how many copies of the product are available). Variables price and count should be private so add suitable get/set methods to access them. Add at least one constructor. There are two methods: **buy()** and **rent()** that return the price of buying and renting the product and a method **printinfo()** that prints a message showing name, price and availability(variable count) of the product.

Overload method **buy()** so it can be used without parameters or with one parameter, showing how many copies will be bought. In the first case it should return the price of the product. In the second it should return the total cost. If there are no available copies of the product the method should return 0. The method should also print suitable messages in either case.

Method **double rent(int days)** should be empty.

There are 3 subclasses of the class 'Product':

- **Album** extends Product and has additional variable **artist** (String, Artist of the Album).
- **Game** extends Product and has additional variable **platform** (String, on which platform it is available).
- **Movie** also extends Product and has additional variable **genre** (String, category of the movie).

Add at least one constructor for each class and get/set methods.

Override method **printinfo()** in each subclass so it displays the new variable as well.

Override method **rent(int days)** in all subclasses ,that returns the cost of renting that product for some days:

- Albums cost **price\*0,05** for each day rented.
- Games must be rented for at least one week. They cost **price\*0,2** for the first week and **price\*0,1** for each additional day.
- Movies cost **price\*0,1** for each day rented.

The method should also check if the product is available and print a message. If the product is not available it returns 0.

Add in class Product a suitable variable **totalcost** that shows the total incomings for all products that have been rented or bought. Modify the corresponding methods (buy and rent) so it is updated when necessary.

In **main()** method:

- Create at least 3 individuals for each subclass.
- Add all individuals in an Array or Arraylist of type Product. Iterate through the items of the array and use method printinfo() for each individual.
- Try methods buy and rent for some of the items using various parameters checking that it works as instructed.
- Also check variable totalcost is updated after each transaction.

You need to send me ( [kobas@ceid.upatras.gr](mailto:kobas@ceid.upatras.gr) ) a zipped file containing the \*.java files and a short report (.doc or .pdf) describing your implementation, with comments and screenshots of running the program.