**Lab 1**

**Implement the following classes:**

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| **Smartphone** |
| -manufacturer : String  -name : String  -screen : Screen  -camera : Camera  - battery : Battery)  - profit : double |
| +Smartphone(manufacturer: String ,name: String, screen : Screen , camera :Camera, battery : Battery)  + setManufacturer(manufacturer: String ):void  + getManufacturer() : String  + setName(name : String) : void  + getName() : String  + setOs(os : OS) : void  + getOs() : OS  + setScreen(screen : Screen) : void  + getScreen() : Screen  + setCamera(camera : Camera) : void  + getCamera() : Camera  + setBattery(battery : Battery) : void  + getBattery() : Battery  + setProfit(profit : double) : void  + getProfit() : double  + calculateTotalPrice() : double  + toString() : String |
| **OS** |
| - name : String  - version : double  - price : double |
| + OS(name : String, version : double)  + setName(name : String) : void  + getName() : String  + setVersion(version : double) : void  + getVersion() : double  + setPrice(price : double) : void  + getPrice() : Double  + toString() : String |

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| **Screen** |
| - type : String  - width : int  - height : int  - multitouch : boolean  - price : double |
| + Screen(type : String, width : int, height : int, multitouch : boolean)  + setType(type : String) : void + getType() : String  + setWidth(width : int) : void  + getWidth() : int  + setHeight(height : int) : void  + getHeight() : int  + setMultiTouch(multitouch : boolean) : void  + getMultiTouch() : Boolean  + setPrice(price : double) : void  + getPrice() : Double  + toString() : String |

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| **Camera** |
| - megaPixels : double  - video : boolean  - videoType : String  - price : double |
| + Camera(megaPixels : double, video : boolean, videoType : String)  + setMegaPixels(megaPixels : double) : void  + getMegaPixels() : double  + setVideo(video : boolean) : void  + getVideo() : boolean  + setVideoType(videoType : boolean) : void  + getVideoType() : String  + setPrice(price : double) : void  + getPrice() : Double  + toString() : String |

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| **Battery** |
| - standBy : int  - talkTime : int  - price : double |
| + Battery(standBy : int, talkTime : int)  + setStandBy(standBy : int) : void  + getStandBy() : int  + setTalkTime(talkTime : int) : void  + getTalkTime() : int  + setPrice(price : double) : void  + getPrice() : Double  + toString() : String |

A Smartphone is usually made up from an operating system, a screen, a camera, and a battery. Each of these components are represented in a class of their own. Each of these classes has a number of variables, a constructor, and set/get methods.

The Smartphone class is made up from each of the other classes plus three variables which are the manufacturer, the name, and the profit. You are asked to implement these classes and then write a tester class which will have three smartphones and it will print their information using the toString() method.

The calculateTotalPrice() method will sum up the prices of all other components plus the profit variable and returns the sum as a double.

Printing will be done using the following format: (variables are placed between parantheses)

(manufacturer) (name)

OS: (name) (version)

Screen: (type) (width)x(height) (Multitouch)

Camera: (megaPixels)MP (videoType )

Battery: (standBy) Stand By, (talkTime) Talk Time

Price: (calculateTotalPrice())

Solution: <http://www.javaproblems.com/2013/12/creating-classes-application-in-java.html>