Sample FPP Programming Test Problems

1. Polymorphism

Here is a list of the things you need to do for this problem:

a. Create an abstract class Figure with void getFigure() method need to print the figure.
b. Create sub classes for the Figure class such as UpwardHat, DownwardHat, FaceMaker and Vertical. You have to override the getFigure() method to display the figures /\, \/,:), and ||.
c. Create your main method for the Driver class. Apply polymorphism to create an array of objects for Figure class. The output after running the main method should look like this.

/\ /\ \/ :) ||

d. Again print the same output along with their class name as look like this.

UpwardHat : /\

UpwardHat : /\

DownwardHat : \/

FaceMaker : :)

Vertical : | |

e. Try by changing the code with interface instead of abstract class.

Problem 2 : Sorting and equals()

Crete a class Item with the following attributes.

```
class Item{
   String iname;
   String iprice;
   Date pdate; // Purchase date
}
```

Here is a list of the things you need to do for this problem:

a. Create a constructor in Item class to initialize the values.
b. Override the equals(), hashCode() and toString() methods in Item class.
c. Write a driver class. Create an API ArrayList to store the type of Item objects.
d. Insert at least five objects.
e. Create InameComparator to sort the list using iname.(not consistent with equals())
f. Create IpriceComparator to sort the list using iprice.(not consistent with equals())
g. Create ItemComparator to sort the list using iname, but this comparator should consistent with equals.(which means that if two items have the same name, then compare with iprice, if two items price are equal then compare with pdate.
h. Check your ItemComparator and equlas()produce same result or not.
i. Test all types of sorting in your driver class.
j. Modify the same code with various data structures such as LinkedList, TreeSet API.