**Ship, CruiseShip, CargoShip Classes, and *Displayable* Interface**

Design an ***abstract*** **Ship** class that has the following members:

* A field for the name of the ship (a string).
* A field for the year that the ship was built (a string).
* A constructor and appropriate accessor and mutators.
* A ***toString*** method that displays the ships name and the year it was built.

Design a **CruiseShip** class that extends the **Ship** class. The **CruiseShip** class should have the following members:

* A field for the maximum number of passengers (an int).
* A constructor, a copy constructor, and appropriate accessors and mutators.
* A ***toString*** method that overrides the ***toString*** method in the base class. The **CruiseShip** class's toString method should display only the ship’s name and the maximum number of passengers.

Design a **CargoShip** class that extends the **Ship** class. The **CargoShip** class should have the following members:

* A field for the cargo capacity in tonnage (an int).
* A constructor, a copy constructor, and appropriate accessors and mutators.
* ***toString*** method that overrides the ***toString*** method in the base class. The **CargoShip** class's ***toString*** method should display only the ship’s name and the ship's cargo capacity.

In a driver program (shipDemo.java)

* Demonstrate the classes in a Ship array. Assign various **CruiseShip** and **CargoShip** objects to the array elements. The program should then step through the array, calling each object's **display** method. (polymorphism)
* Create an ArrayList of Ship objects and add various **CruiseShip** and **CargoShip** objects to the array list. The program should then step through the array list, calling each object's **toString** method. (polymorphism)
* Test your copy constructors in both **CruiseShip** and **CargoShip** in shipDemo.java

**Interface to your lab 3 (Ship implements Displayable).**

public interface Displayable  
{  
 void display();  
}

**Resource:**

* UML
* Sample Program (OOP\_example\_2)

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