Rutgers Java Mid term question.

*Q1: (13 points: 3 points for reading the data in properly, 3 points on proper exception handlings and 7 points for setting up the correct inheritance relationships)*

*Ship, CruiseShip* and *CargoShip* classes

Design a *Ship* class with the following members:

* A field for the name of the ship (string)
* A field for the year that the ship was build (string)
* A constructor and appropriate accessors and mutators.
* A *toString* method that display the ship’s name and the year it was built.

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

* A field for the maximum number of passengers (int)
* A constructor and appropriate accessors and mutators.
* A *toString* method that overrides the *toString* method from the super class. The *CruiseShip* class’s *toString* method should display the ship’s name, maximum number of passengers, number of rooms available.

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

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

Demo class:

Demonstrate the classes in a program that has a *Ships* array. Read the data in from the shipinfo.txt file (provided separately). Assign various *Ship, CruiseShip* and *CargoShip* objects to the array elements based on the different data provided (10 different types of ships). The program should then step through the array, calling each object’s *toString* method and display the appropriate information via terminal. You also need to make sure to protect your code from *file not found exception*. Please submit all codes in one zipped file + screenshot of the output.

Q2. Expanding from Q1. (7 points).

Using the Comparable interface and the int compareTo(Object X) interface method to sort the Ships array based on the year it was build. Display the sorted result using the toString method but with youngest ship first. Please submit all codes in one zipped file + screenshot of the output.