Class Hierarchies Assignmen

**Ship**,**CruiseShip**and**CargoShip**Classes and  
  
Design a Ship class that has the following members:

* A member variable for the name of the ship (a string )
* A member variable for the year that the ship was built (a string)
* A constructor and appropriate accessors and mutators
* A virtual print function that displays the ship’s name and the year it was built.

Design a CruiseShip class that is derived from the Ship class. The CruiseShip class should have the following members:

* A member variable for the maximum number of passengers (an int)
* A constructor and appropriate accessors and mutators
* A print function that overrides the print function in the base class. The CruiseShip class’s print function should display only the ship’s name and the maximum number of passengers.

Design a CargoShip class that is derived from the Ship class. The CargoShip class should have the following members:

* A member variable for the cargo capacity in tonnage (an int)
* A constructor and appropriate accessors and mutators
* A print function that overrides the print function in the base class. The CargoShip class’s print function should display only the ship’s name and the ship’s cargo capacity.

Demonstrate the classes in a program that has a vector of Ship. Add (using push\_back) CruiseShip and CargoShip objects onto the vector of ship. The program should then step through (use a loop) the vector, calling each object’s print function.

**Code guidelines:**

* **Good style:** Use proper indentation, no magic numbers, good naming conventions.
* **Usability:** Always prompt the user for input so they know what to do and provide meaningful output messages.
* **Input Validation:** The program should not accept invalid input, prompt the user to reenter an input that is invalid.
* **Documentation:** Add a comments that document what each part of your code does, at a minimum each function should be clearly documented by describing the expected argument values and what the function returns.
* **Testing:** Make sure your code compiles and works.