Ship , CruiseShip , and CargoShip Classes

**a)** Design a Ship class that has the following members:

\* A private data member for the name of the ship (a string)

\* A protected data member for the year that the ship was built (a string)

\* A constructor that has 2 parameters and uses them to initialize the name and year.

\* A public (or protected) p r i n t function that displays the ship s name and the year it was built.

**b)** Design a CruiseShip class that is derived from the Ship class. The CruiseShip class

should have the following members:

\* A data member for the maximum number of passengers (an i n t )

\* A constructor that takes 3 parameters and calls base class’s constructor with first two parameters in order to initialize name and year. The third parameter initializes the maximum number of passengers.

\* A (public) p r i n t function that overrides (or redefines) the p r i n t function in the base class. The CruiseShip class’s print function should display only the ship’s name, year and the maximum number of passengers. This function should use the base class’s print function to print the ship’s name and year .

**c)** 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 i n t ).

\* A constructor that takes 3 parameters and calls base class’s constructor to initialize name and year. The third parameter initializes the cargo capacity.

\* A (public) setYear function that has a string parameter. It will assign the parameter to the inherited data member year. Then it will call the inherited *p r i n t* function in the derived class. The *setYear* function should also display the ship’s cargo capacity.

\*This class should not define (or redefine) the p r i n t function .

**d)** In main(), create an object of CruiseShip and CargoShip. Then call CruiseShip’s print function and CargoShip’s setYear function.