

C++ Programming: Lab 3. Classes and Inheritance

Part 1

A publishing company that markets both hard copy book and audio book version of its work. Create a class publication that store the title (as a pointer to a string) and price (as an integer) of a publication. From this class derive two classes: book, which add a page count (as an integer) and audio, which add a storage capacity in MB (as float) and length in minutes (as integer).

Add a base class sales that hold an array of three floats so that it can record the sales of particular publication for the last three months.

For each class implement the constructor, copy constructor and assignment operator. Use deep copy for pointers. Don't forget to initialize pointers in constructor and delete them in the destructor

For each class override the "<<" operator

Modify the book and audio classes so they are derived from both publication and sales. An object of class book or audio should output (<< operator) sales data along with its other data.

Write a main function to demonstrate the usage of your classes.

Part 2

In this problem, you will create an inheritance hierarchy for classes pointType, circleType, and cylinderType. Use the pointType class as a base class of hierarchy.

The pointType class will contain the point coordinates x and y.

The circleType class derived from pointType will add a radius

The cylinderType class will add height.

For circleType add two methods that calculates the circumference and the area of the circle

For cylinderType add tow methods that calculates the volume and the surface of the cylinder

For each class override the "<<" operator that will output all the information related to the object. (x, y, radius, height, circumference, area, surface depending on the object)

Write a main function to demonstrate the usage of your classes.