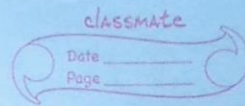


## OOP Assignment 03

21/11/18



### # Problem statement:

Imagine a publishing company which does marketing for book & audio cassette versions. Create a class publication that stores a title (a string) & price (type float) of publications. From this class derive two classes: book which add a page count (type int) & tape which adds a playing time in minutes (type float).

Write a program that instantiates the book & tape class, allows user to enter data & displays the data members. If an exception is caught, replace all the data member values with zero values.

### # Objectives

To learn concept of inheritance & exception handling

### # Outcomes

Implement basic publishing company structure using inheritance & exception handling.

### # Hardware Requirement:

Manufacturer & Model: Acer swift-3 (Intel i5 8th gen)

Installed memory: 8GB RAM, 512GB SSD

Architecture: 64-bit

### # Software requirement:

Operating system: Windows-10 home single language

IDE: code-blocks version 20.03

Compiler: g++ (version 10.1.0)

### # Theory:

Inheritance: In oop inheritance can be described as a process of creating new classes from existing classes. New classes



inherit some of the properties & behaviours of the existing classes. An existing class that is the parent of new class is called base class. New class is called derived class.

Types of inheritance:

1) Single inheritance: one derived class inherits from only one base class.

2) Multiple inheritance: single derived class may inherit from two/more than two base classes.

3) Multilevel inheritance: derived class inherits from a class, which in turn inherits from some other class.

4) Hierarchical Inheritance: multiple derived classes inherit from a single base class.

5) Hybrid Inheritance: combination of any two/more types of inheritance.

Structure of classes

Base class:

class publication {

protected:

String title;

float price;

public:

void getPubDetail() { // getting values of protected variables  
//code

{  
void showPubDetail() { // showing values of protected variables  
//code

}



derived classes,

```
class book: public publication {
private:
    int page_count;
public:
    void getBookDetail() {
        //code
    }
    void showBookDetail() {
        //code
    }
}
```

```
class tape: public publication {
private:
    float playing_time;
public:
    void getTapeDetail() {
        //code
    }
    void showTapeDetail() {
        //code
    }
}
```

Pseudo Code

Method getBookDetail() {

# get publication detail by calling base class method  
e. by {

1. get page count

2. If page count is  $\leq$  zero throw exception

3. else continue.

{  
catch (...) {

# page\_count  $\leftarrow$  0

{  
}

getTapeDetail will be same as getBookDetail method.

# Test cases

Description

1. Entering value of book details & publisher details
2. ~~showing~~ ~~entering~~ values entered in case 1
3. Handling case when book pages are less than zero & playing time of tape is less than zero.

Output screenshots are attached.

### Conclusion

Hence, we successfully studied concept of inheritance & exception handling.



## Input and Output Demo:

### Entering Information:

```
"E:\College Assignments\OOP\Assignment03\publishing_company\bin\Debug\publishing_co...
Enter the details of book :
Enter the title : The smoke of red fire
Enter the price : 23.54
Enter the number of pages : 432

Enter the details of Tape :
Enter the title : The sky beyond infinity
Enter the price : 45.32
Enter the playing time (in minutes) : 432
```

### Output (Information):

```
The details of the Book are as follows :
Title : The smoke of red fire
Price : 23.54
Number of Pages : 432

The details of the Tape are as follows :
Title : The sky beyond infinity
Price : 45.32
Total Playing time in minutes : 432
```

### Exception Handling (for invalid price of book and playing time of tape):

```
"E:\College Assignments\OOP\Assignment03\publishing_company\bin\Debug\publishing_co...
Enter the details of book :
Enter the title : The smoke of red fire
Enter the price : -34
Enter the number of pages : 452

Enter the details of Tape :
Enter the title : The rain of diamonds
Enter the price : 34.56
Enter the playing time (in minutes) : -234

The details of the Book are as follows :
Title : The smoke of red fire
Price : 0
Number of Pages : 452

The details of the Tape are as follows :
Title : The rain of diamonds
Price : 34.56
Total Playing time in minutes : 0

Process returned 0 (0x0)   execution time : 46.032 s
Press any key to continue.
```

