COE 254: OBJECT-ORIENTED PROGRAMMING

LAB ACTIVITY 5

ENCAPSULATION AND DATA HIDING

INTRODUCTION

You'll need foreknowledge of encapsulation and data hiding for this activity.

It is advised that you try your hands on this activity before coming to the lab.

PRACTICE

The code below contains a class for the creation of a YouTube channel. It contains the following; a string *name* for the name of the channel, a string *OwnerName* for the name of the owner of the channel, a string list *PublishedVideoTitles* which contains a list of all videos published by the channel and a positive integer *SubscriberCount* for the number of people subscribed to the channel. It also has a *GetInfo* method which displays all necessary information about each channel and a *YoutubeChannel* constructor as well. However, all the data in this class is public. As such, it is available to anyone and everything and can be tampered with easily. Your task is to change that.

1. Make the data members of the class private.
2. Derive the following methods.
   a. *Subscribe*, which will increase *SubscriberCount* by one.
   b. *Unsubscribe*, which will decrease *SubscriberCount* by one, but not if it is zero.
   c. A getter for *name*.
   d. A setter for *name*.
   e. *PublishVideo*, a method which will add a video to *PublishedVideoTitles*, the list of published videos.
3. Create an object of the *YoutubeChannel* class named *ytChannel* with a channel name and owner name of your choice.
4. Add a video title to your channel.
5. Unsubscribe from the channel and get the channel's information.
6. Using a for loop, add 20 subscribers to your channel. Make sure to verify that your channel's subscriber count has increased by 20.

```cpp
#include <iostream>

#include <list>

using namespace std;


class YoutubeChannel{

public:

    string Name;

    string OwnerName;

    int SubscriberCount;

    list<string> PublishedVideoTitles;


    YoutubeChannel(string name, string ownerName){

    Name = name;

    OwnerName = ownerName;

    SubscriberCount = 0;

    }


    void GetInfo() {

    cout << "Name: " << Name << endl;

    cout << "Owner Name: " << OwnerName <<endl;

    cout << "Number of Subscribers: " <<SubscriberCount <<endl;

    cout << "Videos: " << endl;

    for (string videoTitle : PublishedVideoTitles){

        cout << videoTitle << endl;

    }

    }

};
```