

SWE315 : C++

Homework 14 (Real sequence is #8) - (Due date 08-05 : Doing most of it in class!!)**General notes:**

1. Please send solution to: zbaharav@cogswell.edu
2. You know the drill by now: Simply hit reply, and no zipped directories etc..
3. Please attach this document with your solution (including screen shots!) at the bottom.

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Assignment:

(This is assignment is based on: "C++ primer plus", by Stephen Prata, 14-1).

Start with the following Base declaration:

```

/* File Cd.h */
#ifndef _CD_H_
#define _CD_H_

#include <string>

// Base Class
class Cd
{
private:
    std::string performers;
    std::string label;
    int selections;           // number of selections
    float playtime;         // Playtime in minutes
public:
    Cd(std::string s1, std::string s2, int n, float x);
    Cd(const Cd &d);
    Cd();
    ~Cd();
    void Report() const; // reports all CD data
    Cd & operator=(const Cd & d);
};

#endif
/* End of File Cd.h */

```

Derive a "Classic" class that adds a string variable that will hold the primary work of the Cd.

Test your program with the below main() function, and make sure that the output is as seen in the screen shot below.

If the base class needs modifications (virtual functions, or a method that is not used and can be removed), please make these and note them specifically in comments.

```

/* File main.cpp */

#include <iostream>
using namespace std;

#include "Classic.h" // This will contain #include "Cd.h"

void Bravo(const Cd & disk);

int main()
{
    {
        cout << "\n\n\n*****\n\n\n";
        cout << "\n\nCreating Object Cd c1:\n";
        Cd c1("Beatles", "Capitol", 14, 35.5);
        cout << "\n\nCreating Object Classic c2:\n";
        Classic c2 = Classic("Piano Sonata in B Flat, Fantasia in C",
"Alfred Brendel", "Philips", 2, float(57.17));
        cout << "\n\nCreating Object *Cd *pcd:\n";
        Cd *pcd = &c1;

        cout << "\n\n\n*****\n\n\n";
        cout << "This solution is by: " << "Student Name.\n";
        cout << "\n\n\n*****\n\n\n";
        cout << "Using Object Directly:\n";
        c1.Report(); // use Cd method
        c2.Report(); // use Classic method

        cout << "\n\n\n*****\n\n\n";
        cout << "Using pointer to objects:\n";
        pcd->Report();
        pcd=&c2;
        pcd->Report(); // Since this goes (as seen on output) to
Classic, it's a hint it is virtual-defined.

        cout << "\n\n\n*****\n\n\n";
        cout << "Calling function with a Cd reference argument:\n";
        Bravo(c1);
        Bravo(c2);

        cout << "\n\n\n*****\n\n\n";
        cout << "Testing assignment:\n";
        Classic copy;
        copy = c2;
        copy.Report();

        cout << "\n\n\n*****\n\n\n";
        cout << "Calling all destructors\n";
    }
    system ("pause");

    return 0;
}

void Bravo(const Cd & disk)

```

```

{
    disk.Report();
}

/* End of File main.cpp */

```



```

C:\Users\Zachi\Dropbox\zCpp\Teach_2014\HW14_InClass\Debug\HW14_InClass.exe
*****
Creating Object Cd c1:
** In function Cd(std::string s1, std::string s2, int n, float x): Using constructor.
Creating Object Classic c2:
** In function Cd(std::string s1, std::string s2, int n, float x): Using constructor.
** In function Classic(std::string s0, std::string s1, std::string s2, int n, float x): Constructor.
** In function Cd(const Cd &d): Using copy constructor.
** In function Classic(const Classic &d): Using copy constructor.
** In function ~Classic(): Destructor.
** In function ~Cd(): Destructor.
Creating Object *Cd *pcd:
*****
This solution is by: Student Name.
*****
Using Object Directly:
** In function Report() from Base.
----Performers : Beatles.
----label : Capitol.
----selections : 14.
----playtime : 35.5.
** In function Report() from Classic.
+++primarywork : Piano Sonata in B Flat, Fantasia in C.
+++Performers : Alfred Brendel.
+++label : Philips.
+++selections : 2.
+++playtime : 57.17.
*****
Using pointer to objects:
** In function Report() from Base.
----Performers : Beatles.
----label : Capitol.
----selections : 14.
----playtime : 35.5.
** In function Report() from Classic.

```

(continues below. Note: A little overlap between the screenshots).

```

C:\Users\Zachi\Dropbox\zCpp\Teach_2014\HW14_InClass\Debug\HW14_InClass.exe
Using pointer to objects:
** In function Report() from Base.
----Performers : Beatles.
----label      : Capitol.
----selections : 14.
----playtime   : 35.5.
** In function Report() from Classic.
+++primarywork : Piano Sonata in B Flat, Fantasia in C.
+++Performers  : Alfred Brendel.
+++label       : Philips.
+++selections  : 2.
+++playtime    : 57.17.

*****

Calling function with a Cd reference argument:
** In function Report() from Base.
----Performers : Beatles.
----label      : Capitol.
----selections : 14.
----playtime   : 35.5.
** In function Report() from Classic.
+++primarywork : Piano Sonata in B Flat, Fantasia in C.
+++Performers  : Alfred Brendel.
+++label       : Philips.
+++selections  : 2.
+++playtime    : 57.17.

*****

Testing assignment:
** In function Cd(): Empty constructor.
** In function Classic(): Empty constructor.
** In function operator=(const Classic & d) .
** In function operator=(const Cd & d) from Base.
** In function Report() from Classic.
+++primarywork : Piano Sonata in B Flat, Fantasia in C.
+++Performers  : Alfred Brendel.
+++label       : Philips.
+++selections  : 2.
+++playtime    : 57.17.

*****

Calling all destructors
** In function ~Classic(): Destructor.
** In function ~Cd(): Destructor.
** In function ~Classic(): Destructor.
** In function ~Cd(): Destructor.
** In function ~Cd(): Destructor.
Press any key to continue . . .

```

=== End of Homework 14 ===

=== Please attach your solution below here, including screenshots ===