CSE 108

Home Assignment 3

Operator Overloading

Instructions:

Consider the following code template and add necessary code as instructed.

1. You are not allowed to change any code that has been already added in the template.
2. Your goal is to produce the same output given at the end of the template.

Code:

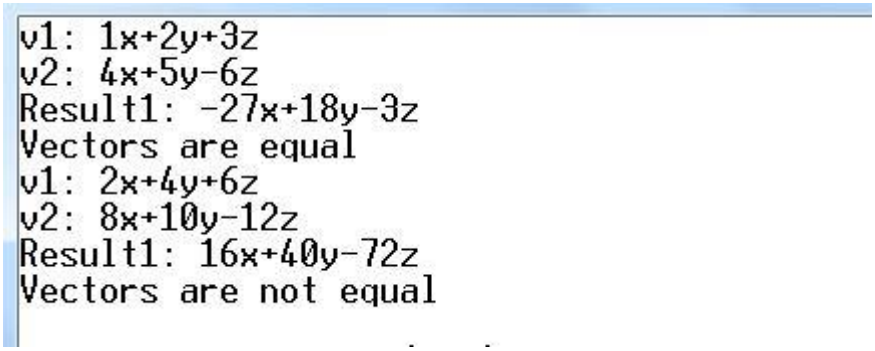
Find the code below. Some lines of the following here have been broken into multiple lines. Find ***VectorTemplate.cpp*** file to get the actual form of code.

```
#include<iostream>
#include<cstring>
using namespace std;

class Vector
{
    char *name;
    int x,y,z;
public:
    Vector(char *n)
    {
        int l = strlen(n);
        name = new char[l+1];
        strcpy(name,n);
        x=0;
        y=0;
        z=0;
    }
    Vector(char *n, int a, int b, int c)
    {
        int l = strlen(n);
        name = new char[l+1];
        strcpy(name,n);
        x=a;
        y=b;
        z=c;
    }
```

```
    int setX(int a){x=a;}
    int setY(int b){y=b;}
    int setZ(int c){z=c;}

    void setName(char *n)
    {
        int l = strlen(n);
        name = new char[l+1];
        strcpy(name,n);
    }

    int getX(){return x;}
    int getY(){return y;}
    int getZ(){return z;}

    char *getName(){return name;}

    ~Vector()
    {
        delete []name;
    }

};

int main()
{
    Vector v1("v1", 1,2,3), v2("v2", 4, 5, -6),
v3("Result1"),v4("Result2",-27,18,-3);

    v1.print();     ///Print the components of vector v1
    v2.print();     ///Print the components of vector v2

    v3=v1^v2;       ///Calculate the cross product of vector v1 and
vector v2 (Consider ^ as cross product for this assignment)
    v3.print();     ///Print the modified components of vector v3
(Name: Result1)

    if(v3==v4)      ///Check for equality; if two vectors contain
equal component values (x, y, z), then they are equal.
        cout<<"Vectors are equal"<<endl;
    else
        cout<<"Vectors are not equal"<<endl;

    v1= v1*2;       ///Multiply each component of vector v1 with the
given value
```

```
    v1.print();     ///Print the modified components of vector v1

    v2=2*v2;        ///Multiply each component of vector v2 with the
given value
    v2.print();     ///Print the modified components of vector v2

    v3=v1*v2;       ///Multiply each component of vector v1 with the
corresponding component of vector v2.
    v3.print();     ///Print the modified components of vector v3
(Name: Result1)

    if(v3==v4)      ///Check for equality; if two vectors contain
equal component values (x, y, z), then they are equal.
        cout<<"Vectors are equal"<<endl;
    else
        cout<<"Vectors are not equal"<<endl;

    return 0;
}
```

(Expected) Output:



Submission Deadline:

11:55 PM, April 5, 2021 (Monday). Please submit the cpp file only. The name of the file must be your **7-digit** student id (for example, 1905125.cpp).

For any further relevant query, mail to madhusudan.buet@gmail.com