

# Lab 3 exercise

## Question 1:

Define a class, Vector, which represents either a column vector or a row vector. A column (row) vector is a matrix consisting of a single column (row) of m elements.

Let m = 3 in this program. (Use three member variables instead of an array.)

Use appropriate constructors and destructor.

Implement the following method:

```
Vector add(Vector) // Adds the input vector with the calling vector
```

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### LAB EXERCISE 3

#### Source Code

```
// Vectormain.cpp:  
  
#include "Vector.h"  
#include <iostream>  
  
int main()  
{  
    double a1, a2, a3;  
    double b1, b2, b3;  
  
    std::cout << "IN THIS PROGRAM IS FOR ROW  
VECTOR'S OR COLUMN VECTOR'S AND CURRENTLY  
TAKES ONLY THREE INPUTS! \n";  
  
    std::cout << "INPUT SECTION! \n";  
  
    std::cout << "ENTER THE ELEMENTS OF VECTOR A: \n";  
    std::cin >> a1 >> a2 >> a3;  
  
    std::cout << "ENTER THE ELEMENTS OF VECTOR B: \n";  
    std::cin >> b1 >> b2 >> b3;
```

```

std::cout << "OUTPUT SECTION!\n";
std::cout << "#####\n";
Vector v1(a1, a2, a3);
Vector v2(b1, b2, b3);
Vector v3(v1.add(v2));
v3.output();
std::cout << "#####";
}

```

//vector.cpp

```

#include <iostream>
#include "vector.h"

Vector::Vector()
{
    x=NULL;
    y=NULL;
    z=NULL;
}

```

void Vector::output()

{

std::cout << "RESULTANT VECTOR: \n";

std::cout << \*(this->x) << "\n" << \*(this->y) << "\n" <<  
 \*(this->z) << std::endl;

}

Vector::Vector(double x, double y, double z)

{

this->x = new double(x);

this->y = new double(y);

this->z = new double(z);

static int i=0;

i++;

if (i==1)

{

std::cout << "ELEMENTS OF VECTOR A:" << std::endl;

std::cout << x << " " << y << " " << z << std::endl;

}

if (i==2)

{

std::cout << "ELEMENTS OF VECTOR B:" << std::endl;

std::cout << x << " " << y << " " << z << std::endl;

}

```
if (i == 3)
{
```

```
    std::cout << "ELEMENTS OF VECTOR R:" << std::endl;
    std::cout << x << " " << y << " " << z << std::endl;
```

{

}

Vector Vector::add(const Vector &other1)

{

```
double e1, e2, e3;
```

```
e1 = *(this->x) + *(other1.x);
```

```
e2 = *(this->y) + *(other1.y);
```

```
e3 = *(this->z) + *(other1.z);
```

```
Vector V(e1, e2, e3);
```

```
return V;
```

}

Vector::~Vector()

{

```
delete x, y, z;
```

}

```
//Vector.h
```

```
#pragma once
```

```
class Vector
```

```
{
```

```
private
```

```
double *x, *y, *z;
```

```
public:
```

```
Vector();
```

```
Vector(double, double, double);
```

```
Vector add(const Vector& V);
```

```
~Vector();
```

```
void output();
```

```
};
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

5: cmd

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Microsoft Windows [Version 10.0.19041.450]  
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```
C:\recent work>g++ -std=c++11 Vector.cpp Vectormain.cpp -o Vectormain
C:/Program Files (x86)/CodeBlocks/MinGW/bin/../../lib/gcc/mingw32/5.1.0/../../../../mingw32/bin/ld.exe: cannot open output file Vectormain.exe: Permission denied
collect2.exe: error: ld returned 1 exit status
```

```
C:\recent work>Vectormain
```

THIS PROGRAM IS FOR ROW VECTOR'S OR COLUMN VECTOR'S ADDITION AND CURRENTLY TAKES ONLY THREE INPUT!

INPUT SECTION!

ENTER THE ELEMENTS OF VECTOR A:

```
1
```

```
45
```

```
32
```

ENTER THE ELEMENTS OF VECTOR B:

```
7
```

```
15
```

```
23
```

OUTPUT SECTION!

```
#####
ELEMENTS OF VECTOR A:
```

```
1 45 32
```

ELEMENTS OF VECTOR B:

```
7 15 23
```

ELEMENTS OF VECTOR R:

```
8 60 55
```

RESULTANT VECTOR:

```
8
```

```
60
```

```
55
```

```
#####
C:\recent work>
```

