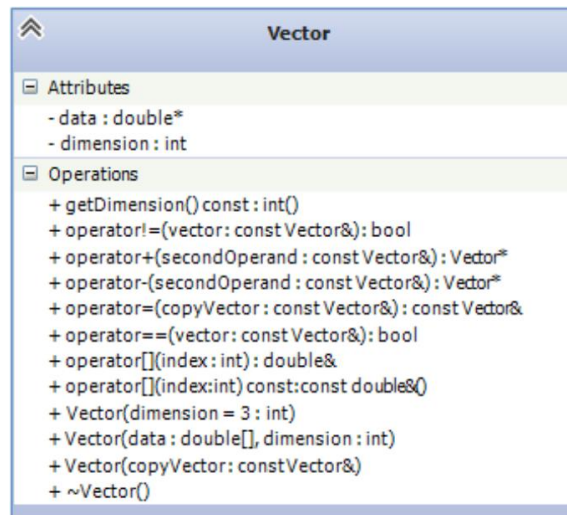


OPERATOR OVERLOAD

Description of the Problem

Implement a Vector class that represents a mathematical vector. Look at the UML Diagram and implement required functionalities. Required functions is explained in the UML Diagram section. You are given a non-complete test code. Complete the test code according to the sample output. Test your implementation.

UML Diagram



Members:

- dimension : size of the vector
- data : a double array to keep the raw data

Functions:

- Vector(dimension = 3) : Default parameter constructor
- Vector(data,dimension) : Overloaded constructor with a double array and dimension parameter
- Vector(copyVector) : Copy constructor
- ~Vector() : Destructor. You have to free the data array to handle the memory leak
- getDimension() : Returns the dimension of the vector
- Not equal operator : Returns true if the vectors is not equal
- Equal operator : Returns truee if the vectors is equal
- Assign operator : Copies the vector given in the argument
- Subscription operator : Returns the vector element according to the given index
- Plus and minus operator : Do calculation and return a pointer to a new object that holds the result

Sample Output

```
C:\Windows\system32\cmd.exe

+-----+
| INPUT TEST |
+-----+
1.2 2.4 3.8
+-----+
| OUTPUT TEST |
+-----+
[ 1.200, 2.400, 3.800]
+-----+
| INPUT TEST |
+-----+
1.4 2.6 3.9
+-----+
| OUTPUT TEST |
+-----+
[ 1.400, 2.600, 3.900]
+-----+
| COPY CONSTRUCTOR TEST |
+-----+
Original Vector : [ 1.200, 2.400, 3.800]
Copy Vector : [ 1.200, 2.400, 3.800]
+-----+
| ASSIGNMENT TEST |
+-----+
Original Vector : [ 1.200, 2.400, 3.800]
Assignment Copy Vector : [ 1.200, 2.400, 3.800]
+-----+
| EQUAL TEST |
+-----+
[ 1.200, 2.400, 3.600] is equal to [ 1.200, 2.400, 3.600]
+-----+
| NOT EQUAL TEST |
+-----+
[ 1.200, 2.400, 3.600] is not equal to [ 1.800, 2.600, 3.400]
+-----+
| SUBSCRIPTION TEST |
+-----+
Vector itself : [ 1.200, 2.400, 3.800]
Get vector[i] = 2.400
Set vector[i] to 5.300, then vector[i] = 5.300
+-----+
| ADDITION TEST |
+-----+
[ 1.200, 5.300, 3.800] + [ 1.400, 2.600, 3.900] = [ 2.600, 7.900, 7.700]
+-----+
| SUBTRACTION TEST |
+-----+
[ 1.200, 5.300, 3.800] - [ 1.400, 2.600, 3.900] = [ -0.200, 2.700, -0.100]
Press any key to continue . . .
```