

Practice on C++

1. Define a class **Vector** with three private attributes *coeff_X*, *coeff_Y* and *coeff_Z* that represent its coefficients along the three axes respectively.
2. Write down two constructors for Vector class one of which takes nothing as parameter and initializes all the values to zero, and another one takes three parameters and initializes the values accordingly. Also, write down a destructor which just prints a message “In destructor”.
3. Define a member function *void setValues(float x, float y, float z)* which sets the values of the variables of the class.
4. Define a member function *void print()* that will print the Vector in standard form. For example $2i+3j+7k$ represents a vector with coefficients 2, 3 and 7 along X, Y and Z axes respectively.
5. Define a member function *Vector add (Vector a)* that will return another Vector that is sum of Vector **a** and the caller Vector.
6. Write a member function in Vector class to implement the dot product. Design its parameters and return type appropriately.
7. Write a *main()* function to demonstrate the functionality implemented in questions 1-6.
8. Define a class **VectorList** with a private attribute *vectors* that represent an array of vectors (Declare array size as 10). Another private attribute *n* represents the number of assigned vectors in the VectorList.
9. Define a function *void setList(Vector a[], int count)* in **VectorList** to set the list of vectors in VectorList.
10. Define a function *void append(Vector a)* in **VectorList** to append a vector at the end of its list of vectors.
11. Define a function *Vector add()* in **VectorList** that will return sum of all the vectors in the VectorList.
12. Define a function *void print()* that will print all the vectors in VectorList. Each vector should be printed in a separate line.
13. Edit the *main()* function to demonstrate the functionality implemented in questions 8-12.