```
/*This programme shows how vectors can be used in a programme*/

#include <iostream>
#include <vector> // To enable the code to use "vector" container
using namespace std;


class Box {

protected: // To grant access to sub classes
        double length, height, width;

public:

        Box(double L, double H, double W) : length(L), height(H), width(W) {};

        double boxVolume() { return length * height * width; }
};


void main() {

        // Declatring a vector of integers and adding an element to its end

          vector<int> mydata; // declare vector (of integers)

          mydata.push_back(123); // adds 123 as last element


    // Declaring a vector of characters and assigning its second element

          vector<char> moreData(100); // declare vector with 100 elements

          moreData[2]='h';// sets element 2 to a value of “h”

    // Declaring a vector of "Box" objects and initialise them to B(1,2,3)

          Box B(1, 2, 3);

          vector<Box> lotsOfBoxes(100, B); // 100 boxes with the value of B(1,2,3).

    // Showing the capacity of a vector

          vector<int> someData{ 345, 456, 567, 678 };

          auto s = someData.size(); // 4 elements

          auto c = someData.capacity(); // usually equal to the size

          cout << "The size is: "<< s << " and the capacity is: "<<c<<endl;

          // Preallocated vector
          vector<int> newdata;

          newdata.reserve(100); // pre-allocation is much faster!!

          s = newdata.size();

          c = newdata.capacity();

          cout << "The size is: " << s << " and the capacity is: " << c << endl;



        system("pause");
};
```