```cpp
#include <iostream>
#include <vector>
using namespace std;

// Topic 10 >> Containers, e.g., vector
class Point
{
private:
    int x, y;

public:
    Point(int _x = 0, int _y = 0) : x(_x), y(_y) {}
    void set(int _x, int _y)
    {
        x = _x;
        y = _y;
    }
    int getX() const { return x; }
    int getY() const { return y; }
};

int menu()
{
    cout << endl;
    cout << "1. Add point" << endl;
    cout << "2. Remove last point" << endl;
    cout << "3. Edit point" << endl;
    cout << "4. Print list" << endl;
    cout << "5. Exit" << endl;
    cout << endl;
    cout << "Choose an operation from 1 to 5 => ";

    int choice;
    cin >> choice;

    cout << endl;

    return choice;
}

int main()
{
    vector<Point> list;
    list.push_back(Point(1, 2));
    list.push_back(Point(31, 2));
    list.push_back(Point(13, 32));

    int c = menu();
    int x, y;
    int index;

    while (c != 5)
    {

        switch (c)
        {
        case 1: // add a new item at the back of the list
            cout << "Enter x and y => ";
            cin >> x >> y;

            list.push_back(Point(x, y));
            cout << "Number of items in the list now is " << list.size() << endl;
            break;

        case 2: // Remove the last item from the list
            list.pop_back();
            cout << "Number of items in the list now is " << list.size() << endl;
            break;

        case 3: // Edit the item at index
            cout << "Enter item's index to edit => ";
            cin >> index;
            cout << endl;

            cout << "Current x and y: " << list[index].getX() << " , " << list[index].getY() << endl;
            cout << "Enter new x and y => ";
            cin >> x >> y;
            list[index].set(x, y);
            break;

        case 4: // Print all items in the list
            // for (int i=0; i<list.size(); i++)
            //     cout << (i+1) << ".\t x=" << list[i].getX() << ", y=" << list[i].getY() << endl;

            vector<Point>::iterator i;

            for (i = list.begin(); i != list.end(); i++)
                cout << ".\t x=" << i->getX() << ", y=" << i->getY() << endl;

            cout << endl;

            break;

        } // switch

        c = menu();
    } // while

    system("pause");
    return 0;
}
```

```cpp
#include <iostream>
#include <string>
#include <map>
using namespace std;

// Topic 10 >> Containers, e.g., map

string dayNumToName(int d)
{
    const string DAYS[7] = {"Mon", "Tue", "Wed", "Thu", "Fri", "Sat", "Sun"};
    return DAYS[d - 1];
}

int dayNameToNum(string n)
{
    map<string, int> DAYS = {{"Mon",1}, {"Tue",2}, {"Wed",3}, {"Thu",4}, {"Fri",5},
 {"Sat",6}, {"Sun",7}};
    DAYS["Monday"] = 1;


    return DAYS[n];
}

int main()
{

    cout << dayNumToName(1) << endl;
    cout << dayNameToNum("Mon") << endl;
    cout << dayNameToNum("Tue") << endl;
    cout << dayNameToNum("Monday") << endl;
    cout << dayNameToNum("monday") << endl;

    system("pause");
    return 0;
}
```

```cpp
#include <iostream>
#include <vector>
#include <map>
using namespace std;

// Topic 10 >> Iterators:  Sample code

class Point
{
private:
    int x, y;

public:
    Point(int _x = 0, int _y = 0) : x(_x), y(_y) {}
    int getX() const { return x; }
    int getY() const { return y; }
};

int main()
{
    vector<int> numbers;
    numbers.push_back(1);
    numbers.push_back(2);
    numbers.push_back(3);

    //without iterator
    for (int i = 0; i < numbers.size(); i++)
        cout << numbers[i] << "\t";
    cout << endl;

    //with iterator
    vector<int>::iterator i;
    for (i = numbers.begin(); i != numbers.end(); i++)
        cout << *i << "\t";
    cout << endl;

    vector<Point> points;
    points.push_back(Point(1, 2));
    points.push_back(Point(11, 22));
    points.push_back(Point(41, 32));

    // work with objects without iterator
    for (int i = 0; i < points.size(); i++)
        cout << "x=" << points[i].getX() << "\ty=" << points[i].getY() << endl;

    // work with objects with iterator
    vector<Point>::iterator p;
    for (p = points.begin(); p != points.end(); p++)
        cout << "x=" << (*p).getX() << "\ty=" << p->getY() << endl;

    map<string, int> days;
    days["mon"] = 1;
    days["tue"] = 2;

    map<int, string> hari;
    hari[1] = "isnin";
    hari[5] = "jumaat";

    map<string, int>::iterator d;
    for (d = days.begin(); d != days.end(); d++)
```

```
        cout << d->first << "\t" << d->second << endl;

    map<int, string>::iterator h;
    for (h = hari.begin(); h != hari.end(); h++)
        cout << h->first << "\t" << h->second << endl;

    system("pause");
    return 0;
}
```