

# DAA-LAB 1

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**Reg no: 22BRS1327**

**Q1)**

Code:

```
#include <iostream>

#include <set>

using namespace std;

int main() {

    set<int> mySet;

    int numOfElements;

    cout << "Enter the number of elements to add: ";

    cin >> numOfElements;

    for (int i = 0; i < numOfElements; i++) {

        int element;

        cin >> element;

        mySet.insert(element);

    }

    cout << "Elements in the set: ";

    for (int value : mySet) {

        cout << value << " ";

    }

    cout << endl << "Enter the element to be deleted: ";

    int elementToDelete;

    cin >> elementToDelete;

    mySet.erase(elementToDelete);

    cout << "Set after deletion: ";

    for (int value : mySet) {

        cout << value << " ";

    }

    return 0;
```

```
Kali Linux [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Text Editor
Aug 30 11:44
• Q1.cpp
~/Desktop/22BRS1327

#include <iostream>
#include <set>

using namespace std;

int main() {
    set<int> mySet;
    int numOfElements;

    cout << "Enter the number of elements to add: ";
    cin >> numOfElements;

    for (int i = 0; i < numOfElements; i++) {
        int element;
        cin >> element;
        mySet.insert(element);
    }

    cout << "Elements in the set: ";
    for (int value : mySet) {
        cout << value << " ";
    }

    cout << endl << "Enter the element to be deleted: ";
    int elementToDelete;
    cin >> elementToDelete;

    mySet.erase(elementToDelete);

    cout << "Set after deletion: ";
    for (int value : mySet) {
        cout << value << " ";
    }

    return 0;
}
```

## Output:

```
Kali Linux [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
madhuramsinh@kali: ~/Desktop/22BRS1327

(madhuramsinh@kali)-[~/Desktop/22BRS1327]
$ g++ Q1.cpp

(madhuramsinh@kali)-[~/Desktop/22BRS1327]
$ ./a.out
Enter the number of elements to add: 5
1 2 3 6 0
Elements in the set: 0 1 2 3 6
Enter the element to be deleted: 2
Set after deletion: 0 1 3 6
```

## Q2)

### Code:

```
#include <iostream>

#include <algorithm>

#include <vector>

using namespace std;

int main() {

    int array1[] = {5, 19, 25, 24, 25};

    int array2[] = {50, 40, 2, 26, 11};

    vector<int> mergedVector(10);

    sort(array1, array1 + 5);

    sort(array2, array2 + 5);

    merge(array1, array1 + 5, array2, array2 + 5, mergedVector.begin());

    cout << "The resulting vector contains:";

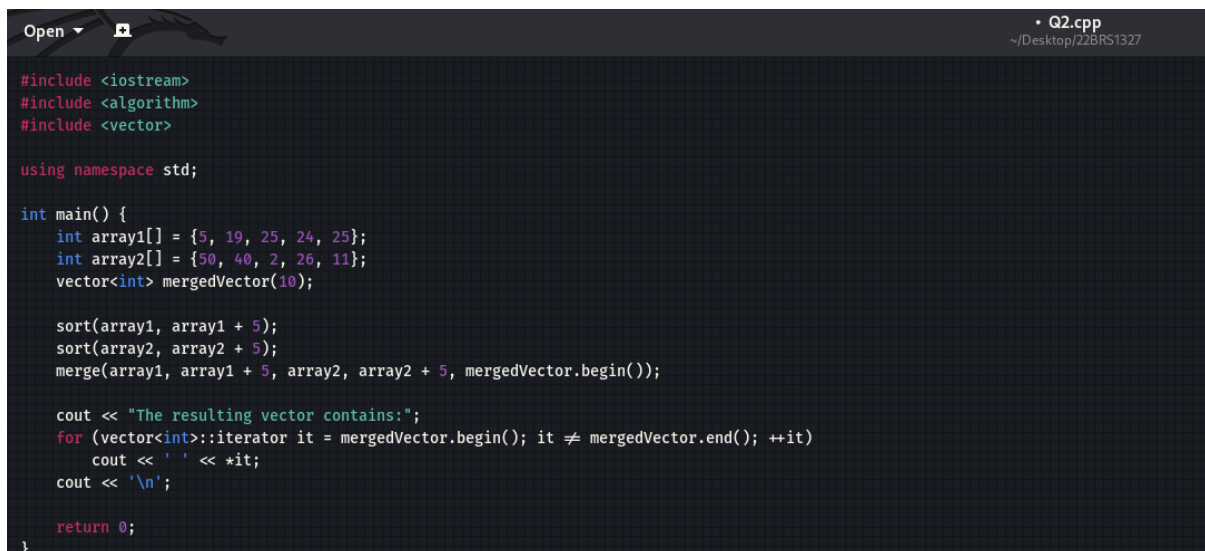
    for (vector<int>::iterator it = mergedVector.begin(); it != mergedVector.end(); ++it)


        cout << ' ' << *it;

    cout << '\n';

    return 0;

}
```

A screenshot of a code editor window. The title bar shows "Q2.cpp" and the file path "~/Desktop/22BRS1327". The code is the same as the one in the previous block, but with some syntax highlighting: keywords like 'int', 'vector', 'sort', 'merge', 'cout', 'return', and 'for' are in blue; string literals are in red; and comments are in green. The editor has a dark background with a grid pattern.

```
Open ▾  • Q2.cpp
~/Desktop/22BRS1327

#include <iostream>
#include <algorithm>
#include <vector>

using namespace std;

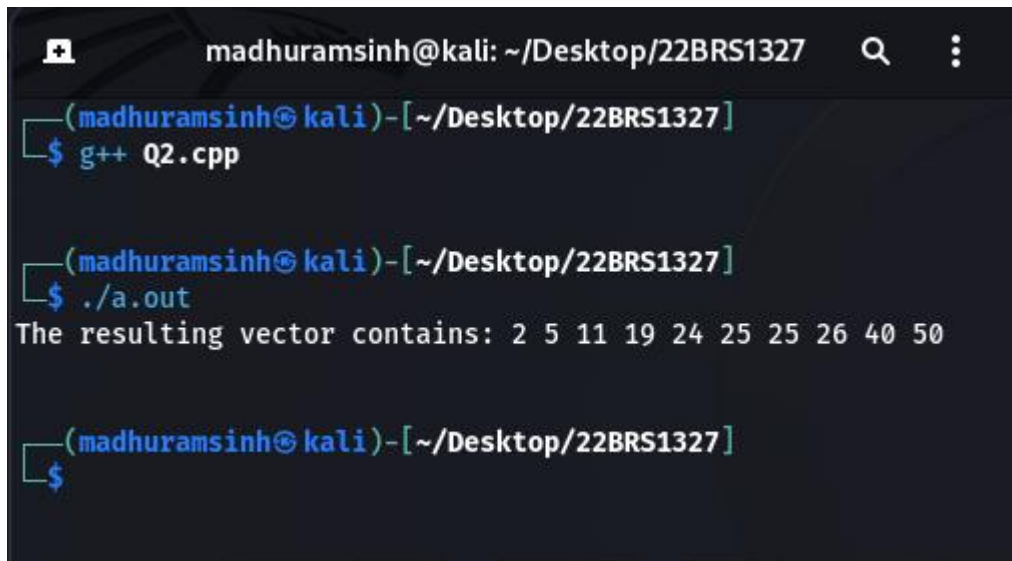
int main() {
    int array1[] = {5, 19, 25, 24, 25};
    int array2[] = {50, 40, 2, 26, 11};
    vector<int> mergedVector(10);

    sort(array1, array1 + 5);
    sort(array2, array2 + 5);
    merge(array1, array1 + 5, array2, array2 + 5, mergedVector.begin());

    cout << "The resulting vector contains:";
    for (vector<int>::iterator it = mergedVector.begin(); it != mergedVector.end(); ++it)
        cout << ' ' << *it;
    cout << '\n';

    return 0;
}
```

## Output:

A terminal window with a dark background. The title bar shows a user icon, the username 'madhuramsinh@kali', and the path '~/Desktop/22BRS1327'. The terminal contains three lines of input and one line of output. The first line shows the command 'g++ Q2.cpp' being executed. The second line shows the command './a.out' being executed, followed by the output 'The resulting vector contains: 2 5 11 19 24 25 25 26 40 50'. The third line shows the prompt '\$' without any further input.

```
(madhuramsinh@kali) - [~/Desktop/22BRS1327]
$ g++ Q2.cpp

(madhuramsinh@kali) - [~/Desktop/22BRS1327]
$ ./a.out
The resulting vector contains: 2 5 11 19 24 25 25 26 40 50

(madhuramsinh@kali) - [~/Desktop/22BRS1327]
$
```

## Q3)

### Code:

```
#include <iostream>

#include <vector>

using namespace std;

int main() {

    vector<int> numbers;

    int numElements;

    cout << "Enter the number of elements: ";

    cin >> numElements;

    for (int i = 0; i < numElements; i++) {

        int value;

        cin >> value;

        numbers.push_back(value);

    }

    cout << "Elements in the vector: ";

    for (int i = 0; i < numElements; i++) {

        cout << numbers[i] << " ";

    }

    cout << endl << "Deleting the last element" << endl;

    numbers.pop_back();

    cout << "Elements in the vector after deletion: ";
```

```

    for (int i = 0; i < numbers.size(); i++) {

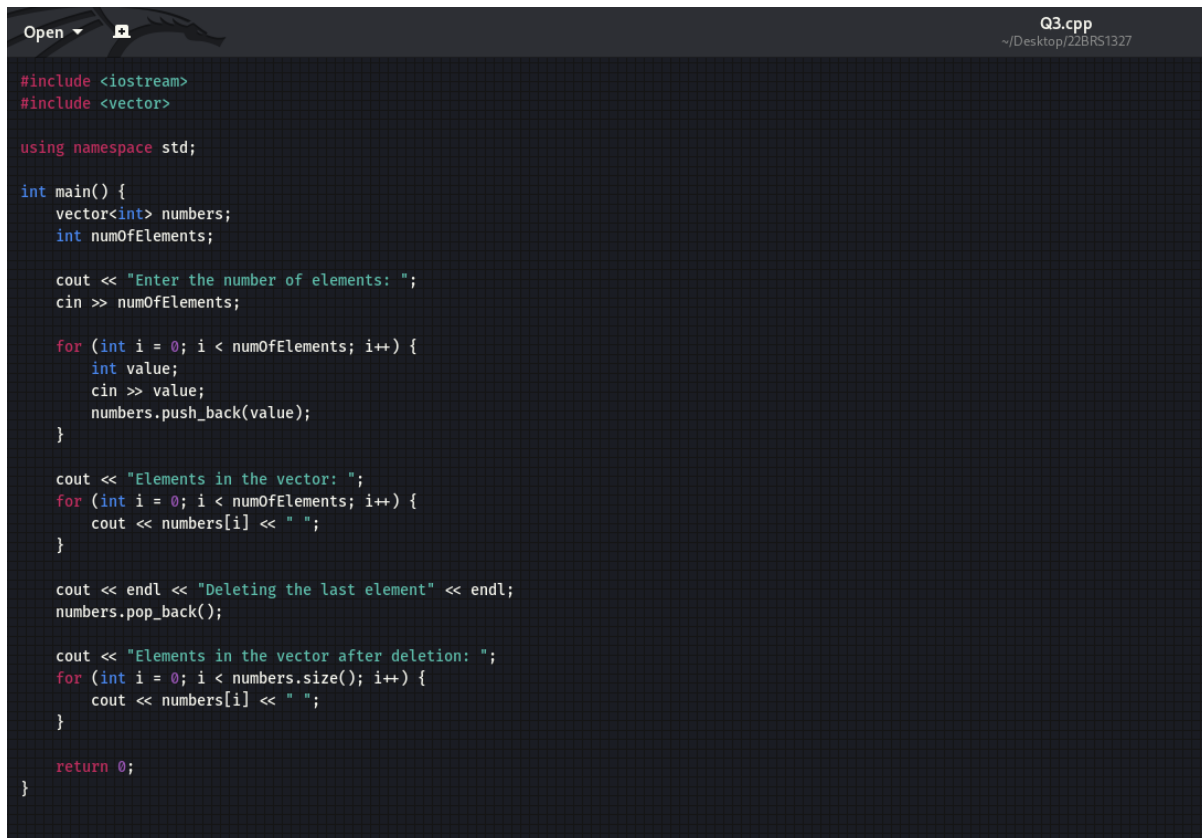
        cout << numbers[i] << " ";

    }

    return 0;

}

```



```

Q3.cpp
~/Desktop/22BRS1327

#include <iostream>
#include <vector>

using namespace std;

int main() {
    vector<int> numbers;
    int numOfElements;

    cout << "Enter the number of elements: ";
    cin >> numOfElements;

    for (int i = 0; i < numOfElements; i++) {
        int value;
        cin >> value;
        numbers.push_back(value);
    }

    cout << "Elements in the vector: ";
    for (int i = 0; i < numOfElements; i++) {
        cout << numbers[i] << " ";
    }

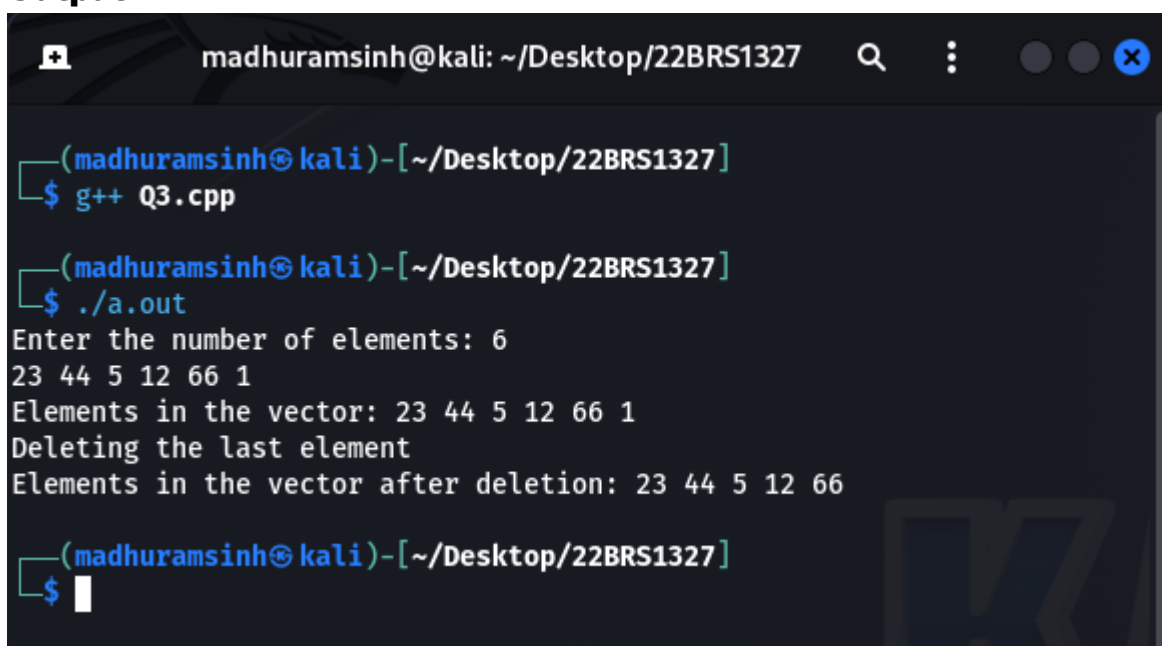
    cout << endl << "Deleting the last element" << endl;
    numbers.pop_back();

    cout << "Elements in the vector after deletion: ";
    for (int i = 0; i < numbers.size(); i++) {
        cout << numbers[i] << " ";
    }

    return 0;
}

```

## Output:



```

madhuramsinh@kali: ~/Desktop/22BRS1327

(madhuramsinh@kali)-[~/Desktop/22BRS1327]
$ g++ Q3.cpp

(madhuramsinh@kali)-[~/Desktop/22BRS1327]
$ ./a.out
Enter the number of elements: 6
23 44 5 12 66 1
Elements in the vector: 23 44 5 12 66 1
Deleting the last element
Elements in the vector after deletion: 23 44 5 12 66

(madhuramsinh@kali)-[~/Desktop/22BRS1327]
$

```

## Q4(a)

### Code:

```
#include <iostream>

#include <stack>

using namespace std;

int main() {

    stack<int> myStack;

    myStack.push(34);

    myStack.push(45);

    myStack.push(56);

    myStack.push(22);

    myStack.push(19);

    cout << "Top element: " << myStack.top() << endl;

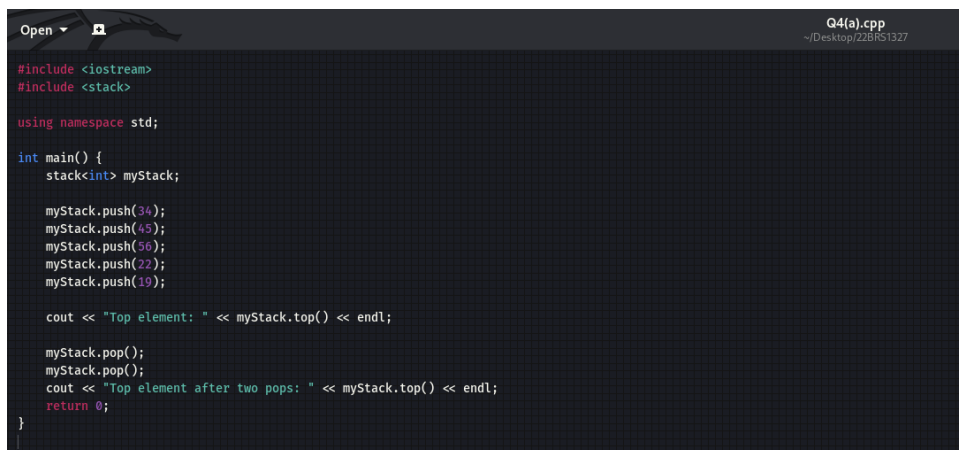
    myStack.pop();

    myStack.pop();

    cout << "Top element after two pops: " << myStack.top() << endl;

    return 0;

}
```



```
Q4(a).cpp
~/Desktop/22BRS1327

#include <iostream>
#include <stack>

using namespace std;

int main() {
    stack<int> myStack;

    myStack.push(34);
    myStack.push(45);
    myStack.push(56);
    myStack.push(22);
    myStack.push(19);

    cout << "Top element: " << myStack.top() << endl;

    myStack.pop();
    myStack.pop();
    cout << "Top element after two pops: " << myStack.top() << endl;

    return 0;
}
```

### Output:



```
madhuramsinh@kali: ~/Desktop/22BRS1327

(madhuramsinh@kali)-[~/Desktop/22BRS1327]
$ g++ Q4(a).cpp

(madhuramsinh@kali)-[~/Desktop/22BRS1327]
$ ./a.out
Top element: 19
Top element after two pops: 56
```

## Q4(b)

### Code:

```
#include <iostream>

#include <map>

using namespace std;

int main() {

    map<int, string> carBrands;

    carBrands[1] = "Volvo";

    carBrands[2] = "Honda";

    carBrands.insert(make_pair(3, "Hyundai"));

    carBrands.insert(make_pair(4, "BMW"));

    for (int i = 1; i <= carBrands.size(); ++i) {

        cout << "Car[" << i << "]: " << carBrands[i] << endl;

    }

    return 0;

}
```



```
Q4(b).cpp
~/Desktop/22BRS1327

#include <iostream>
#include <map>

using namespace std;

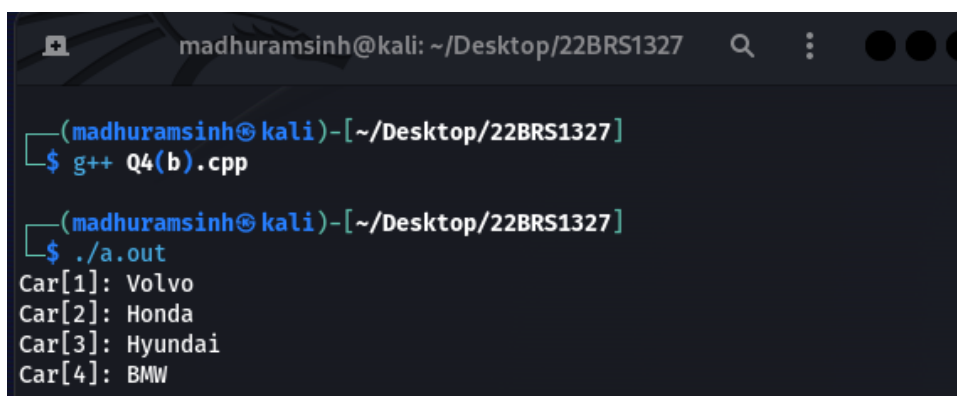
int main() {
    map<int, string> carBrands;

    carBrands[1] = "Volvo";
    carBrands[2] = "Honda";
    carBrands.insert(make_pair(3, "Hyundai"));
    carBrands.insert(make_pair(4, "BMW"));

    for (int i = 1; i <= carBrands.size(); ++i) {
        cout << "Car[" << i << "]: " << carBrands[i] << endl;
    }

    return 0;
}
```

### Output:



```
madhuramsinh@kali: ~/Desktop/22BRS1327

(madhuramsinh@kali)-[~/Desktop/22BRS1327]
$ g++ Q4(b).cpp

(madhuramsinh@kali)-[~/Desktop/22BRS1327]
$ ./a.out
Car[1]: Volvo
Car[2]: Honda
Car[3]: Hyundai
Car[4]: BMW
```

