Lesson 5 CPP vector

A **vector** is a data structure that groups values of the same type under the same name.

Unlike **arrays** in C, we can control the size of a vector in cpp while writing the code. For example if we defined a vector with a size 10 we can change it later to 100 and then to 0.

Declaration?

vector<type> name;

Note: use #include<vector> in the program

How to fill a Vector ?

We add elements into the vector using **push.back().**

Example:

```
#include <iostream>
#include <vector>
using namespace std;
int main() {
vector <int> x;
x.push_back(5);
x.push_back(9);
x.push_back(200);
```

```
x.push_back(-3);
}
```

How to print elements of a vector ?

```
for (int i = 0; i < 4; i++)
cout << x[i] << endl;
}
```

output :

```
5
9
200
-3
```

How to get the number of elements of a vector ?

We use **.size():**

```
for (int i = 0; i < x.size(); i++)
cout << x[i] << endl;
```

How can a vector change size ?

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

```
int main() {
vector <int> x;
cout << x.size() << endl;
x.push_back(5);
cout << x.size() << endl;
x.push_back(9);
x.push_back(200);
cout << x.size() << endl;
x.push_back(-3);
cout << x.size() << endl;
}
```

output :

```
0
1
3
4
```

How to delete all the items of a vector ?

we use .clear():

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

```
int main() {
vector <int> x;
vector <int> y;
x.push_back(5);
x.push_back(9);
x.push_back(200);
x.push_back(-3);
x.clear();
cout << x.size() << endl;
}
```

output:

0