Vectors

Declaration

```
vector<int> v;
```

Allocation

```
vector<int> v(len);
v.resize(len);
```

Initialisation

```
vector<int> v(len, element);
v = {1, 2, 3};
```

Traverse

```
for(int i = 0; i< v.size() ; i++)
    cout << v[i] << ' ';
for(auto itr : v)
    cout << itr << ' ';
```

Insertion

```
v.push_back(element);
v.insert(v.begin()+ idx, element);
```

Deletion

```
v.erase(v.begin() + idx);
v.clear();
```

```cpp
pair<int, int> p = {1, 2};

cout << p.first;
cout << p.second;

vector<pair<int, int>> vp;

p.first = element;
p.second = element;
```

```cpp
set <int> s;

set <int> s = {1, 2, 3};

for (auto itr = s.begin();
         itr != s.end();
         itr++)
    cout << *itr << ' ';

for (auto itr : s)
    cout << itr << ' ';


s.insert(element);

s.erase(s.begin() + idx);  s.erase(element);
s.clear();
```

```cpp
map<int, int> m;
m = { {key, element}, {key2, element2}, ... }

for (int i=0; i<5; i++)
    m[i] = i+5;

m[key] = element; m.insert({key, element});

for (auto itr : m)
    cout << itr.first << ' ' << itr.second << endl;


m.erase(key);
m.erase(m.begin() + idx);

if (m.find(key) != m.end())
    cout << "Found!";
```

```cpp
                    cout << "Found!";

s = to_string(3.14 * 2 * 2);

    string s = "Hi";
    string s("Hi");
    string s(len, character);

cout << s.substr(idx, len);
    cout << s;

    getline(cin, s);

    s = "Hello";
    s = s + "world";

    if(s.find("Hello world") != string::npos)
        cout << "Found At:" << s.find("Hello world");
```

```cpp
int x = stoi("10");
double y = stod("3.14");
```

```cpp
s = "";
```

```cpp
cout << s.substr(idx)
    └> Displays till
        the end of
            string.
```

```cpp
s.erase(idx, len);
s.erase(itr_begin, itr_end);
```