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# Variables

Static type: it means u must tell the type of the variable before u use the variable

Variables initialize in c++:

* + Int c = 0 | int c (12) | c {12}

Global variables:

* + are variables which are not inside a function
  + Uninitialized global has zero values

# Arrays

It is compound data type

It should have the same type

Define an array:

* + Int x[5] -> define an array which size is 5

# Vectors

Vector<int> x {1,2};

To access element

* + X[0], or x.at(0)

To add element:

* + X.push\_back(12) -> will add element at the end of the vector
  + Vector makes most of the time copy of the element

# Function:

You can define default parameter to a function

A function can take array void function\_1(const int x[])

* + The function will get the address of the array

## Pass by reference:

* In the definition of the function u use & so the function will get the actual variable
* Vector is copied when it is passed to a function
* We use reference when we work vector to prevent copying the whole vector
* Reference is alias of the variable

# Object oriented programming

Class is a blueprint of object

It has attribute and method

New word can be used to create object in the heap

## Access modifier:

* Private:
* Public:
* Protected:

## Member method:

* Return type class\_name::name\_of\_the\_fuction

## Initialize list:

* It helps to save time
* The value would be assigned before the constructor

## Copy constructor:

* Type::Type(const type &source)
* It is used when we pass object to a function by value
* Return from a function by value
* Assigning object to object
* It takes L-Value

## Move constructor

* It takes R-Value -> &&

## Const modifier:

* Object which are defined as const can call only const method
* U define all getter as const

# Inheritance

The process of creating a new class from another class

Base class = parent = super

Derived = child

It implements is relation

Composition implements a has relation