Agenda

- this
- Namespace
- Scope resolution operator
- Types of member Functions
- Types of Ctor
- ~~Constant~~
- ~~Ctor member initializer list~~

this (demo01)

- When object calls any member function of a class then internally the address of that object is passed to the function.
- Whatever address of that function is passed internally it is been catched inside a pointer called as this pointer.
- this pointer is a pointer that is passed internally to all the non static member functions as a hidden parameter to them.
- this pointer is a constant pointer.
- using this pointer is completely optional.
- using this pointer we can differentiate between a datamember and the local variables

Namespace (demo02 to demo05)

- It is a container which is used to keep related types together
- Inside namespace we can define a variable, functions, class, struct
- we cannot cretae any object of the namespace
- namespace must be defined on the global scope
- to access the members of the namespace we have to use namespace name and scope resolution operator (`::`)
- if we dont want to use the namesapce name and `::` multiple times then we can use a directive called as using.
- we can use using namespace to access the members of namespace directly
- if the name of the global and namespace members or the member names of multiple namespaces are same then we cannot access them directly.
- to access them use of namespace name and `::` is compulsary

Scope Resolution operator (`::`)

- It is used to access the members of the namespace
- It is used to access the members of the gloabl scope
- It is used to define the memberfunction of the class outside the class.
- It is used to initialize the static data member outside the class.
- It is used to call the static member functions on classname without cretaing the object

Types of member Functions

- 5 types of member functions

1. Constructor
2. Destructor
3. Mutator
    - It is used to change/mutate value of single datamember of the class
4. Inspector
    - It is used to read the value of single datamember of the class
5. Facilitator
    - these are member functions that perform operations which may or may not include the datamembers of the class.

1. Constructor (demo06 and demo07)

- It is a special member function of a class
- why so special ?
    1. Its name is same as that of class name
    2. It does not have any return type
    3. It gets automatically called when object is created.
- It is used to initialize the state of an object i.e to initialize the datamembers of the class.
- Their are 3 types of constructors

1. Default/paramterless ctor
2. Paramterized Ctor
3. Copy Ctor
    - we will learn it after the `"Reference"` topic

- If the user defines any ctor then the default ctor gets replaced.

2. Destructor (demo07)

- It is a special member function of a class
- why so special ?
    1. Its name is same as that of class name with (~) tild sign
    2. It does not have any return type
    3. It gets automatically called when object goes out of scope.
- It is used to deallocate the memory if dynamic memry allocation is done for the state of the object i.e if memory is allocated dynamically for datamembers of the class.
- It is also used of any resources are consumed inside the class when objects are getting cretaed.
- Dtor calling sequence is exactly opposite to that of ctor calling sequence
- If the user defines a dtor then the default dtor gets replaced.