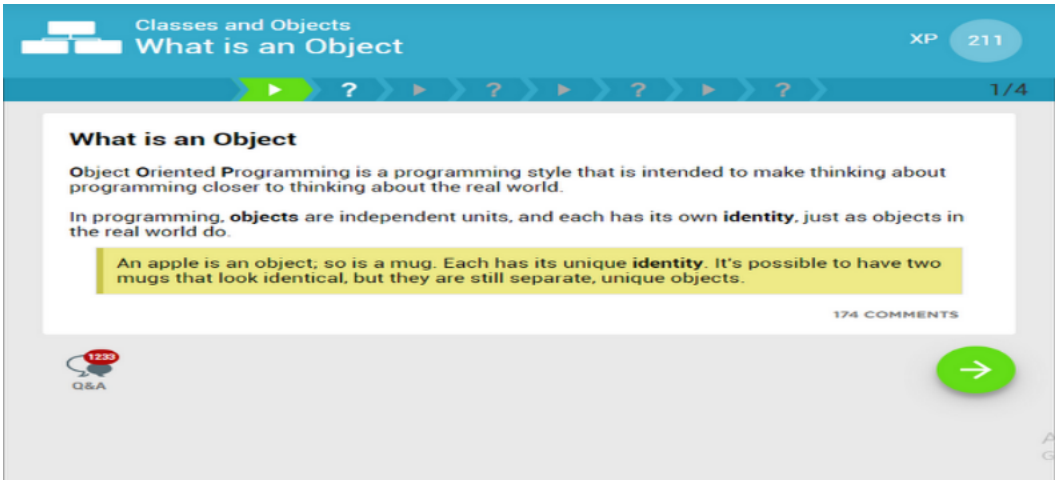
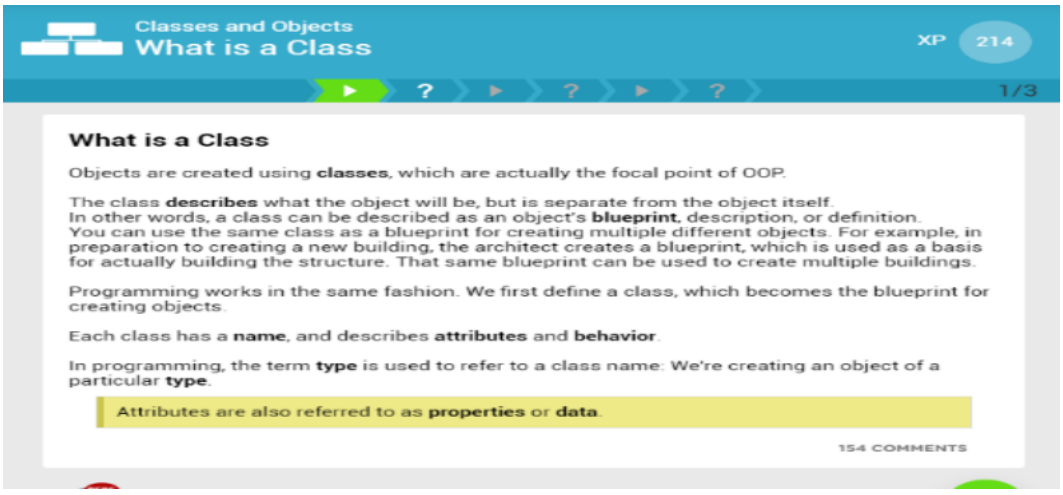
DAILY ASSESSMENT FORMAT

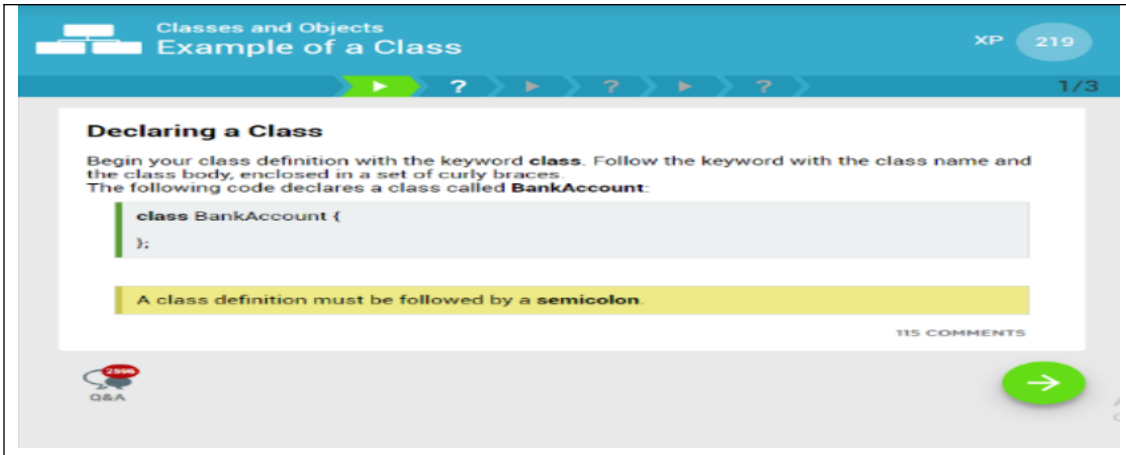
Date:	24-06-2020	Name:	Rajeshwari Gadagi
Course:	C++ Programming	USN:	4AL17EC076
Topic:	Module 5	Semester & Section:	6th SEM & 'B' SEC
Github Repository:	Rajeshwari-gadagi		

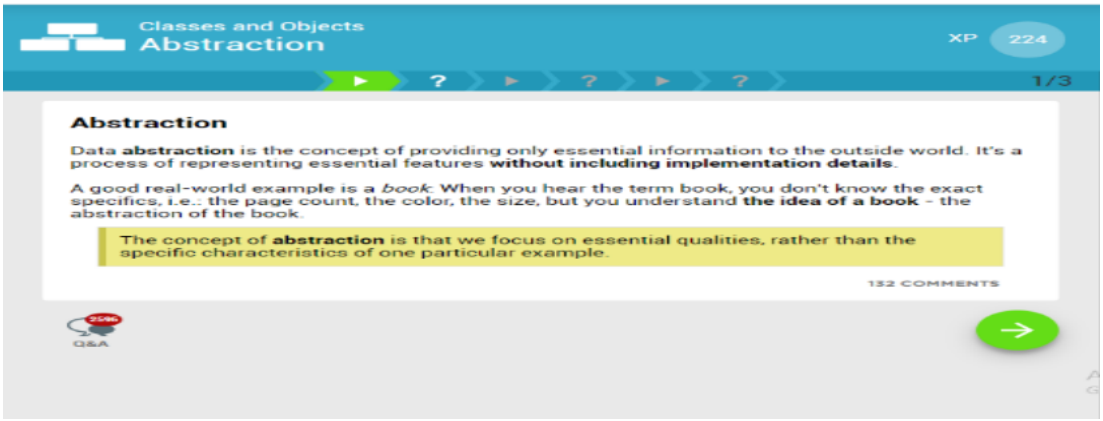
FORENOON SESSION DETAILS

Image of session









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C++ Programming

24/04/2020 - Wednesday.

Modules:

-> Classes & Objects

> What is an Object?
Object Oriented Programming is a programming style that is intended to make thinking about programming closer to thinking about the real world.

* An Object might contain other objects but they are still different objects

* In programming, an Object is self-contained, with its own identity. It is separate from other Objects.

> What is class
* Object are created using classes, which are actually the focal point of OOP.

* Each class has a name, & describes attributes & behaviour.

* Methods : Method is another term for a class behaviour. A method is basically a function that belongs to a class

> Declaring a Class

* Begin your class definition with the keyword class.

* Declaring a class:
Define all attributes & behaviour in the body of the class, within curly braces.
You can also define an access specifier for members of the class

* Creating a class

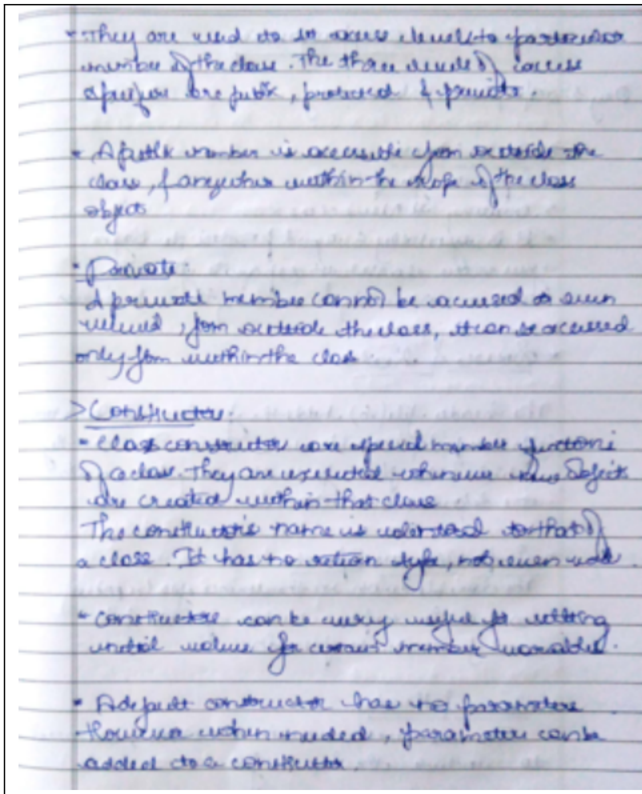
> Abstraction :
* Data abstraction is the concept of providing only essential information to the outside world. It's a process of representing essential features without including implementation details.

* Abstraction means, that we can have an idea or a concept that is completely separate from any specific instance

> Encapsulation :
Part of the meaning of the word encapsulation is the idea of "surrounding" an entity, not just to keep what's inside together, but also to protect it.

> Example of Encapsulation

- Access Specifiers



• They are used to set access levels to particular member of the class. The three levels of access specifier are public, protected & private.

• A public member is accessible from outside the class, for anything within the scope of the class object.

• Private:
A private member cannot be accessed or even viewed from outside the class, it can be accessed only from within the class.

> Constructor:
• Class constructors are special member functions of a class. They are executed whenever new objects are created within that class.
The constructor's name is identical to that of a class. It has no return type, not even void.

• Constructors can be very useful for setting initial values for certain member variables.

• A default constructor has no parameters. However when needed, parameters can be added to a constructor.

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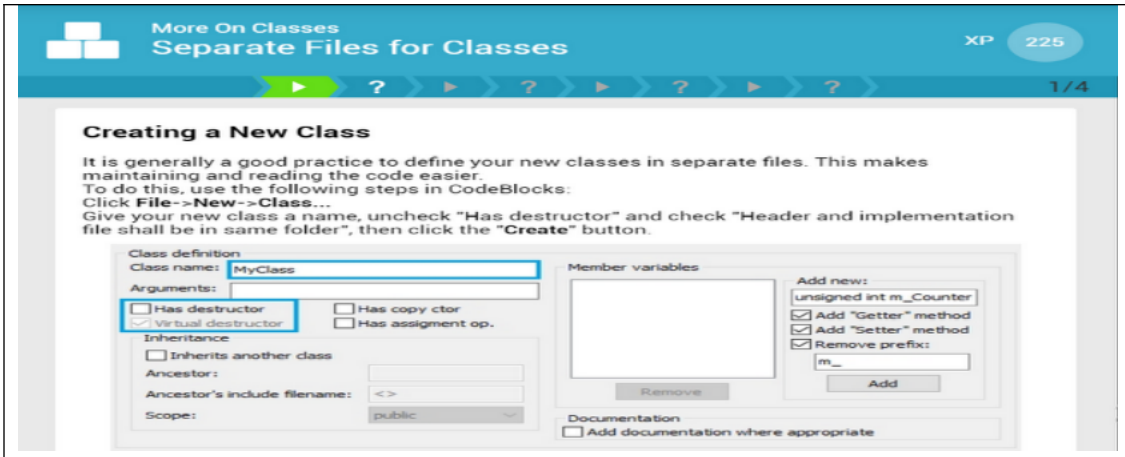
AFTERNOON SESSION DETAILS
Image of session


More On Classes
Separate Files for Classes
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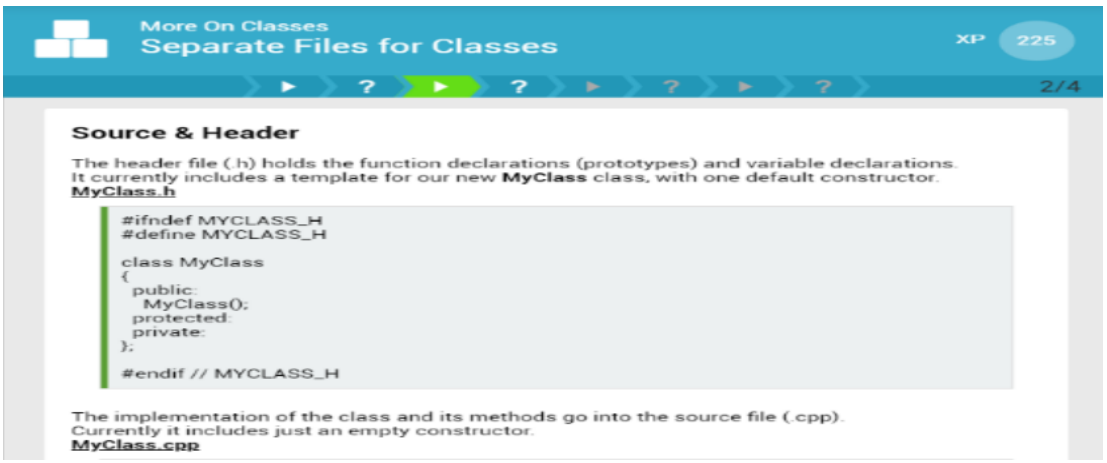
Creating a New Class
It is generally a good practice to define your new classes in separate files. This makes maintaining and reading the code easier.
To do this, use the following steps in CodeBlocks:
Click File->New->Class...
Give your new class a name, uncheck "Has destructor" and check "Header and implementation file shall be in same folder", then click the "Create" button.
Class definition
Class name: MyClass
Arguments:
Has destructor
Virtual destructor
Has copy ctor
Has assigment op.
Inheritance
Inherits another class
Ancestor:
Ancestor's include filename: <>
Scope: public
Member variables
Add new:
unsigned int m_Counter
Add "Getter" method
Add "Setter" method
Remove prefix:
m_
Add
Remove
Documentation
Add documentation where appropriate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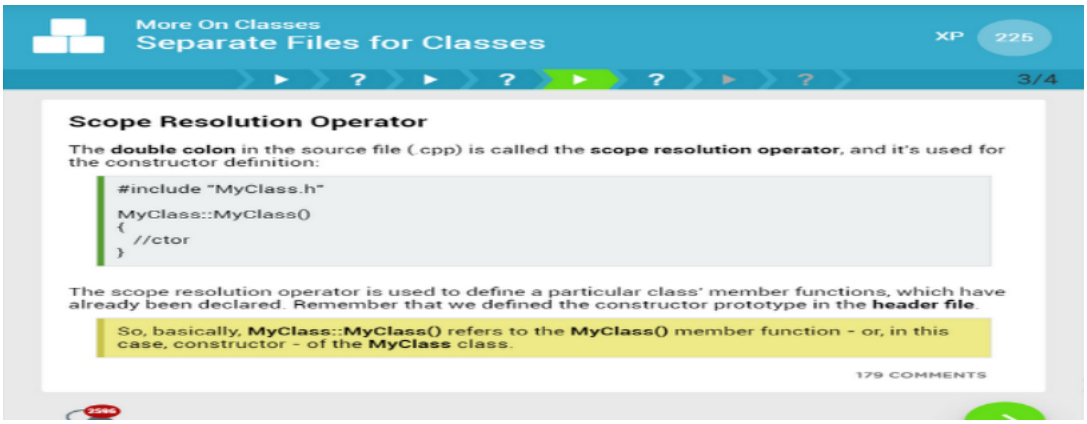
Source & Header
The header file (.h) holds the function declarations (prototypes) and variable declarations.
It currently includes a template for our new MyClass class, with one default constructor.
MyClass.h
#ifndef MYCLASS_H
#define MYCLASS_H
class MyClass
{
public:
MyClass();
protected:
private:
};
#endif // MYCLASS_H
The implementation of the class and its methods go into the source file (.cpp).
Currently it includes just an empty constructor.
MyClass.cpp


More On Classes
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Scope Resolution Operator
The double colon in the source file (.cpp) is called the scope resolution operator, and it's used for the constructor definition:
#include "MyClass.h"
MyClass::MyClass()
{
//ctor
}
The scope resolution operator is used to define a particular class' member functions, which have already been declared. Remember that we defined the constructor prototype in the header file.
So, basically, MyClass::MyClass() refers to the MyClass() member function - or, in this case, constructor - of the MyClass class.
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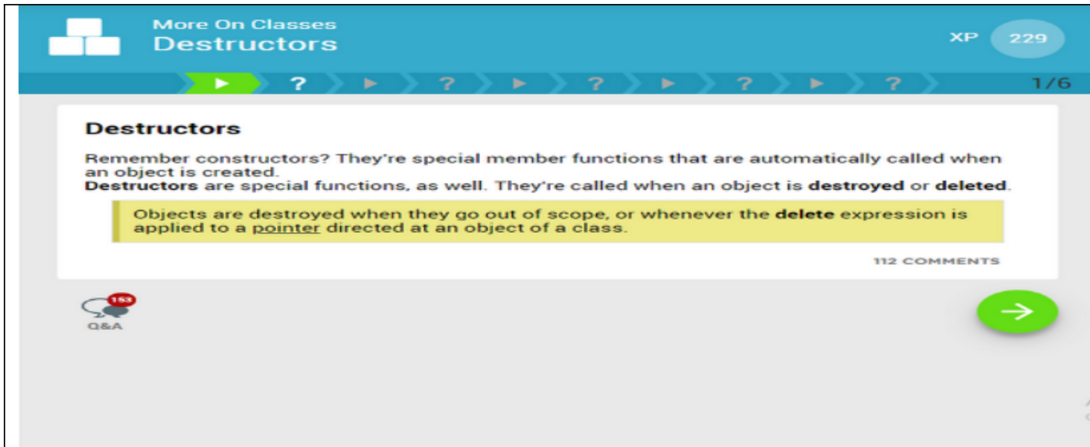

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C++ programming

24/03/2020 - Wednesday.

→ More on Classes

→ Separate files Class

> Creating a New class.

* It is generally a good practice to define your new classes in separate files. This makes maintaining & reading the code easier.

* Source & header

The header file (.h) holds the function declarations (prototypes) & variable declarations. It currently includes a template for our new MyClass, with one default constructor.

* Scope Resolution Operator.

The double colon in the source file (.cpp) is called the scope resolution operator, & it's used for constructor definition.

* Source & Header.

To use our classes in our main, we need to include the header file.

> Destructors:

* Destructors are special functions, as well. They're called when an object is destroyed or deleted.

* The name of the destructor will be exactly the same as the class, only prefixed with a tilde (~).

* Since destructors can't take parameters, they also can't be overloaded.

> Selection Operator:

* #ifndef & #define.

* Member Functions

* Dot Operator

* Pointers: We can also use a pointer to access the object's members.

* Selection Operator

The arrow member selection operator (->) is used to access an object's members with a pointer.

> Const Objects

Constants

* A constant is an expression with a fixed value. It cannot be changed while the program is running.

* As with the built-in data types, we can make class objects constant by using the const keyword.

* Only non-const objects can call non-const functions.

A constant object can't call regular functions. Hence, for a constant object to work you need a constant object

> Member Initializer

- C++ provides a handy syntax for initializing members of the class called the member initializer list (also called constructor initializer)

- The member initialization list may be used for regular variables, & must be used for constant variables

> Composition part:

> Composition Part:

> The friend Keyword.

- The function someFunc() is defined as a regular function outside the class. It takes an object of type myClass as its parameter, & is able to access the private data members of the object.

> The This Keyword

Every object in C++ has access to its own address through an important pointer called the this pointer.

> Operator Overloading:

Most of the C++ built in operators can be redefined or overloaded