30-11-2023 07.30

Friend Function:

Friend is a special type of function which is used to access the private member of class.

To use friend function, you have to just write friend keyword in front of method name.

When you declare any function as a friend function you can access the private members of the class.

Member of the class.

Protected is an access specifier which call inside the class and its derived class (child class)

* If you want to call the protected members of class you have to make the derived class (child class) and then you can call the protected members of the class.
* To make any member protected you have to write the protected keyword.

Swap : (exe.no.12)

X = X+Y

Y = X-Y

X=X-Y

* To make any member protected you have to write the protected keyword

Destructor:

* Destructor is used to destroy the objects that is created in program.
* It is same as constructor you have to just write “ ” in front of destructor name
* It should always be in public mode.
* Destructor will call automatically when you will create the object.
* When you write the program, object is not destroyed from memory location. So, if you want to destroy the objects from memory location you have to use the destructor.
* Only one destructor is needed to destroy all the objects that is created in your program.

29-11-2023 07.30

Polymorphism derives from Greek work in which poly means many and morphism means forms. So, polymorphism means many forms.

🡪 polymorphism id defined as a class that has many forms

There are two types of Polymorphism:

1. Method Overloading (run-time polymorphism):

If method having same name but different parameters is known as method overloading

1. Method Overloading (Compile-time Polymorphism)

When Base class and Derived Class is having same method, name is called Method Overriding.

Inline Function:

* Inline Function helps you to increase the execution speed of your program.
* It increases execution speed by replacing function declaration to function calling.
* You have to just write the inline keyword in front of your function.

28-11-2023 07.30

Array within class

Abstraction:

Abstraction is process to hide the background implementation of your program and only shows the necessary information to the user.

* Abstraction will show only necessary and useful information to the user and hide background implementation to the user.

There are two types of abstraction:

1.Abstraction through header files

2.Abstracton through class

24-11-2023 07.30

**Encapsulation:**

Encapsulation: is the process of wrapping the data in a single entity.

It has **two methods**:

**Setter:** setter is used to set the data

**Getter:** getter is used to get the data

Inheritance:

When one class can access all the properties of another class is called Inheritance.

Parent Class: Base Class: Super Class

Child Class Derived Class Sub Class

Child class can access all the properties of parent class.

There are 5 types of inheritance:

1. Single-level Inheritance

Class A

|

Class B

1. Multi-level Inheritance

Class A

|

Class B

|

Class C

C++ programming

C++ is an object-oriented programming language OPP

OPP: object-oriented programming

C++ language is totally based upon objects

C is POP and C++ is OPP language

Main purpose of OPP is to provide security to the user

History of C++

C++ was created by Bjarne Stroustrup in 1978 and launched in 1979

C++ was created in AT&T Bell Laboratories, California.

Syntax of C++ :

# predefined

Include – To add something

iostream – input output stream

* istream - Input stream
* ostream -Output stream

using namespace std: - it is standard library for using standard name in C++

main (): - function

{

Code…

}

Cout<< - output

Dynamic or user input value:

Cin>> - input

Task : 20-11-2023

Using C++

1. Write a program to find the area of circle
2. Write a program to find perimeter of circle
3. Write a program to find the area of triangle
4. Write a program to find the area of rectangle
5. Write a program to find the simple interest

21-11-2023, 07:30

C++

C+1

OOPS

Class

Objects

Inheritance

Encapsulation

Constructor

Polymorphism

Abstraction

Inline Function

Friend Function

File Handling

Templates

Task :

Menu :

press 1 for find sum of all-natural numbers

press 2 for find the factorial number

press 3 for find the Fibonacci numbers

press 4 for find the sum of even and odd numbers

22-11—2023 07:30 to 08:30

OOPS (Object Oriented Programming System or structure)

To provide the security to the applications

It is based upon objects

What is class?

* Class is a user defined (non-primitive datatype and it is a collection of data member and member function.

Data member: - Variables

Member Function: - Methods

Function ----- Class -----Method

What is the difference between method and function?

Function: - Function will declare outside the class.

Method: Method will declare inside or within the class

Objects: Object is a real-world entity

Human Class

Object: male, female

Object is an instance or variable of class.

Access Modifiers: -

Public modifier: we can access all the properties outside and inside the class

Private: it can be accessed within or inside the class.

Protected: it can be accessed within the class and derived class

Syntax:

Class classname

{

Access modifiers(public):

Data member; // variables

Member functions // methods

};

Main()

{

Object creation

classname objname

}

Task :

Create two class company and employee and add following details:-

Company:

Company id

Company name

Company turnover

Company location

Employee: -

Employee id

Employee name

Employee department

Employee salary

23-11—2023 07:30 to 08:30

Constructor: - Constructor is a special method that will automatically call when we create the object.

* It will call automatically when you create the object.
* Constructor name and class name will always be same.
* Make sure you declare constructor in public mode.it cannot be declared in private mode.

There are two types of constructor:

1. Default Constructor: which does not have parameters
2. Parameterized Constructor: which contains the parameters

Task:

Write a program to find the area of rectangle using class

Write a program to find the factorial of number using class