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.

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