* Object Oriented Programming (OOP) - Practical Number - 2 (Group-A)

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Title:-

Demonstrate basic concepts of object oriented programming for a class to store details of students.

Objectives:-

1) To understand use of different types of constructor and destructor.
2) To understand use of static members and inline keyword.
3) To understand this pointer, dynamic memory allocation operators like new and delete.

Problem Statement:-

Develop a program in C++ to create a database of student's information system containing the following information: Name, Roll Number, Class, Division, Date of Birth, Blood group, Contact address, Telephone number, Driving License number and other. Construct the database with suitable member functions. Make use of destructor, static member function, friend class, this pointer, inline code and dynamic memory allocation operators-new and delete as well as exception handling.

Outcomes :-

1) Students will be able to demonstrate different types of constructor and destructor.
2) Student will be able to demonstrate use of static member and inline keyword.
3) Student will be able to demonstrate this pointer, dynamic memory allocation operators like new and delete.

Hardware Requirement :-

Any CPU with Pentium Processor or similar, 256 MB RAM or more, 1GB Hard Disk or more.

Software Requirement :-

64 bit Linux / Windows Operating System, G++ compiler.

Theory :-

Constructor -

Constructor is a special member function whose task is to initialize the objects of its class.

Characteristics of a constructor -

1) They should be declared in the public section.
2) Constructor name and class name must be same.
3) They cannot be inherited.
4) They cannot be virtual.

Types of constructor - 1) Default constructor
2) Parameterised constructor
3) Copy constructor.

Destructors:-

Destructor is a special class function which destroys the object as soon as the scope of objects ends. The destructor is called automatically by the compiler when the object goes out of scope.

Allocation of memory:-

There are two ways that memory get allocated for data storage:-

1) Compile Time (or static) Allocation:-

Memory for named variables is allocated by the compiler. Exact size and type of storage must be known at compile time. For standard array declarations, this is why the size has to be constant.

2) Dynamic Memory Allocation:-

Memory allocated "on the fly" during run time dynamically allocated space usually placed in a program segment known as the heap or the free store.

Algorithm:-

1) Create a class named student with data members as required.
2) Create the object of classes with default constructors, copy constructo
3) Define two member function viz set data, display data.
4) Define static member function Increment count, show_total_count.
5) Use this pointer to call display.
6) Initialize all student records, and display them.

Test Case:-

How many student you have?

1

Name :- Kaustubh
Roll Number :- 20
Class :- SE
Div :- A
Address :- Pune
Phone :- 9168100204
Date of Birth :- 29052001
Blood Group :-

Thanks you for deleting details.

Conclusion :- Constructors and destructors saves memory so can be used to create database efficiently.