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OBJECT ORIENTED PROGRAMMING

It is a different method of thinking about programming. We think about functions amd execution flow through these functions. We think separately about the data and how the function intract with that data. Object oriented programming however forces us to think in terms of objects and the intraction between objects. An object is a self contained entity that describes not only certain data but also the procedures to manipulate the data.

Object oriented programming is a reaction to programming problems that were first seen in large program begning developed in the 1970's. It offers a powerful tool or method for writing computer software. Object oriented programming allows for the analysis and design of am application in terms of objects. So ,that the process replicates the human thought as closely as possible. This means that the application has to implement the entities as they are seen in the real life and associate actions with there attributes for each entity. In object oriented programming code and data are merged into a single individual thing that is known as object.

BASIC ELEMENTS OF OBJECT ORIENTED PROGRAMMING

OBJECT AND CLASS :-

object are the basic run time entities in an object oriented system. They may represent a person,a place,a bank account etc or any item that the program may also represent user defined data types. Any programming problem jis analysed in tems of objects and the nature of communication between them. Program object should be choosen such that they match closely with the real world objects. An object takes space in the memory and have an associated address like a record in Pascal or structure in C. when a program is executed the object intract by sending messages to one another.

We just mention that object contained data and code to manipulate the data. The entire set of data and code of that object can be made a user defined datatype using the concept of class or we can say class is a user defined datatype that is used to implement an object oriented programming with C++. A class includes members- A member can be either data known as data member of a function known as member function. Data member can be of any type including C++defined type such as integer,float,chatacter etc. and the user defined datatype including other classes. Member functions manipulates the data members.

" so,class is the encapsulated form of data member and member functions."

Object is the instances of class.

DATA ABSTRACTION AND ENCAPSULATION:-

The wrapping up data and methods in to a single unit is known as encapsulation. Data encapsulation is the most striking feature of a class. The data is not accessible to the outside world and only those method which are wrapped in the class can access it. These methods provides user interface between the object's data and the program. This insulation of the data from direct access by the program is called data hiding or information hinding.

Abstraction refers to the act of representing essential features without including the background details or explanation. Classes use the concept of abstraction and are defined as a list of abstract attributes and methods to operate on these attributes. They encapsulate all the essential properties of the objects that are to be created.

INHERITANCE :-

It is the process by which objects of one class acquire the properties of another class. It support the concept of herarchial classification. The ideas of class leads to the idea of inheritance. In daily life we use the concept of class being divided into sub classes for example: a class of vechile is divided into car,truck,bus etc. like a class of furniture being divided into table,chair,bench etc.

So,inheritance is the property that allows the reuse of an existing class to bulid a new class. This new class inherites all the behavior of the original class. The original is called parent class or super class of the new class. The class that inherites the properties and methods of another class or child class.

POLYMORPHISM:-

It is another important object oriented programming concept. Polymorphism means the ability to take more than one form of a tool. For example: an operation may exhibit different behavior in different instances. The behavior depends upon the types of data used in the operation. For example: consider the operation of addition of two integer as well as two string.

OPERATOR OVERLOADING:-

The process of making an operator to exhibit different behaviours in defferent instances is known as operator overloading. It means we can use a single operator for different work with different values.

FUNCTION OVERLOADING:-

Using a single function name to perform different type of task is known as function overloading.

BINDING:-

Binding means the connection of one program to another program that is to be executed in reply to the call. There are two types of binding

*static binding:- It is also known as compile time binding or early binding. In this type of binding a function is bound with object at compile time. It means it is predecided.

*Dynamic binding:- It is also known as late binding or run time binding. It means the bound of function with object is decided at run time not at compile time. Due to this we implement an important feature of object oriented programming i.e virtual function.

GENERICITY :-

The software component of program have more than one version depending on the datatype of argument. This feature allow declaration of variable without spectfying exact datatype. The compiler identify the datatype at run time. The programmer can create a function that can be used for any type of data. The “templet” feature of object oriented programming allows generic programming.