RELATE OOPs CONCEPTS WITH REAL TIME EXAMPLES

OOPs is very useful in nearly every programming language like in Java , C++

In today's technology-driven environment, computer programming skills are in high demand. When it comes to designing and managing software programs, understanding object-oriented programming (OOP) can be extremely useful. In this tutorial, we'll go through the fundamentals of OOP and illustrate them with simple examples. OOPs and its concepts with real-time examples can help you to discover and learn all the aspects of object-oriented programming easily.

OOPs CONCEPTS WITH REAL TIME EXAMPLES

CLASS

One of the fundamental notions in OOPs concepts with real time examples is the class, which is a collection of comparable entities. It is a mental component rather than a physical thing. Let's take an example of one of the OOPs concepts with real time examples If you had a class called "Expensive Cars," it could contain objects like Mercedes, BMW, Toyota, and so on. The price or speed of these autos could be one of its attributes (data).

OBJECT

An object is a real-life entity that is defined as an instance of a class. The objects of a class called Animals, for example, will be a cat, dog, elephant, and so on. Each object has its own identity, attribute, and behavior. The code below shows how to utilize class, object, and method in the Java programming language.

Objects, like records in Pascal or structures or unions in C, take up memory and have an associated address. When a programme is run, the objects communicate with one another by sending messages.

COMPOSITION

Composition is a type of Aggregation that is more specific. It's sometimes referred to as a "death" connection. Because child objects lack a lifecycle, when the parent object is deleted, all child objects are automatically deleted as well. Let's use the example of a house and its rooms as an example. A house can have a number of rooms. It's impossible for a single room to be a part of two different homes. As a result, deleting the homeroom will also delete the house room.

AGGREGATION

Every item in this methodology has its own lifecycle. There is, however, ownership, and a child object cannot be owned by another parent object. Consider the department of class/objects and the teacher. A single teacher cannot belong to more than one department, but the teacher object will never be deleted, even if the department is deleted.

ASSOCIATION

A relationship between two objects is known as association. It is one of the OOPs concepts with real time examples(in Java) that specifies the diversity of objects. There is no owner in this

OOP approach, and each object has its own lifecycle. Many students, for example,
can be associated with a single instructor, whereas one student can be associated with multiple teachers.

MAJOR PILLARS OF OOPs CONCEPTS WITH REAL TIME EXAMPLES

Encapsulation, abstraction, inheritance, and polymorphism are the four essential concepts
of object-oriented programming. Even if these notions appear to be quite complicated,
understanding the broad structure in which they operate can aid you in comprehending the
fundamentals of an OOP computer programme. We′ll go through these four fundamental principles
of OOPs concepts with real time examples and what they encompass in more detail below:

ENCAPSULATION

The word "encapsulate" refers to the act of enclosing something. Encapsulation works in OOP in a similar fashion to
how a pill "encapsulates" or contains the medication under its coating: by building a protective barrier
around the information contained within a class from the rest of the cod.

ABSTRACTION

When you can isolate the interface of a class from its implementation and focus on the interface,
it′s often easier to reason and create a program. This is similar to seeing a system as a "black box,"
where understanding the nitty-gritty inner workings isn′t required to reap the benefits of using it.

INHERITANCE

The OOPs concepts with real time examples of "inheritance" are almost always supported by
object-orientedlanguages that offer classes. Classes can be grouped into hierarchies,
with each parent or child class having one or more children. If a class has a parent class,
it is said to be derived or inherited from it, and it represents an "IS-A" relationship.

REAL TIME EXAMPLES

An insect could be represented by an Insect superclass in the animal world. Insects all have
the same characteristics, such as six legs and an exoskeleton. For grasshoppers and ants,
subclasses could be created. They inherently share all bug features because they
inherit or are derived from the Insect class.

POLYMORPHIS

In our topic of OOPs concepts with real time examples, Polymorphism is an
OOP feature that allows classes in a hierarchy to be treated the same way.
As a result, calling code only needs to handle objects from the hierarchy′s root,
and each object instantiated by any child class is treated the same way.

Because derived objects and their parents have the same interface, the caller code
can utilize any function in that class′ interface. Depending on the type of object supplied,
the appropriate function will be invoked at run-time, resulting in potentially various behavior.

CONCLUSION

To summarize it all, we′ ve covered the fundamentals of OOPs in this blog of OOPs concepts with real time examples. These ideas are widely applied in industry and other settings. These ideas must be understood thoroughly in order to become a competent programmer. After reading the blog we all know that OOPs concepts with real time examples are so crucial to learn. With the Object Oriented Programming you must know about the Database Management System, to know about the 7 types of DBMS .