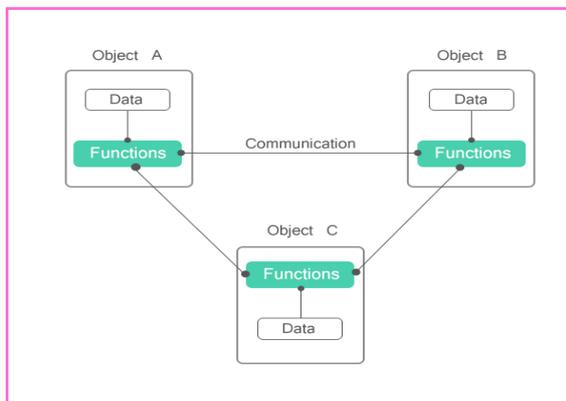
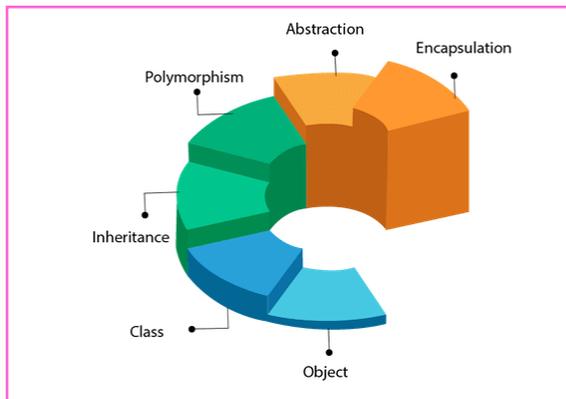


BASIC CONCEPTS OF OOP

- The object-oriented programming is a different approach to programming. It has been created with a view to increase programmer's productivity by overcoming the weaknesses found in procedural programming approach.
- PARADIGM OF OOPS:**

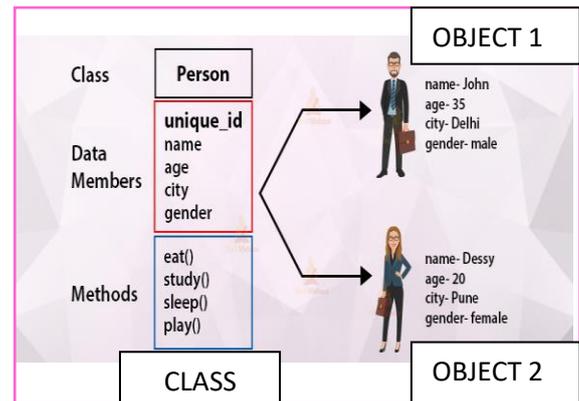


- FEATURES OF OOPS:**



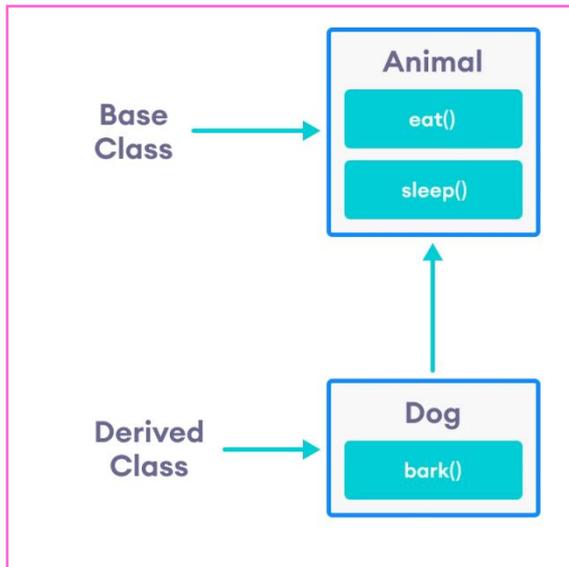
- OBJECTS:** Object is a class variable or an instance of class. It can represent a person, a bank account or any item that a program can handle. When a program is executed, the objects interact by sending messages to one another.
- CLASS:** Class is a user defined data type. It is a blueprint of data and member functions. Once a class has been defined,

we can create any number of objects associated with that class.

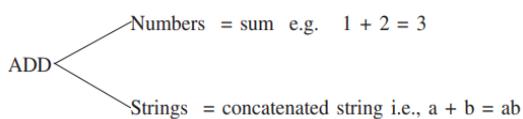


- DATA ABSTRACTION:** Abstraction refers to the act of representing essential features without including the background details.
- DATA ENCAPSULATION:** Wrapping up of data and functions into a single unit is called as data encapsulation. Encapsulation is the most basic concept of OOP.
- MODULARITY:** The act of partitioning a program into individual components is called modularity. It gives the following benefits.
 - It reduces its complexity to some extent.
 - It creates a number of well-defined, documented boundaries within the program.
- INHERITANCE:** It is a process by which object of one class inherit the properties of objects of another class. It is the capability to define a new class in terms of an existing class. An existing class is known as a base class and the new class is known as derived

class. The main benefit from inheritance is that we can build a generic base class, and obtain a new class by adding some new features to an existing class and so on. Every new class defined in that way consists of features of both the classes.



- **POLYMORPHISM:** Polymorphism is a key to the power of OOP. It is the concept that supports the capability of data to be processed in more than one form. For example, an operation may exhibit different behaviour in different instances. The behaviour depends upon the types of data used in the operation.
- For example let us consider the operation of addition. For two numbers, the operation will generate a sum. If the operands are strings then the operation would produce a third string by concatenation.



- **BENEFITS OF OOPs:** OOP provides lot of benefits to both the program designer and the user. Object

oriented approach helps in solving many problems related to software development and quality of software product. The major benefits are:

- Software complexity can be easily managed.
- Object-oriented systems can be easily upgraded.
- It is quite easy to partition the work in a project based on objects.
- Objects created for object oriented program can easily be reused in other programs.

CHECK YOURSELF

1. Which of the following is not an OOPS concept?
 - A. Encapsulation
 - B. Polymorphism
 - C. Exception
 - D. Abstraction
2. Which feature of OOPS described the reusability of code?
 - A. Abstraction
 - B. Encapsulation
 - C. Polymorphism
 - D. Inheritance
3. Which feature of OOPS derives the class from another class?
 - A. Inheritance
 - B. Data hiding
 - C. Encapsulation
 - D. Polymorphism
4. Which of the following definition is incorrect for polymorphism?
 - A. Polymorphism helps in redefining the same functionality
 - B. Polymorphism concept is the feature of object-oriented programming (OOP)
 - C. It always increases the overhead of function definition

D. Ease in the readability of the program

5. Which of the following OOP concept is not true for the C++ programming language?
- A. A class must have member functions
 - B. C++ Program can be easily written without the use of classes
 - C. At least one instance should be declared within the C++ program
 - D. C++ Program must contain at least one class

STRETCH YOURSELF

1. What are the different features of OOPs?
2. Differentiate between a class and an object?
3. What are the benefits of modularity?
4. Write a program to implement inheritance?
5. What are the major benefits of OOPs?

ANSWERS

Answers to Check Yourself:

1. C
2. D
3. A
4. C
5. D