Object Oriented Programming

Basic concepts of OOP

1. **Objects:** The representation of real time entities in the form of explainable to a computer. Ex: Rahul (a student).
2. **Classes**: Structure of objects is called classes. It is a collection of common datatypes and functions of similar objects. Ex: Student can be considered a class, of which many instances of objects can be created.
3. **Data abstraction and Encapsulation:** Wrapping of data and function together is called encapsulation. Hiding of data members is called data abstraction.
4. **Inheritance:** The use of functions and data members in a class in an extended manner to other classes without use giving threat to data safety.
5. **Polymorphism:** Allows different internal structure support different external interface. for example, a function with same name having different uses.
6. **Dynamic binding:** Also known as late binding, is the process of knowing which function to be invoked while runtime only.
7. **Message communication:** The passing of message through interfaces between different processes.

Benefits

1. Reusability: Provides chance to reuse code through inheritance.
2. Objects save development time and higher productivity.
3. Secure programs are made as the data is kept isolated instead of free flowing. This ensures safety in larger projects.
4. Multiple instances can be created.
5. Easy to partition of problems into objects.
6. Easily expendable by the concept of inheritance.
7. Message passing helps in easy communication facility between functions, classes etc./