MODULE-4

(Advance python programming):

1] What is File function in python? What are keywords to create and write file?

Opening a File: The open function is used to open a file. It requires at least one argument: the name of the file. You can also specify the mode in which the file should be opened.

Keywords:

'w': Write mode. If the file already exists, it will be truncated (emptied). If the file does not exist, it will be created.
'a': Append mode. If the file already exists, data will be written at the end of the file. If the file does not exist, it will be created.
'x': Exclusive creation mode. This will create a new file, and if the file already exists, the operation will fail.

2] Explain Exception handling? What is an Error in Python?

Exception handling in Python is a mechanism that allows you to gracefully manage errors that occur during program execution. When an error occurs in a Python program, it raises an exception, which can be caught and handled by the program.

Key Concepts of Exception Handling:

1. **Try Block:** The try block contains the code that might raise an exception. It is followed by one or more except blocks.
2. **Except Block:** An except block catches and handles specific exceptions. You can have multiple except blocks to handle different types of exceptions.
3. **Finally Block:** The finally block contains code that runs regardless of whether an exception occurred or not. It is typically used for cleanup tasks, such as closing files or releasing resources.

4. **Raise Statement:** The raise statement is used to explicitly raise an exception. You can raise built-in exceptions or create custom exceptions by deriving from the base Exception class.

3] When will the else part of try-except-else be executed?

n Python's try-except-else construct, the else block is executed if no exceptions occur in the try block. This means that if the code inside the try block runs successfully without raising any exceptions, the else block will be executed immediately after the try block completes, before the finally block (if present) runs.

4] Can one block of except statements handle multiple exception?

Yes, a single except block can handle multiple exceptions in Python. You can specify multiple exception types within the same except block, separated by commas. This allows you to catch and handle different types of exceptions in a concise and efficient manner.

5] When is the finally block executed?

The finally block is useful for cleanup operations such as closing files, releasing resources, or performing any necessary cleanup tasks. It ensures that these cleanup tasks are performed even if an exception occurs during the execution of the try block.

The finally block in a Python try-except-finally construct is executed regardless of whether an exception is raised or not. It is guaranteed to run even if an exception occurs and is caught by an except block or if no exception occurs at all.

6] What happens when „1"== 1 is executed?

This is because "1" is a string containing the character '1', while 1 is an integer. In Python, when comparing values of different types using the == operator, they are considered unequal regardless of their actual values.

7] What are oops concepts? Is multiple inheritance supported in java?

bject-Oriented Programming (OOP) is a programming paradigm based on the concept of "objects", which can contain data (attributes) and code (methods). OOP emphasizes the following key concepts:

1. **Encapsulation:** Encapsulation is the bundling of data and methods that operate on that data into a single unit called a class. It hides the internal state of an object from the outside world and only exposes the necessary interfaces for interaction.
2. **Inheritance:** Inheritance allows a class (subclass or derived class) to inherit properties and behavior from another class (superclass or base class). It promotes code reusability and establishes a "is-a" relationship between classes.
3. **Polymorphism:** Polymorphism allows objects of different classes to be treated as objects of a common superclass. It enables the same method or operator to behave differently depending on the object it is operating on. Polymorphism is achieved through method overriding and method overloading.
4. **Abstraction:** Abstraction involves hiding the complex implementation details and showing only the essential features of an object. It allows programmers to focus on what an object does rather than how it does it.
5. **Composition:** Composition is the process of creating complex objects by combining simpler objects. It enables the creation of complex systems from smaller, reusable components.

8] Explain Inheritance in Python with an example? What is init? Or What Is A Constructor In Python?

Inheritance in Python is a mechanism by which a class can inherit attributes and methods from another class. The class that inherits from another class is called a subclass or derived class, and the class being inherited from is called a superclass or base class. Inheritance allows code reuse and facilitates the creation of a hierarchical structure of classes.

The __init__ method is a special method in Python classes that is automatically called when a new instance of the class is created. It is used to initialize the object's state by setting initial values for its attributes.

9] What is Instantiation in terms of OOP terminology?

In object-oriented programming (OOP) terminology, instantiation refers to the process of creating an instance (or object) of a class.

When you define a class in OOP, you are defining a blueprint or a template for creating objects. Each object created from this class is known as an instance of that class. The process of creating these instances is called instantiation.

10] What is used to check whether an object o is an instance of class A?

object is the object you want to check. class is the class you want to check against.

- We define a class named A.
- We create an instance of A called obj.
- We use the isinstance() function to check if obj is an instance of class A.
- If obj is an instance of class A, the message "obj is an instance of class A" is printed; otherwise, the message "obj is not an instance of class A" is printed.

The isinstance() function returns True if the object is an instance of the specified class or any of its subclasses, and False otherwise.

11] What relationship is appropriate for Course and Faculty?

One-to-Many Relationship: Faculty Teaches Multiple Courses

In this scenario, a single faculty member can teach multiple courses, but each course is typically taught by only one faculty member.

12] What relationship is appropriate for Student and Person?

In many cases, a "is-a" relationship is appropriate between Student and Person. This relationship indicates that a student is a type of person. This relationship is commonly implemented through inheritance, where Student inherits from Person.Inheritance Relationship: Student Is a Person