**PYTHON**

Q) What is OOPS?

Object oriented programming system is mechanism. To write programs using class and object.

Q) What is OOPL?

Any programming language which supports the principles of OOPS is called object oriented programming language.

Q). what is data?

Data is collection of raw facts which doesn’t have any meaning in real world.

Q) What is abstraction?

* Abstraction is providing necessary data and hiding unnecessary data.
* Main purpose of abstraction is memory management.

Q) What is encapsulation?

* Encapsulation is wrapping (or) binding the related to state and behavior into a single unit.

State--------->variables

Behavior-----> method

Q) What is inheritance?

* Getting the properties from one class to another class.it is a one process.
* The class which is providing properties is called super class (or) base class.
* The class which is getting properties is called sub class (or) derived class.

Q) What is polymorphism?

* Poly-morphism is process of defining multiple methods with same name with different logic.

Q) What is class?

* Class is collection of related variables and methods.

Syntax:

Class class name:

Variables; Methods

Q) What is variable?

* Variable is named memory location.

Python is providing five types of variables

1. global variable
2. static variable
3. instance variable
4. parameters
5. local variable

Q) What is static variable?

* Static variable is which are declared inside the class and outside the method.
* Static variable will hold common values for every object.
* To call static variables use class name.
* Static variable get memory for 1 time.
* Static variable will get memory at class loading time.

(Class will load one time only)

Q) What is instance variable?

* Instance variable is which are declared inside the method using “**SELF**” word(self is a reserved word, all keywords are reserved words but not all reserved words not keywords)
* Instance variable will hold the unique values for every object.
* To call instance variable use object/object reference variable.
* Instance variable will get memory every object.
* Instance variable will get memory at object creationtime.

(We can create multiple objects in a class)

Q) What is global variable?

* A variables which are created outside a function are called global variable.

Q) What is local variable?

* A variable which are created inside of function are called local variable.

Q) What is function?

* A function is similar to a program.it is a group of statements and it is used to perform a task.

**Working with shallow copy and deepcopy:**

* A simple example of copy using assignment operator.

**l1=[10,20,30,40]**

**l1=l2**

**l2[1]=60**

**Output:**

[10, 60, 30, 40]

[10, 60, 30, 40]

**print(l1)**

**print(l2)**

how it works inside of the program:

List class object

l1

l2

Q) **What shallow copy?**

A shallow copy creates an object which stores the reference of original elements.

Shallow copy does not work on nested list.

Q) What is deepcopy?

Deepcopy creates a new object and recursively adds the copies of nested objects presents in the original elements.

Q) What is method?

* Method is collection of statements which performs on operation.
* Method are nothing but function which are written inside of a class.

Q) What is static method?

* Static methods are used to perform operation on static variables.
* To declare a static method we use **“@staticmethod”.**
* To call static method (inside the class or outside the class) we use **class name**.
* **Static variables and methods** are available to “**class method**” and “**instancemehod”**

Q) What is class method?

* To declare a class method we use “@classmethod” decorator.
* The class object method will take “cls” as a default parameter.
* “cls” is reserved word which represents current object.
* To call static method (with in the class or outside of the class) we use class name.
* Class method can access static variables and methods, but not instance variables and methods.
* To display classname we use print(cls.\_\_name\_\_

**Accessory method:**

Accessary methods are used to read or get the values of variables. It also called as getter methods.

**Mutator method:**

Mutator method are used to set the values of a variables. It also called setter method.

**Constructer:**

Constructer is a special type of method which is used to initialize the instance variables of a class.

* The default constructer is “\_\_init\_\_()”.
* Constructer is called at the time object creation.
* Constructer is defined in ways with and without parameters.
* Constructer is called for only one time for every object creation.
* In case we define two constructers in class it must be override the constructer.

**Parameterized constructer:**

The parameterized constructer will take values from outsid**e.**

**What is overloading?**

Over loading is a process of written multiple methods and multiple constructers with same name and different parameters, within single class or inherited class.

**Note: In python method overloading or constructer overloading is done implicitly (automatically).**

**Method overloading:**

In python the method overloading is done by defining one method with default parameters.

**Can we define multiple methods with same name with number of parameters in a single class?**

***Yes, we candefine. It follows LIFO (LAST IN FIRST OUT, PYTHON FOLLOWS STACKS DIAGRAM)***

**Can we define multiple methods with same name with different parameters in single class?**

**Yes.**

**Can we define multiple constructers with same parameters?**

**Yes.**

**Can we define multiple constructers with different parameters?**

**Yes.**

**Method over riding:**

Over riding is the process of rewriting super class method in sub class.

**Rules of method overriding:**

* Method name should be same.
* Classes must be inherited.
* Parameter must be same.

**What is the purpose of override?**

If superclass method logic/implementation is not fully satisfied by sub class,we have a choice to override.

**Super():** Super is used to called superclass method or constructer.

**Differences between methods and constructers?**

|  |  |
| --- | --- |
| **Method** | **Constructer** |
| 1. Instance method are used to perform operation on instance variables. | 1. Constructer is used to initialize the values of a class. |
| 1. Method name can be programmer defined(anyone). | 2) Costructer name must be “**\_\_init\_\_()”**. |
| 1. A method can return object. | 3)Constucter never return. |
| 1. Method which is defined at call any Number of times. | 4)Constructer is called one time for one object |

**Destructor:**

* Destructor is special kind of method which is used to delete the object of the class.
* Destructor is called at time of object creation.
* Destructor must be”\_\_del\_\_”.

**Note: to delete object we use ‘del’ keyword.**

**Pycharm note: in pycharm the object of class is deleted automatically.**

**IDLENOTE: in IDLE that programmer need to delete object using ‘del ’ keyword.**

**Referred object:**

Whenever we create the object of a class, that object stored in on reference variable. That reference variable is called referred object.

Using referred object we call the methods multiple times.

**Un referred object:**

Whenever we delete the reference object using destructor then that object is called un referred object.

Unreferred object can call only one time.

What type of object are eligible for garbage collector?

**Unreferred object.**

What is the duty of garbage collector?

The garbage collector will remove un referred objects from an application.

What is disadvantages of procedure oriented?

* In procedure oriented we don’t create any object.
* In procedure oriented everything it take as a function.
* In procedure oriented doesn’t have any proper security (easily everyone can access codes).

When we use abstract class in our coding?

Whenever we hiding the original code in the programming, then only we use abstract class.(hiding unnecessary data providing un necessary data).

What is file handling?

* In python file handling means Creating a file, writing into a file, reading from a file and deleting the file.
* To open a file we use open(). It require two arguments, first is file path or file name, second is which mode it should open modes are like
* “r”--🡪open read only, you can read the file but cannot be edit/deleting anything inside.
* “w”🡪open with “write()”power, means if the file exists then delete the all content and open into write(is nothing but a override).
* “a”🡪open a append mode.

Methods of read function:

* Read()-🡪returns specified number of characters from the file.
* Readlines()🡪read next line of the file.
* Readline()🡪reads all the lines as a list of a file.

**Exception:**

**What is error?**

* It the developer is not following syntactically rules then only we get error.
* Syntax errors are also called as parsing errors.

**When Syntax errors occurs?**

The developer given program is not understanding the python parser will get syntax errors.

**What is exception?**

Run time errors are called exception.

**When exception will occur?**

If the user is not providing proper input at runtime we will get exception.

**What happens if exception occurs?**

The program will terminate abnormally(it means the program will terminate at middle of the program.

**What is exception handling?**

It is process of handling runtime errors using “try and except”.

**What exception handling?**

To avoid the abnormal termination.

**Named exception and default exception:**

* The named exception block will handle only the exception which is named.
* The default exception block will handle the all exceptions.

**DATABASE**

What is database?

Data base is a systematic collection of data. Databases support storage and manipulate of data. Data base make data management easy.

Syntaxes of CRUD operations:

1. **Create table:**

Syntax:

[“create table table name (col-name data type,col-name datatype,……….”)]

Syntax:

[“create table if not exists table name (colomn name data type, col name datatype…………”)

1. **Reading the data:**

**Syntax:**

[“select \* from table name where column name=”……..” ”]

Suppose if we reading from the user

**Syntax:**

S1=int(input(“enter the number”))

[“select \* from tablename where column=?”,(S1,)]

**3.update the data:**

**Syntax:**

[“update from table name set column name=’------‘,column

name=’----‘,…..,where no=’----‘”]

**4.Delete the data:**

**Syntax:**

[“delete from table name where column name=’-----‘”]

SQL. Connect(“database filename”):

* This function is used to get the connection from the database.
* This function will search for the given database file. If file available get the connection else create new database file and get connection.
* Note: Every operand connection must and should close the connection using “close()”

Close():

Close method is from connection class. This method closes the operand database connection.

* Sqlite software is collection of databases.
* Database is collection of tables.
* Table is collection of records(“rows and columns”).

Primary key:

* Primary key is nothing but unique constraint .
* It does not allows null values
* It does not allows duplicate values

**MANGODB:**

* MongoDB is an opensource “document” based database.
* MongoDB provides high performance, high availability, automatic scaling.
* MongoDB is called as “No SQL” database.
* No SQL means not only **S**tructured **Q**uery **L**anguage.

What is “No SQL ”database?

“No SQL” data base does not use tables storing the data.”No SQL” is used to store big data.

Differences between ‘SQL’ and ‘No SQL’.

|  |  |
| --- | --- |
| SQL | No SQL |
| Database are catagarized as RDBMS.  (Relational Database Management System) | No SQL are categorized as non- relational or distributed database system. |
| SQL database have fixed or static or predefined schema | No SQL database have dynamic schema |
| SQL database display in the form of tables, so it is known as table based database. | No SQL database display data as collection of “key-value” pair. |
| SQL databases are vertically scalable | No SQL databases are horizontally scalable. |
| SQL use a powerful language “Structured Query Language” to defined and manipulate the data. | In No SQL database collection of documents are used to query the data. It is also unstructured query language it varies from database to database. |
| Example :Oracle, Sqlite, MYSQL…. | Example: MongoDB, Bigdata, Cassandra. |

Find():

The find method will return cursor object, to give all the documents put the cursor into loop.