Lesson Plan

Python's Object-Oriented Programming (OOPs)

Summary

What is Class:

⚽ In Python, everything is an object. To create objects we required some Model or Plan or Blueprint, which is nothing but class.

⚽ We can write a class to represent properties (attributes) and actions (behavior) of the object.

⚽ Properties can be represented by variables

⚽ Actions can be represented by Methods.

⚽ Hence class contains both variables and methods.

How to Define a class?

We can define a class by using the class keyword

Syntax:

class className:

    ''' documenttation string '''

    variables:instance variables,static and local variables

    methods: instance methods,static methods,class methods

The documentation string represents a description of the class. Within the class, docstring is always

optional. We can get docstring by using the following 2 ways.

1. print(classname.__doc__)

2. help(classname)

```
1) class Student:
2)     """ This is student class with required data'"
3) print(Student.__doc__)
4) help(Student)
```

Within the Python class, we can represent data by using variables.

There are 3 types of variables are allowed.

1. Instance Variables (Object Level Variables)

2. Static Variables (Class Level Variables)

3. Local variables (Method Level Variables)

Within the Python class, we can represent operations by using methods. The following are various

types of allowed methods

What is Object:

Physical existence of a class is nothing but an object. We can create any number of objects for a class.

Syntax to create object: referencevariable = classname()

Example: s = Student()

Self variable:

self is the default variable which is always pointing to current object (like this keyword in Java)

By using self we can access instance variables and instance methods of object.

Note:

1. self should be first parameter inside the constructor

```
def __init__(self):
```

2. self should be first parameter inside instance methods

```
def talk(self):
```

Constructor Concept:

- Constructor is a special method in python.
- The name of the constructor should be __init__(self)
- Constructor will be executed automatically at the time of object creation.
- The main purpose of constructor is to declare and initialize instance variables.
- Per object constructor will be exeucted only once.
- Constructor can take atleast one argument(atleast self)
- Constructor is optional and if we are not providing any constructor then python will provide default constructor.