

WEEK 3

25/07/2025

[GitHub](#)

1. Create a class BankAccount in Python with private attributes `__accountno`, `__name`, `__balance`.

Add

parameterized constructor

methods:

`deposit(amount)`

`withdraw(amount)`

`set_accountno`

`get_accountno`

`set_name`

`get_name`

`get_balance()`

`set_balance()`

```
Account 1: 12345, Alice, Balance: 1050
Account 2: 67890, Bob, Balance: 800
```

2. How will you define a static method in Python? Explore and give an example.

In Python, a static method is defined using the `@staticmethod` decorator. It's a method that doesn't take the instance (`self`) or class (`cls`) as its first argument. It's just a regular function that's namespaced inside a class.

```
class MathUtils:
    @staticmethod
    def add(a, b):
        return a + b

result = MathUtils.add(5, 3)
print(result)
```

3. Give examples for dunder methods in Python other than `__str__` and `__init__`.

```
class CustomList:
    def __init__(self, items):
        self.items = items
    def __len__(self):
        return len(self.items)
    def __getitem__(self, index):
        return self.items[index]
    def __setitem__(self, index, value):
        self.items[index] = value
    def __delitem__(self, index):
        del self.items[index]
```

4. Explore some supervised and unsupervised models in ML.

Supervised Models:

- Linear Regression
- Logistic Regression
- Decision Trees
- Support Vector Machines (SVM)
- k-Nearest Neighbors (k-NN)

Unsupervised Models:

- K-Means Clustering
- Hierarchical Clustering
- Principal Component Analysis (PCA)
- DBSCAN

5. Implement Stack with class in Python.

```
Is stack empty? True
Stack after pushes: [10, 20, 30]
Top item (peek): 30
Stack size: 3
Popped item: 30
Stack after pop: [10, 20]
Is stack empty? False
Stack after popping all items: []
Is stack empty? True
```