ASSIGNMENT-3

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1. Create a class Employee and then do the following

• Create a data member to count the number of Employees

• Create a constructor to initialize name, family, salary, department

• Create a function to average salary

• Create a Fulltime Employee class and it should inherit the properties of Employee class

• Create the instances of Fulltime Employee class and Employee class and call their member functions.

class Employee:

    total\_employees = 0

    def \_\_init\_\_(self, name, family, salary, department):

        self.name = name

        self.family = family

        self.salary = salary

        self.department = department==

        Employee.total\_employees += 1

    def average\_salary(self, employee\_list):

        total\_salary = 0

        for e in employee\_list:

            total\_salary += e.salary

        return total\_salary / len(employee\_list)

class FulltimeEmployee(Employee):

    def \_\_init\_\_(self, name, family, salary, department):

        super().\_\_init\_\_(name, family, salary, department)

# Creating instances of Employee and FulltimeEmployee classes

employee1 = Employee("John Doe", "Family A", 60000, "HR")

employee2 = Employee("Jane Smith", "Family B", 55000, "IT")

fulltime\_employee1 = FulltimeEmployee("Alice Johnson", "Family C", 70000, "Finance")-

# Calling member functions

employees = [employee1, employee2, fulltime\_employee1]

avg\_salary = employee1.average\_salary(employees)

print(f"Average salary: ${avg\_salary:.2f}")

print(f"Total employees: {Employee.total\_employees}")

Output:

Average salary: $61666.67

Total employees: 3

2. Numpy

Using NumPy create random vector of size 20 having only float in the range 1-20.

Then reshape the array to 4 by 5

Then replace the max in each row by 0 (axis=1)

(you can NOT implement it via for loop)

import numpy as np

random\_vector = np.random.uniform(1, 20, size=20)

print("original vector : ",random\_vector)

reshaped\_array = random\_vector.reshape(4, 5)

reshaped\_array[np.arange(reshaped\_array.shape[0]), np.argmax(reshaped\_array, axis=1)] = 0

print("Original reshaped array:")

print(reshaped\_array)

Output:

Original vector : [12.24770334 5.68016086 16.84576277 3.84752509 4.80283023 17.14074919 14.92945107 15.10218988 3.90311395 4.08942718 16.86064639 11.02634371 9.23371671 12.90602173 6.03089328 17.28168941 2.29418961 19.66984433 19.12159907 15.43529976]

Original reshaped array: [[12.24770334 5.68016086 0. 3.84752509 4.80283023] [ 0. 14.92945107 15.10218988 3.90311395 4.08942718] [ 0. 11.02634371 9.23371671 12.90602173 6.03089328] [17.28168941 2.29418961 0. 19.12159907 15.43529976]]

GITHUBLINK:https://github.com/Ri-shitha/RISHITHA-GOTTIMUKKALA-ASSIGNMENT3ICP.git