**In class Programming Assignment - 2**

**Problem 1:** 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.

**Solution:**

1. Created a class “Employee” and data members to count the no. of instances created for the class Employee and its child class.

2. A constructor is created to initialize the values for the objects and a function “average\_salary” is created to calculate average for the employees.

3. Child class “Full\_Time\_Employee” is created that inherits all the properties of the parent class “Employee” and data members are created to keep track of all the objects.

4. Constructor is defined to initialize the values for the objects and method “average\_salary” is created to calculate average salary for the full-time employees.

5. Driver code contains the initialization of objects for both the classes and member functions are called using the objects.

**Code and Output:**

A screenshot of a computer

Description automatically generated

**Problem 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)

**Input:**

**Output:** NumPy array

**Solution:**

1. Created a random vector of size 20 with floating-point values using np.arange() method with arguments, range 1-21, type of value (i.e. dtype) as float.

2. Vector is resized using np.reshape() method that takes size of new array as arguments.

3. Maximum value in each row is replaced with 0 using functions np.where() that returns 0 if value is true and remaining elements that has false value, and np.isin() that return Boolean values that is set to true for max value and false for remaining values.

**Code and Output:**

**A screenshot of a computer program

Description automatically generated**

**GITHUB LINK:**

<https://github.com/Harshini2512/Neural-2/blob/76e4d3cac93706ee0d7e120ccedcd12cabd1b749/ICP_2.ipynb>

**VIDEO LINK** :

<https://github.com/Harshini2512/Neural-2/blob/76e4d3cac93706ee0d7e120ccedcd12cabd1b749/ICP-2.V.mp4>