**Neural Networks and Deep Learning - ICP-3**

**GitHub Link to ICP-3:**

[**https://github.com/rumanathaskeen22/Neural-Networks-and-Deep-Learning---ICP-3**](https://github.com/rumanathaskeen22/Neural-Networks-and-Deep-Learning---ICP-3)

**Video Link:**

<https://drive.google.com/file/d/1PvrEa0EVAuc6zzOUcnQ3Ch-4qX7Z03V6/view?usp=sharing>

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1. **Create a class Employee:**

In this program, I have created a data member to count the number of employees. I have then created a constructor to initialize the name, family members, salary and department of the employee. The task of constructors is to initialize (assign values) to the data members of the class when an object of the class is created. Here Self represents the instance of the class.

It binds the attributes with the given arguments. I have then written a function that gives the average salary of the employee. I have then created a fulltime employee class that inherits the properties of the employee class.

The Full-time employee class also contains the constructor that initializes the employee type.

Then created a function display that helps in displaying the employee details.

Created an instance of employee class and full-time employee class and called their member functions. Upon execution of the code, we get the count of total employees and the employee details along with the average salary.

It gives the output as shown below.

Graphical user interface, text, application

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

1. **NumPy:**

In this program, I have created random vector of size 20 having only float in the range 1-20. To do this I have first imported the libraries pandas and numpy. Pd is the standard short name for referencing pandas and so is np for numpy. Using random uniform in random vector to create array. we can get the random samples from uniform distribution and return the random samples as numpy array by using this method.

I have Then reshaped the array to 4 by 5.

Reshaping numpy array simply means changing the shape of the given array, shape basically tells the number of elements and dimension of array, by reshaping an array we can add or remove dimensions or change number of elements in each dimension.

Then using numpy.amax to return the maximum of array and using reshape to replace the maximum value in each row with 0. Finally printing the random vector gives the output as shown below:

Graphical user interface, text, application

Description automatically generated