

# Lesson3: ICP3

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<https://github.com/BillaBhavana7/neuralN/tree/main>

In class programming:

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.

```
1 class Employee:
2     employee_count = 0
3
4     def __init__(self, name, family, salary, department):
5         self.name = name
6         self.family = family
7         self.salary = salary
8         self.department = department
9
10        Employee.employee_count += 1
11
12    def average_salary(self, *salaries):
13        total_salary = sum(salaries)
14        return total_salary / len(salaries) if len(salaries) > 0 else 0
15
16 class FulltimeEmployee(Employee):
17     def __init__(self, name, family, salary, department, working_hours):
18         super().__init__(name, family, salary, department)
19
20         self.working_hours = working_hours
21
22 employee1 = Employee("Bhavana", "Family1", 50000, "SE1")
23 employee2 = Employee("Vaishnavi", "Family2", 50000, "ASE")
24
25 fulltime_employee = FulltimeEmployee("Vinnu", "Family3", 50000, "IT",
26                                     38)
27
28 average_salary_all = employee1.average_salary(employee1.salary,
29                                               employee2.salary)
30 average_salary_fulltime =
31 fulltime_employee.average_salary(fulltime_employee.salary)
```

Console Output:

```
--> poetry env list --full-path
Run
66ms on 21:47:13, 01/24 ✓

Total Employees: 3
Average Salary of all Employees: 50000.0
Average Salary of Fulltime Employee: 50000.0
```

The screenshot shows a Replit IDE interface. The top bar includes the Replit logo, a search bar, and navigation icons. The left sidebar contains a file explorer with 'main.py', 'poetry.lock', and 'pyproject.toml'. The main editor area displays a Python script with the following code:

```
26
27 average_salary_all = employee1.average_salary(employee1.salary,
28 employee2.salary)
29 average_salary_fulltime =
30 fulltime_employee.average_salary(fulltime_employee.salary)
31
32 # Print results
33 print("Total Employees:", Employee.employee_count)
34 print("Average Salary of all Employees:", average_salary_all)
35 print("Average Salary of Fulltime Employee:", average_salary_fulltime)
36
```

The right sidebar shows the console output, which includes the command `--> poetry env list --full-path` and the following results:

```
Total Employees: 3
Average Salary of all Employees: 50000.0
Average Salary of Fulltime Employee: 50000.0
```

## 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)

replit.com

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3-PB2

Run

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pyproject.toml

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main.py

main.py > ...

```
1 import numpy as np
2
3 random_vector = np.random.uniform(1, 20, 20)
4 reshaped_array = random_vector.reshape(4, 5)
5 reshaped_array[np.arange(len(reshaped_array)),
  reshaped_array.argmax(axis=1)] = 0
6
7 print("Original Random Vector:")
8 print(random_vector)
9 print("\nReshaped Array (4 by 5):")
10 print(reshaped_array)
11
```

Generate

Console

Shell

Packager

Run

--> poetry env list --full-path

--> poetry env list --full-path

3s on 21:41:17, 01/24

539ms on 21:41:21, 01/24

Original Random Vector:

[	3.94571036	7.68337046	8.79771589	0.	1.71796727	0.
17.69983517	7.92729645	8.79810543	15.98194956	2.80383423	8.	50281643
0.	7.85311946	13.81070452	12.35299952	9.65587799	17.	34700617
3.27355896	0.					

Reshaped Array (4 by 5):

[	3.94571036	7.68337046	8.79771589	0.	1.71796727
[	0.	17.69983517	7.92729645	8.79810543	15.98194956
[	2.80383423	8.50281643	0.	7.85311946	13.81070452
[	12.35299952	9.65587799	17.34700617	3.27355896	0.

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