Assignment - 3

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1. Create a 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

Code:

```
class Employee:
  def __init__(self):  #constructor for name,family,salary and Department.
        self.name ="srivalli "
        self.family =4
        self.salary=9765
        self.department="ECE"
  def __init__(self,name,family,salary,department):
        self.name =name
        self.family =family
        self.salary=salary
        self.department=department

  def count_emp(self,emp1,fullemp1):
        print("The total Number of Employees(employee+Fulltime employee):",len(emp1+fullemp1)) #counting number of employees.

  def avg_salary(self,emp1,fullemp1):  #function for calculating the average salaryof all employees.
       su=0
       for i in emp1:
           su=su+i.salary
       for i in fullemp1:
            su=su+i.salary
       print("the average salary of the all the Employees(employee+Fulltime employee):",su/2)
```

```
class Fulltime_Employee(Employee):
    pass
n=int(input("enter number of employees"))
pe=[]
for i in range(0,n):  #using for() loop,take the input dynamically.
    na=input("enter name")
    f=int(input("enter how many family members"))
    s=int(input("enter salary"))
    d=input("enter department")
    obj=Employee(na,f,s,d)
    pe.append(obj)
full=int(input("enter Full time employees"))
fe=[]
for i in range(0,full):
    na=input("enter name")
    f=int(input("enter how many family members"))
    s=int(input("enter salary"))
    d=input("enter department")
    obj=Fulltime_Employee(na,f,s,d)
    fe.append(obj)

result=Fulltime_Employee(na,f,s,d)
result.count_emp(pe,fe) #function call
result.avg_salary(pe,fe) #function call
```

Output:

```
enter number of employees2
enter namesrivalli
enter how many family members4
enter salary90000
enter departmentcse
enter namerunith
enter how many family members4
enter salary100000
enter departmentbusiness
enter Full time employees2
enter nameharshith
enter how many family members6
enter salary90000
enter departmentit
enter namesahithi
enter how many family members5
enter salary80000
enter departmentcse
The total Number of Employees(employee+Fulltime employee): 4
the average salary of the all the Employees(employee+Fulltime employee): 180000.0
```

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)

Code:

```
import numpy as np #import numpy
x = np.arange(1,21,dtype=float) #vector of size 1-20
print("Vector :",x)
x=x.reshape(4,5) #use reshape() to reshape the array into 4*5
print("Then reshape the array to 4 by 5:",x)
def replace(x):
    a=x
    a[:,np.argmax(x, axis=1)] = 0
    return a
result= replace(x)
print("replace the max in each row by 0 (axis=1):",result)
```

Output:

```
Vector : [ 1.  2.  3.  4.  5.  6.  7.  8.  9. 10. 11. 12. 13. 14. 15. 16. 17. 18.
 19. 20.]
Then reshape the array to 4 by 5: [[ 1.  2.  3.  4.  5.]
 [ 6.  7.  8.  9. 10.]
 [11. 12. 13. 14. 15.]
 [16. 17. 18. 19. 20.]]
replace the max in each row by 0 (axis=1): [[ 1.  2.  3.  4.  0.]
 [ 6.  7.  8.  9.  0.]
 [11. 12. 13. 14.  0.]
 [16. 17. 18. 19.  0.]]
```