Revathi Atchi

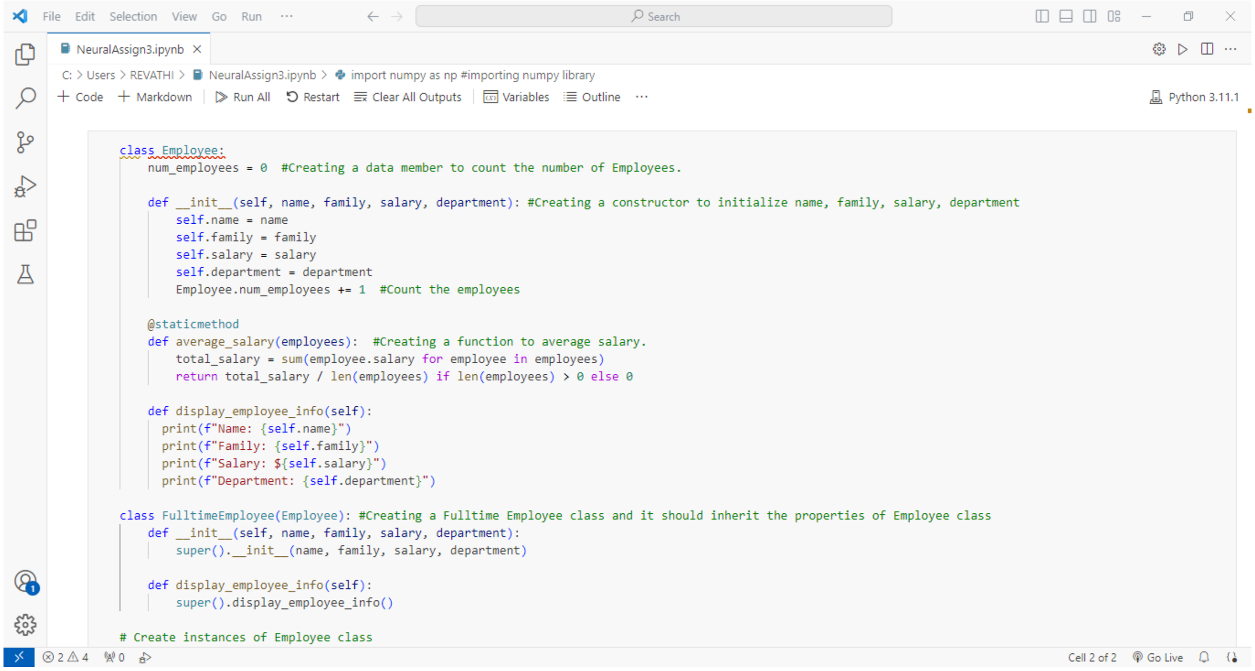
700742168

GITHUB LINK: https://github.com/revathiatchi/NeuralAssignment3.git

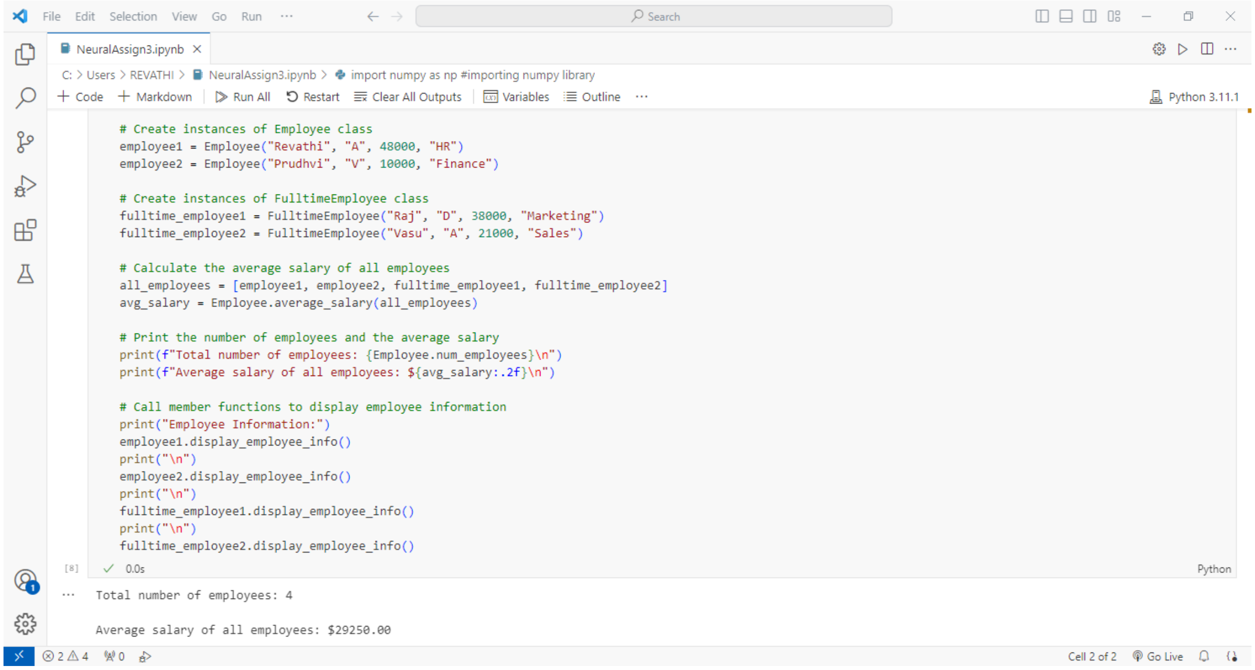
RECORDINGLINK:
https://github.com/revathiatchi/NeuralAssignment3/assets/156601745/599e0320-5310-4eb1-9aa8-fdd4baa0fd10

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.



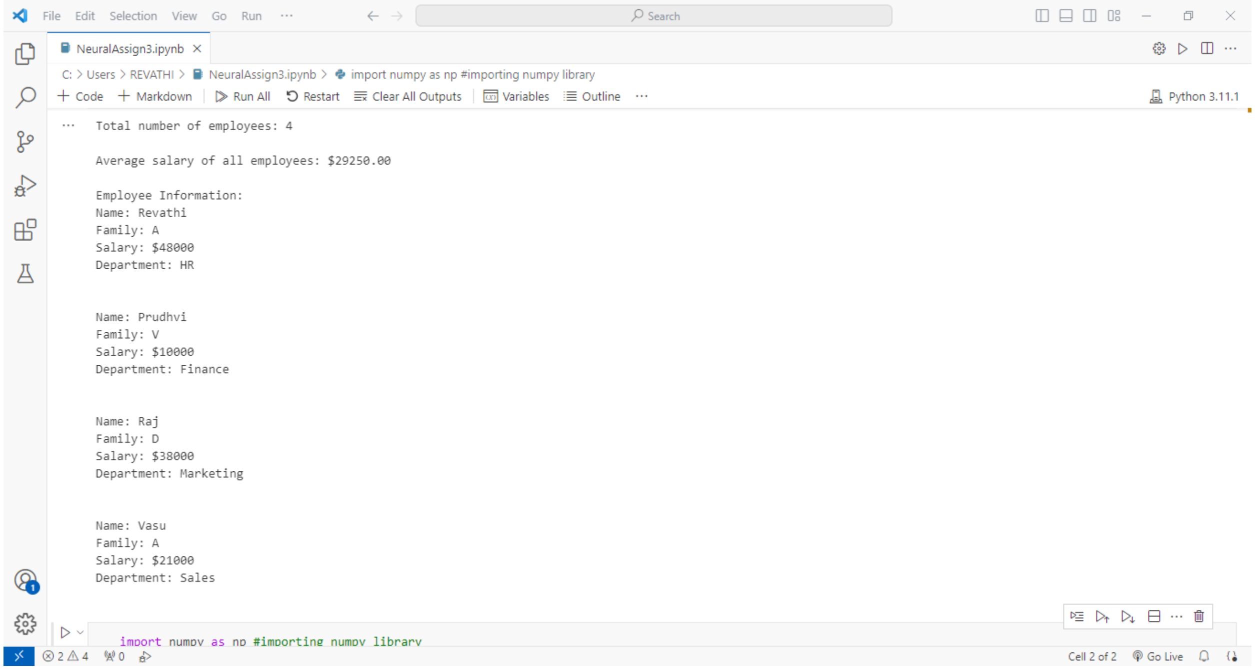
```python
class Employee:
    num_employees = 0  #Creating a data member to count the number of Employees.

    def __init__(self, name, family, salary, department): #Creating a constructor to initialize name, family, salary, department
        self.name = name
        self.family = family
        self.salary = salary
        self.department = department
        Employee.num_employees += 1  #Count the employees

    @staticmethod
    def average_salary(employees):  #Creating a function to average salary.
        total_salary = sum(employee.salary for employee in employees)
        return total_salary / len(employees) if len(employees) > 0 else 0

    def display_employee_info(self):
      print(f"Name: {self.name}")
      print(f"Family: {self.family}")
      print(f"Salary: ${self.salary}")
      print(f"Department: {self.department}")

class FulltimeEmployee(Employee): #Creating a Fulltime Employee class and it should inherit the properties of Employee class
    def __init__(self, name, family, salary, department):
        super().__init__(name, family, salary, department)

    def display_employee_info(self):
        super().display_employee_info()

# Create instances of Employee class
```


File Edit Selection View Go Run ···
Search
NeuralAssign3.ipynb
C: > Users > REVATHI > NeuralAssign3.ipynb > import numpy as np #importing numpy library
+ Code + Markdown Run All Restart Clear All Outputs Variables Outline ···
Python 3.11.1
[8] ✓ 0.0s
Python
Cell 2 of 2 Go Live

```
# Create instances of Employee class
employee1 = Employee("Revathi", "A", 48000, "HR")
employee2 = Employee("Prudhvi", "V", 10000, "Finance")

# Create instances of FulltimeEmployee class
fulltime_employee1 = FulltimeEmployee("Raj", "D", 38000, "Marketing")
fulltime_employee2 = FulltimeEmployee("Vasu", "A", 21000, "Sales")

# Calculate the average salary of all employees
all_employees = [employee1, employee2, fulltime_employee1, fulltime_employee2]
avg_salary = Employee.average_salary(all_employees)

# Print the number of employees and the average salary
print(f"Total number of employees: {Employee.num_employees}\n")
print(f"Average salary of all employees: ${avg_salary:.2f}\n")

# Call member functions to display employee information
print("Employee Information:")
employee1.display_employee_info()
print("\n")
employee2.display_employee_info()
print("\n")
fulltime_employee1.display_employee_info()
print("\n")
fulltime_employee2.display_employee_info()
```

```
Total number of employees: 4

Average salary of all employees: $29250.00
```

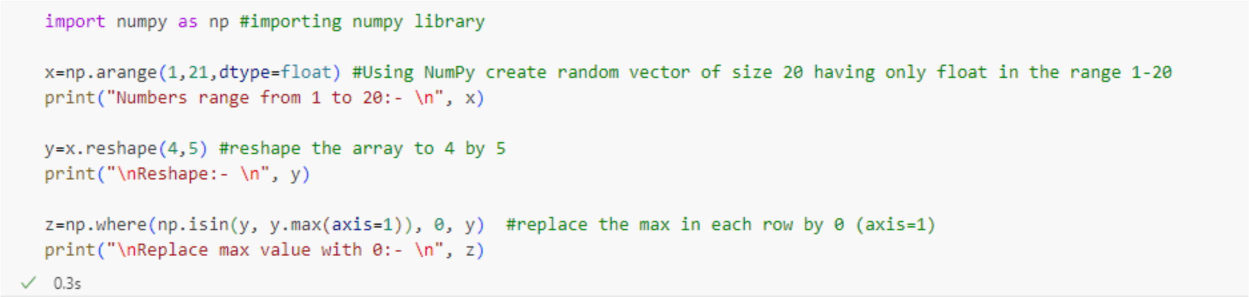
Output:-


File Edit Selection View Go Run ···
Search
NeuralAssign3.ipynb
C: > Users > REVATHI > NeuralAssign3.ipynb > import numpy as np #importing numpy library
+ Code + Markdown Run All Restart Clear All Outputs Variables Outline ···
Python 3.11.1
Cell 2 of 2 Go Live

```
Total number of employees: 4

Average salary of all employees: $29250.00

Employee Information:
Name: Revathi
Family: A
Salary: $48000
Department: HR


Name: Prudhvi
Family: V
Salary: $10000
Department: Finance


Name: Raj
Family: D
Salary: $38000
Department: Marketing


Name: Vasu
Family: A
Salary: $21000
Department: Sales
```

```
import numpy as np #importing numpy library
```

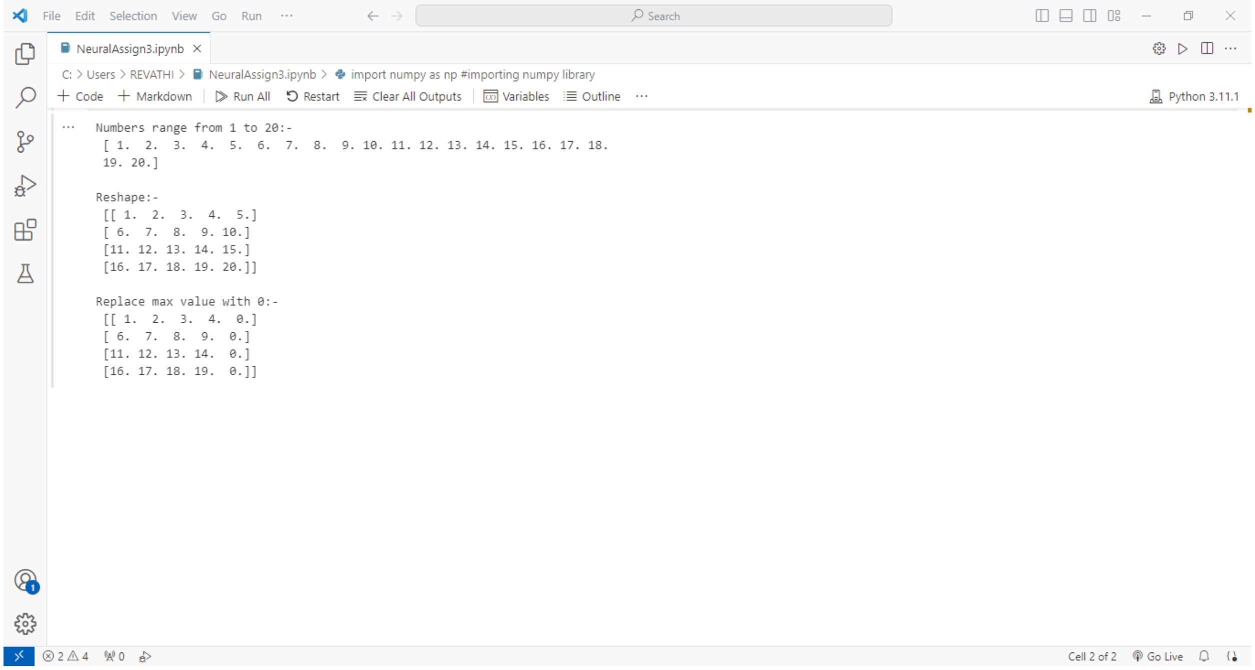
2) Using NumPy create random vector of size 20 having only float in the range 1-20. Then reshape the array to 4 by 5 Then replace the max in each row by 0 (axis=1) (you can NOT implement it via for loop)



```
import numpy as np #importing numpy library

x=np.arange(1,21,dtype=float) #Using NumPy create random vector of size 20 having only float in the range 1-20
print("Numbers range from 1 to 20:- \n", x)

y=x.reshape(4,5) #reshape the array to 4 by 5
print("\nReshape:- \n", y)

z=np.where(np.isin(y, y.max(axis=1)), 0, y)  #replace the max in each row by 0 (axis=1)
print("\nReplace max value with 0:- \n", z)
```

✓ 0.3s

Output:-



```
Numbers range from 1 to 20:-
 [ 1.  2.  3.  4.  5.  6.  7.  8.  9. 10. 11. 12. 13. 14. 15. 16. 17. 18.
 19. 20.]

Reshape:-
 [[ 1.  2.  3.  4.  5.]
 [ 6.  7.  8.  9. 10.]
 [11. 12. 13. 14. 15.]
 [16. 17. 18. 19. 20.]]

Replace max value with 0:-
 [[ 1.  2.  3.  4.  0.]
 [ 6.  7.  8.  9.  0.]
 [11. 12. 13. 14.  0.]
 [16. 17. 18. 19.  0.]]
```