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| **PYTHON PROGRAMMING**  *Christ (deemed-to-be) University*  *Bengaluru-560029*  Name: Pranab Rai  Registration No: 2447137  **Question:**  Scenario overview:  You are tasked with analyzing a dataset of employee performance in different de-  partments of a company. Each employee has the following attributes:  (1) Employee ID: Unique identifier (integer).  (2) Department: The department the employee works in (string)  (3) Years of Experience: Number of years the employee has worked (float).  (4) Projects Completed: Number of projects completed successfully (integer).  (5) Client Satisfaction Rating: Average satisfaction rating provided by clients.  Question  (1) By carefully observing the above scenario, write a python program to perform  the following tasks using NumPy Library, for a data of 20 employees.  (a) Create a structured array with the attributes described above. Populate  the data with reasonable values.  (b) Write a function to filter and return the records of employees working in  a specific department (e.g., 'Engineering', 'HR', 'Marketing'.)  (c) Identify the employee with the highest Client Satisfaction Rating.  (d) Calculate the average number of projects completed and the average years  of experience for the entire dataset.  (e) Identify all employees who have less than 2 years of experience.  **Code:**  import numpy as np  employee\_dtype = np.dtype([      ('Employee ID', np.int32),      ('Department', 'U20'),      ('Years of Experience', np.float32),      ('Projects Completed', np.int32),      ('Client Satisfaction Rating', np.float32)  ])  # Generate data for 20 employees  np.random.seed(0)  departments = ['Engineering', 'HR', 'Marketing', 'Sales']  data = np.array([      (i+1, np.random.choice(departments), np.random.uniform(0, 15), np.random.randint(1, 21), np.random.uniform(1.0, 5.0))      for i in range(20)  ], dtype=employee\_dtype)  # (a) Function to display the structured array  def display\_employees(data):      print("Employee Data:\n", data)  # (b) Function to filter employees by department  def filter\_by\_department(data, department):      return data[data['Department'] == department]  # (c) Function to find the employee with the highest Client Satisfaction Rating  def highest\_client\_satisfaction(data):      return data[np.argmax(data['Client Satisfaction Rating'])]  # (d) Function to calculate average Projects Completed and Years of Experience  def calculate\_averages(data):      avg\_projects = np.mean(data['Projects Completed'])      avg\_experience = np.mean(data['Years of Experience'])      return avg\_projects, avg\_experience  # (e) Function to find employees with less than 2 years of experience  def less\_than\_two\_years\_experience(data):      return data[data['Years of Experience'] < 2]  # Display employee data  display\_employees(data)  # Filter employees working in 'Engineering' department  eng\_employees = filter\_by\_department(data, 'Engineering')  print("\nEmployees in Engineering department:\n", eng\_employees)  # Employee with the highest client satisfaction rating  top\_employee = highest\_client\_satisfaction(data)  print("\nEmployee with the highest Client Satisfaction Rating:\n", top\_employee)  # Average number of projects completed and years of experience  avg\_projects, avg\_experience = calculate\_averages(data)  print(f"\nAverage Projects Completed: {avg\_projects:.2f}, Average Years of Experience: {avg\_experience:.2f}")  # Employees with less than 2 years of experience  new\_employees = less\_than\_two\_years\_experience(data)  print("\nEmployees with less than 2 years of experience:\n", new\_employees)  **Output:** |