**COLLECTIONS**

**Part1**

**Exercise: Employee Directory Management**

You are tasked with creating and managing an employee directory for a small company. Follow the instructions below to manipulate a dictionary that stores employee information.

**Instructions:**

1. **Create an Employee Dictionary**:
   * Create a dictionary named employee\_directory to store information about employees.
   * Each employee should be represented by a key (employee ID) and a value (another dictionary with the employee's details).

**Initial Dictionary**:

employee\_directory = {

101: {"name": "John Doe", "position": "Software Engineer", "salary": 70000},

102: {"name": "Jane Smith", "position": "Data Scientist", "salary": 75000}

}

1. **Add New Employees**:
   * Add two new employees to the dictionary with the following details:
     + Employee ID: 103, Name: "Alice Johnson", Position: "UX Designer", Salary: 68000
     + Employee ID: 104, Name: "Bob Brown", Position: "Project Manager", Salary: 80000
2. **Update an Employee’s Information**:
   * Increase the salary of the employee with ID 102 (Jane Smith) by 5000.
3. **Remove an Employee**:
   * Remove the employee with ID 101 (John Doe) from the dictionary.
4. **Retrieve and Print Information**:
   * Print the name and position of the employee with ID 103 (Alice Johnson).
   * Print the entire dictionary to verify all changes.

**Part 2: Lists**

1. **Create a List of Employee IDs:**
   * **Create a list named employee\_ids that contains all the employee IDs in the employee\_directory.**
2. **Add a New ID:**
   * **Add the ID of a new employee (e.g., 105) to the employee\_ids list.**
3. **Remove an ID:**
   * **Remove the ID of the employee who was removed from the employee\_directory (e.g., ID 101).**
4. **Print the List:**

* **Print the list of employee IDs.**

**Part 3: Tuples**

1. **Create and Access a Tuple:**
   * Create a tuple named colors with the following colors: "red", "green", "blue", "yellow", "purple".
   * Print the tuple in reverse order.
2. **Slice and Index:**
   * Slice the tuple to get the middle three colors.
   * Print the index of the color "blue" in the tuple.
3. **Create a New Tuple:**
   * Create a new tuple named new\_colors with additional colors: "cyan", "magenta".
   * Merge new\_colors with the original colors tuple and remove any duplicate colors.
4. **Print the Result:**
   * Print the final tuple of colors without duplicates.

**Part 4: Sets**

1. **Create and Manipulate Sets:**
   * Create a set named odd\_numbers containing the odd numbers from 1 to 15 (inclusive).
   * Create another set named prime\_numbers containing the prime numbers from 1 to 15 (inclusive).
2. **Union and Intersection:**
   * Compute and print the union of odd\_numbers and prime\_numbers.
   * Compute and print the intersection of odd\_numbers and prime\_numbers.
3. **Add Elements:**
   * Add the number 17 to prime\_numbers, and to odd\_numbers.