Collection Questions

Colour Code:

Green – Print by the application

This is printed by the application

Blue – Sample Input given by user

This is printed by the application

Preparation

Create the Employee class as bellow.

class Employee

{

int id, age;

string name;

double salary;

public Employee()

{

}

public Employee(int id, int age, string name, double salary)

{

this.id = id;

this.age = age;

this.name = name;

this.salary = salary;

}

public void TakeEmployeeDetailsFromUser()

{

Console.WriteLine("Please enter the employee ID");

id = Convert.ToInt32(Console.ReadLine());

Console.WriteLine("Please enter the employee name");

name = Console.ReadLine();

Console.WriteLine("Please enter the employee age");

age = Convert.ToInt32(Console.ReadLine());

Console.WriteLine("Please enter the employee salary");

salary = Convert.ToDouble(Console.ReadLine());

}

public override string ToString()

{

return "Employee ID : " + id + "\nName : " + name + "\nAge : " + age + "\nSalary : " + salary;

}

public int Id { get => id; set => id = value; }

public int Age { get => age; set => age = value; }

public string Name { get => name; set => name = value; }

public double Salary { get => salary; set => salary = value; }

}

Easy:

1. Create a C# console application which has a class with name “EmployeePromotion” that will take employee names in the order in which they are eligible for promotion.
   1. Example Input:

Please enter the employee names in the order of their eligibility for promotion(Please enter blank to stop)

Ramu

Bimu

Somu

Gomu

Vimu

* 1. Create a collection that will hold the employee names in the same order that they are inserted.
  2. Hint – choose the correct collection that will preserve the input order (List)

1. Use the application created for question 1 and in the same class do the following
   1. Given an employee name find his position in the promotion list
   2. Example Input:

Please enter the employee names in the order of their eligibility for promotion(Please enter blank to stop)

Ramu

Bimu

Somu

Gomu

Vimu

Please enter the name of the employee to check promotion position

Somu

“Somu” is the the position 3 for promotion.

* 1. Hint – Choose the correct method that will give back the index (IndexOf)

1. Use the application created for question 1 and in the same class do the following
   1. The application seems to be using some excess memory for storing the name, contain the space by using only the quantity of memory that is required.
   2. Example Input:

Please enter the employee names in the order of their eligibility for promotion(Please enter blank to stop)

Ramu

Bimu

Somu

Gomu

Vimu

The current size of the collection is 8

The size after removing the extra space is 5

* 1. Hint – List multiples the memory when we add elements, ensure you use only the size that is equal to the number of elements that are present.

1. Use the application created for question 1 and in the same class do the following
   1. The need for the list is over as all the employees are promoted. Now print all the employee names in ascending order in a method
   2. Example Input:

Please enter the employee names in the order of their eligibility for promotion(Please enter blank to stop)

Ramu

Bimu

Somu

Gomu

Vimu

Promoted employee list:

Bimu

Gomu

Ramu

Somu

Vimu

Medium

1. Create an application that has a class named EmployeePromotion. The class should take employee details (Use the employee class) and store it in a collection.
   1. The collection name should be employees.
   2. The collection should be able to give back the employee object if the employee id is provided.
      1. Hint – Use a collection that will store key-value pair.
   3. The ID of employee can never be null or have duplicate values.
   4. Sample Output

Please enter the employee ID

101

Please enter the employee name

Ramu

Please enter the employee age

21

Please enter the employee salary

21000

To continue entering employee details enter 1, to exit enter 0

1

Please enter the employee ID

102

Please enter the employee name

Somu

Please enter the employee age

30

Please enter the employee salary

30000

To continue entering employee details enter 1, to exit enter 0

1

Please enter the employee ID

103

Please enter the employee name

Bimu

Please enter the employee age

28

Please enter the employee salary

27000

To continue entering employee details enter 1, to exit enter 0

0

Please enter the employee ID

102

Employee ID : 102

Name : Somu

Age : 30

Salary : 30000

1. Use the application created for question 1. Store all the elements in the collection in a list.
   1. Sort the employees based on their salary in a method named “SortAndPrintEmployees()”
      1. Hint – Implement the IComparable interface in the Employee class.
   2. Given an employee id find the employee and print the details in a method named “PrintEmployee()”
      1. Hint – Use a LINQ with a where clause.
   3. Sample Output

Please enter the employee ID

101

Please enter the employee name

Ramu

Please enter the employee age

21

Please enter the employee salary

20000

To continue entering employee details enter 1, to exit enter 0

1

Please enter the employee ID

102

Please enter the employee name

Bimu

Please enter the employee age

31

Please enter the employee salary

35000

To continue entering employee details enter 1, to exit enter 0

1

Please enter the employee ID

103

Please enter the employee name

Somu

Please enter the employee age

22

Please enter the employee salary

24000

To continue entering employee details enter 1, to exit enter 0

0

The sorted employee list

Employee ID : 101

Name : Ramu

Age : 21

Salary : 20000

-----------------------

Employee ID : 103

Name : Somu

Age : 22

Salary : 24000

-----------------------

Employee ID : 102

Name : Bimu

Age : 31

Salary : 35000

-----------------------

Please enter the employee ID

102

The employee details:

Employee ID : 102

Name : Bimu

Age : 31

Salary : 35000

1. Use the application created for question 2. Find all the employees with the given name (Name to be taken from user)
   1. Sample output

Please enter the employee ID

101

Please enter the employee name

Ramu

Please enter the employee age

21

Please enter the employee salary

2300

To continue entering employee details enter 1, to exit enter 0

1

Please enter the employee ID

102

Please enter the employee name

Somu

Please enter the employee age

29

Please enter the employee salary

29000

To continue entering employee details enter 1, to exit enter 0

1

Please enter the employee ID

103

Please enter the employee name

Bimu

Please enter the employee age

22

Please enter the employee salary

22000

To continue entering employee details enter 1, to exit enter 0

1

Please enter the employee ID

104

Please enter the employee name

Ramu

Please enter the employee age

33

Please enter the employee salary

30000

To continue entering employee details enter 1, to exit enter 0

0

The sorted employee list

Employee ID : 101

Name : Ramu

Age : 21

Salary : 2300

-----------------------

Employee ID : 103

Name : Bimu

Age : 22

Salary : 22000

-----------------------

Employee ID : 102

Name : Somu

Age : 29

Salary : 29000

-----------------------

Employee ID : 104

Name : Ramu

Age : 33

Salary : 30000

-----------------------

Please enter the employee name

Ramu

Employee ID : 101

Name : Ramu

Age : 21

Salary : 2300

Employee ID : 104

Name : Ramu

Age : 33

Salary : 30000

1. Use the application created for question 3. Find all the employees who are elder than a given employee (Employee given by user)
   1. Sample Output

Please enter the employee ID

102

Please enter the employee name

Ramu

Please enter the employee age

22

Please enter the employee salary

22000

To continue entering employee details enter 1, to exit enter 0

1

Please enter the employee ID

101

Please enter the employee name

Somu

Please enter the employee age

22

Please enter the employee salary

30000

To continue entering employee details enter 1, to exit enter 0

1

Please enter the employee ID

103

Please enter the employee name

Bimu

Please enter the employee age

30

Please enter the employee salary

25000

To continue entering employee details enter 1, to exit enter 0

0

Please enter the employee ID

102

Employee ID : 103

Name : Bimu

Age : 30

Salary : 25000

Hard

1. Use the application created in Question 1 of medium.
   1. Display a menu to user which will enable to print all the employee details, add an employee, modify the details of an employee (all except id), print an employee details given his id and delete an employee from the collection
   2. The method “DisplayMenu” should display the menu options to user and take the input. The method should also have a switch case to handle the input given by user.
   3. Sample Output

Please enter the option

1. Add an employee

2. Modify an employee detail

3. Print all employee's details

4. Print an employee detail

5. Exit

1

Please enter the employee ID

101

Please enter the employee name

Ramu

Please enter the employee age

21

Please enter the employee salary

15000

To continue entering employee details enter 1, to exit enter 0

1

Please enter the employee ID

102

Please enter the employee name

Somu

Please enter the employee age

29

Please enter the employee salary

30000

To continue entering employee details enter 1, to exit enter 0

0

Please enter the option

1. Add an employee

2. Modify an employee detail

3. Print all employee's details

4. Print an employee detail

5. Exit

2

Please enter the employee ID

102

The employee details:

Employee ID : 102

Name : Somu

Age : 29

Salary : 30000

Please enter the updated employee details

Please enter the employee name

Somu

Please enter the employee age

30

Please enter the employee salary

45000

Please enter the option

1. Add an employee

2. Modify an employee detail

3. Print all employee's details

4. Print an employee detail

5. Exit

3

Employee ID : 101

Name : Ramu

Age : 21

Salary : 15000

-----------------------

Employee ID : 102

Name : Somu

Age : 30

Salary : 45000

-----------------------

Please enter the option

1. Add an employee

2. Modify an employee detail

3. Print all employee's details

4. Print an employee detail

5. Exit

4

Please enter the employee ID

101

The employee details:

Employee ID : 101

Name : Ramu

Age : 21

Salary : 15000

Please enter the option

1. Add an employee

2. Modify an employee detail

3. Print all employee's details

4. Print an employee detail

5. Exit

* 1. Ensure the application does not break at any point. Handles all the cases with proper response
     1. Example – If user enters an employee id that does not exists the response should inform the user the same.