Feb 2nd Morning Assignment

By Surya Teja Chandolu

1. **Declare and initialize a list with 8 values. write for loop, foreach loop, lambda, linq query to print even numbers.**

Code:

```csharp
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace EvenNumbersUsingList
{
    internal class Program
    {
        static void Main(string[] args)
        {

/**********************************************************************
            * Author: Surya Teja
            * Purpose: Declare and initialize a list with 8 values. write for
loop, foreach loop, lambda, linq query to print even numbers.
            *
**********************************************************************/

            List<int> data = new List<int>() { 2, 5, 88, 66, 3, 44, 97, 11 };

            //For Loop
            Console.WriteLine("*******************For
Loop*******************");
            Console.Write($"Even numbers are: ");
            for (int i = 0; i < data.Count; i++)
            {
                if (data[i]%2 == 0)
                    Console.Write($"{data[i]}, ");
            }

            //ForEach Loop
            Console.WriteLine("\n*****************ForEach
Loop*****************");
            Console.Write($"Even numbers are: ");
            foreach (int d in data)
            {
                if(d%2 == 0)
                    Console.Write($"{d}, ");
            }

            //Lambda Expression
            Console.WriteLine("\n***************Lambda
Expression***************");
            Console.Write($"Even numbers are: ");
            data.Where(d=>d%2 == 0).ToList().ForEach(d=>Console.Write($"{d},
"));

            //LINQ Query
```

```
            Console.WriteLine("\n*******************LINQ
Query*****************");
            Console.Write($"Even numbers are: ");
            var result = from d in data
                         where d%2 == 0
                         select d;
            result.ToList().ForEach(d => Console.Write($"{d}, "));

            Console.ReadLine();
        }
    }
}
```
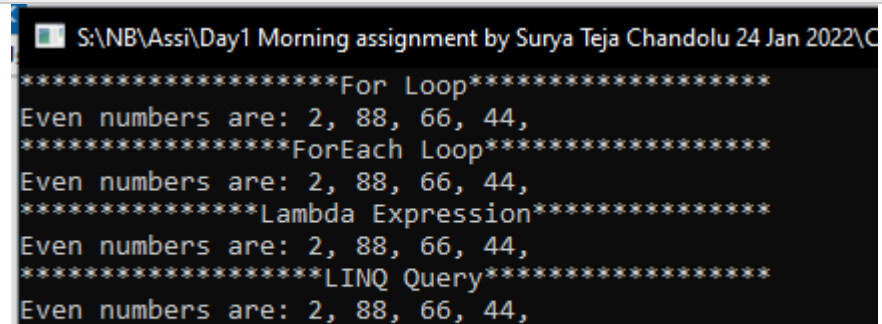
Output:


```
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*******************For Loop*******************
Even numbers are: 2, 88, 66, 44,
****************ForEach Loop*****************
Even numbers are: 2, 88, 66, 44,
***************Lambda Expression**************
Even numbers are: 2, 88, 66, 44,
******************LINQ Query*****************
Even numbers are: 2, 88, 66, 44,
```

2. Create a class Employee with three variables as discussed in the class and create a list of Employees.(for loop, foreach loop, lambda expression, linq query)
            public int id;
            public string name;
            public int salary;

Code:

```csharp
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace PrintUsingClass
{
    /************************************************************************
    * Author: Surya Teja
    * Purpose: Create a class Employee with three variables as discussed in the
    class and create a list of Employees.
    * ************************************************************************/


    class Employee
    {
        public int id;
        public string name;
        public float salary;
    }
    internal class Program
    {
        static void Main(string[] args)
        {
            List<Employee> empData = new List<Employee>()
            {
                new Employee(){id = 1, name = "Surya", salary = 5000},
                new Employee(){id = 2, name = "Prudhvi", salary = 6000},
                new Employee(){id = 3, name = "Bhanu", salary = 7000},
                new Employee(){id = 4, name = "Charan", salary = 8000},
                new Employee(){id = 5, name = "Joe", salary = 9000}
            };

            //For Loop
            Console.WriteLine("*******************For
Loop*******************\n");
            for (int i = 0; i < empData.Count; i++)
                Console.WriteLine($"Employee Id is: {empData[i].id}, Employee
Name is: {empData[i].name}, Employee Salary is: {empData[i].salary}.");

            //For Each Loop
            Console.WriteLine("\n*****************ForEach
Loop*****************\n");
            foreach (Employee emp in empData)
                Console.WriteLine($"Employee Id is: {emp.id}, Employee Name is:
{emp.name}, Employee Salary is: {emp.salary}.");

            //Lambda Expression
            Console.WriteLine("\n***************Lambda
Expression***************\n");
            empData.ForEach(e => Console.WriteLine($"Employee Id is: {e.id},
Employee Name is: {e.name}, Employee Salary is: {e.salary}."));

            //LINQ Query
```

```
            Console.WriteLine("\n*******************LINQ
Query*****************\n");
            var result = from emp in empData
                        select emp;
            result.ToList().ForEach(e => Console.WriteLine($"Employee Id is:
{e.id}, Employee Name is: {e.name}, Employee Salary is: {e.salary}."));


            Console.ReadLine();
        }
    }
}
```

Output:


```
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*******************For Loop*******************

Employee Id is: 1, Employee Name is: Surya, Employee Salary is: 5000.
Employee Id is: 2, Employee Name is: Prudhvi, Employee Salary is: 6000.
Employee Id is: 3, Employee Name is: Bhanu, Employee Salary is: 7000.
Employee Id is: 4, Employee Name is: Charan, Employee Salary is: 8000.
Employee Id is: 5, Employee Name is: Joe, Employee Salary is: 9000.

*******************ForEach Loop*******************

Employee Id is: 1, Employee Name is: Surya, Employee Salary is: 5000.
Employee Id is: 2, Employee Name is: Prudhvi, Employee Salary is: 6000.
Employee Id is: 3, Employee Name is: Bhanu, Employee Salary is: 7000.
Employee Id is: 4, Employee Name is: Charan, Employee Salary is: 8000.
Employee Id is: 5, Employee Name is: Joe, Employee Salary is: 9000.

*****************Lambda Expression*****************

Employee Id is: 1, Employee Name is: Surya, Employee Salary is: 5000.
Employee Id is: 2, Employee Name is: Prudhvi, Employee Salary is: 6000.
Employee Id is: 3, Employee Name is: Bhanu, Employee Salary is: 7000.
Employee Id is: 4, Employee Name is: Charan, Employee Salary is: 8000.
Employee Id is: 5, Employee Name is: Joe, Employee Salary is: 9000.

*******************LINQ Query*******************

Employee Id is: 1, Employee Name is: Surya, Employee Salary is: 5000.
Employee Id is: 2, Employee Name is: Prudhvi, Employee Salary is: 6000.
Employee Id is: 3, Employee Name is: Bhanu, Employee Salary is: 7000.
Employee Id is: 4, Employee Name is: Charan, Employee Salary is: 8000.
Employee Id is: 5, Employee Name is: Joe, Employee Salary is: 9000.
```

3. Create a class Product and add variables id, name, price, brand print product (name and brand) whose price is more than 500 using.(for, foreach loop, lambda, linq query)

Code:

```csharp
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace ProductPriceGreater500
{

    /************************************************************************
    * Author: Surya Teja
    * Purpose: Create a class Product and add variables id, name, price, brand
print product (name and brand) whose price is more than 500 using.(for, foreach
loop, lambda, linq query)
    * ************************************************************************/


    class Product
    {
        public int id;
        public string name;
        public int price;
        public string brand;
    }
    internal class Program
    {
        static void Main(string[] args)
        {
            List<Product> prodData = new List<Product>()
            {
                new Product() { id = 1, name = "Shoes", price = 1500, brand =
"Nike"},
                new Product() { id = 2, name = "Cap", price = 1200, brand =
"Adidas"},
                new Product() { id = 3, name = "Pen", price = 450, brand =
"Parker"},
                new Product() { id = 4, name = "Book", price = 100, brand =
"Classmate"},
                new Product() { id = 5, name = "Laptop", price = 50000, brand =
"Dell"}
            };

            //For Loop
            Console.WriteLine("*******************For
Loop*******************\n");

            for (int i = 0; i < prodData.Count; i++)
            {
                if (prodData[i].price >= 500)
                    Console.WriteLine($"Name is {prodData[i].name} and Brand is
{prodData[i].brand}.");
            }

            //For Each Loop
            Console.WriteLine("\n*****************ForEach
Loop*****************\n");

            foreach (Product prod in prodData)
```

```
            {
                if(prod.price >= 500)
                    Console.WriteLine($"Name is {prod.name} and Brand is
{prod.brand}.");
            }

            //Lambda Expression
            Console.WriteLine("\n***************Lambda
Expression***************\n");

            prodData.Where(p => p.price >= 500).ToList().ForEach(p =>
Console.WriteLine($"Name is {p.name} and Brand is {p.brand}."));

            //LINQ Query
            Console.WriteLine("\n*******************LINQ
Query*****************\n");

            var result = from prod in prodData
                         where prod.price >= 500
                         select prod;
            result.ToList().ForEach(p => Console.WriteLine($"Name is {p.name}
and Brand is {p.brand}."));

            Console.ReadLine();
        }
    }
}
```
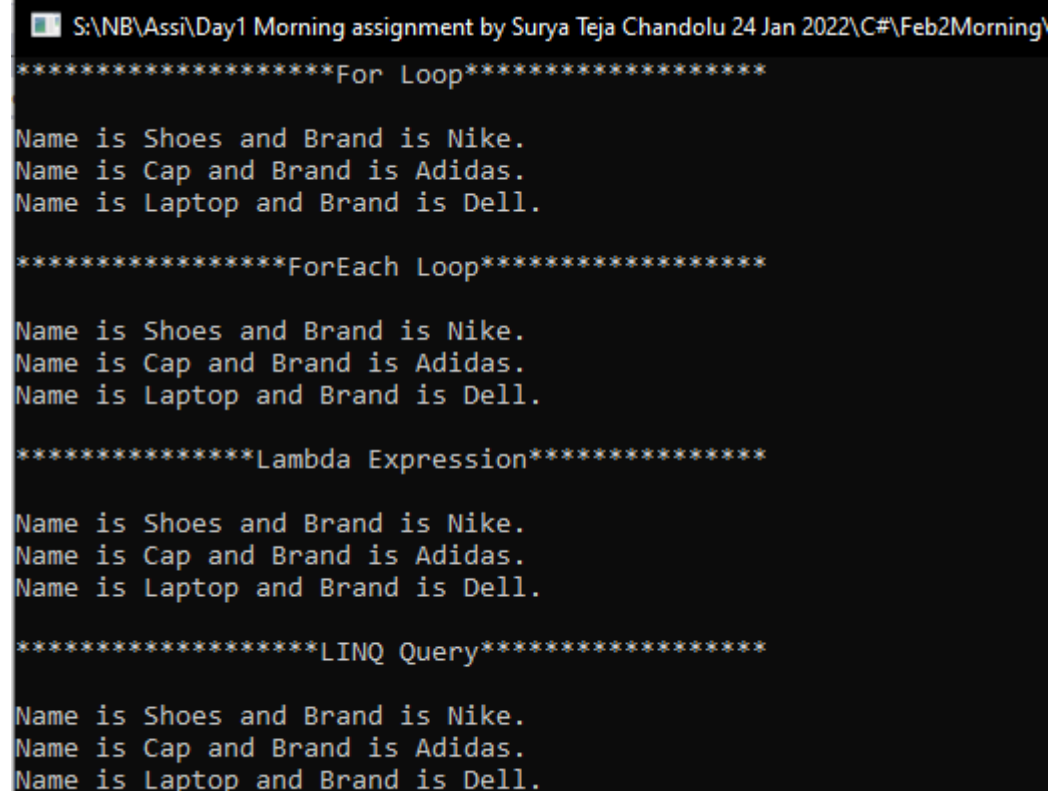
Output:

```
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********************For Loop********************

Name is Shoes and Brand is Nike.
Name is Cap and Brand is Adidas.
Name is Laptop and Brand is Dell.

******************ForEach Loop********************

Name is Shoes and Brand is Nike.
Name is Cap and Brand is Adidas.
Name is Laptop and Brand is Dell.

***************Lambda Expression****************

Name is Shoes and Brand is Nike.
Name is Cap and Brand is Adidas.
Name is Laptop and Brand is Dell.

*******************LINQ Query*******************

Name is Shoes and Brand is Nike.
Name is Cap and Brand is Adidas.
Name is Laptop and Brand is Dell.
```

4. Create a Department class and add variables id, name, empcount write code to print id, name of departments whose empcount is greater than 50.(for, foreach, lambda, linq query)

Code:

```csharp
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace EmployeeCount
{

    /*********************************************************************
    * Author: Surya Teja
    * Purpose: Create a Department class and add variables id, name, empcount
write code to print id, name of departments whose empcount is greater than
50.(for, foreach, lambda, linq query)
    * *******************************************************************/

    class Department
    {
        public int id;
        public string name;
        public int empCount;
    }

    internal class Program
    {
        static void Main(string[] args)
        {
            List<Department> deptData= new List<Department>()
            {
                new Department(){ id = 1, name ="CSE", empCount = 80},
                new Department(){ id = 2, name ="Mech", empCount = 75},
                new Department(){ id = 3, name ="EEE", empCount = 60},
                new Department(){ id = 4, name ="Civil", empCount = 20},
                new Department(){ id = 5, name ="ECE", empCount = 25}
            };

            //For Loop
            Console.WriteLine("*******************For
Loop*******************\n");

            for (int i = 0; i < deptData.Count; i++)
            {
                if (deptData[i].empCount >= 50)
                    Console.WriteLine($"Department Id is: {deptData[i].id} and
Department Name is: {deptData[i].name}.");
            }

            //For Each Loop
            Console.WriteLine("\n****************ForEach
Loop*****************\n");

            foreach (Department dept in deptData)
            {
                if (dept.empCount >= 50)
                    Console.WriteLine($"Department Id is: {dept.id} and
Department Name is: {dept.name}.");
            }
```

```csharp
            //Lambda Expression
            Console.WriteLine("\n***************Lambda
Expression***************\n");

            deptData.Where(d => d.empCount >= 50).ToList().ForEach(d =>
Console.WriteLine($"Department Id is: {d.id} and Department Name is:
{d.name}."));

            //LINQ Query
            Console.WriteLine("\n******************LINQ
Query*****************\n");

            var result = from dept in deptData
                         where dept.empCount >= 50
                         select dept;
            result.ToList().ForEach(d => Console.WriteLine($"Department Id is:
{d.id} and Department Name is: {d.name}."));

            Console.ReadLine();
        }
    }
}
```
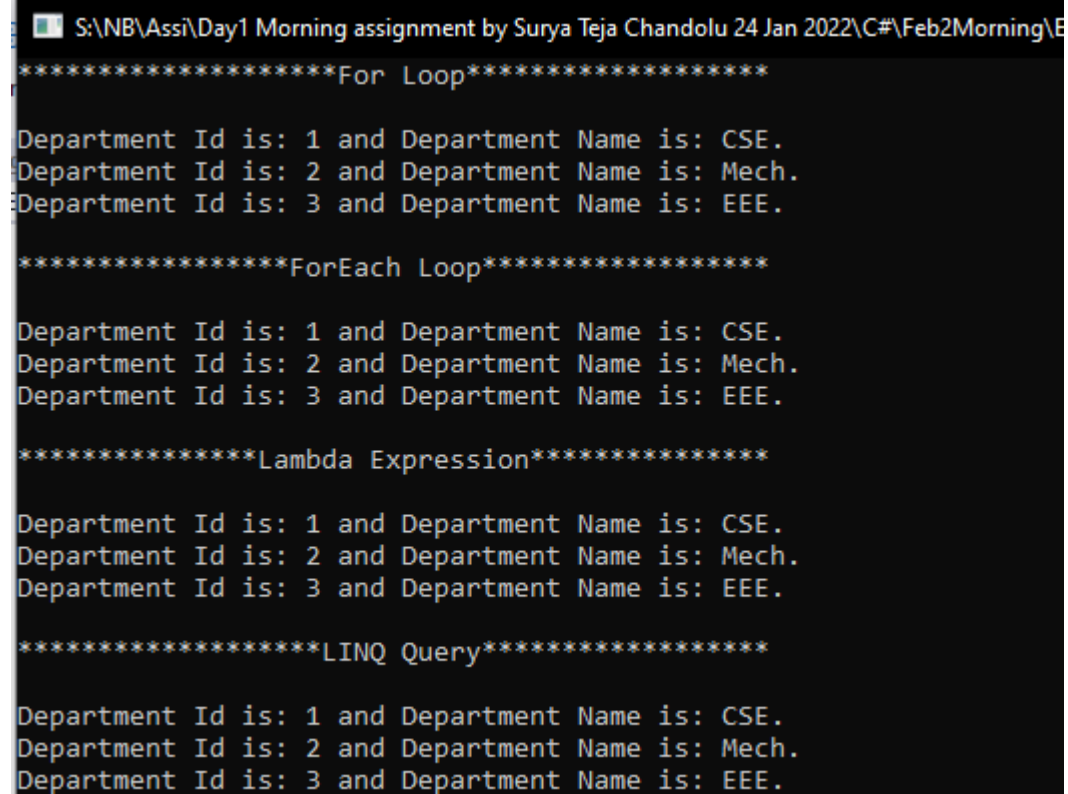
Output:

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```
*******************For Loop*******************

Department Id is: 1 and Department Name is: CSE.
Department Id is: 2 and Department Name is: Mech.
Department Id is: 3 and Department Name is: EEE.

*****************ForEach Loop******************

Department Id is: 1 and Department Name is: CSE.
Department Id is: 2 and Department Name is: Mech.
Department Id is: 3 and Department Name is: EEE.

***************Lambda Expression***************

Department Id is: 1 and Department Name is: CSE.
Department Id is: 2 and Department Name is: Mech.
Department Id is: 3 and Department Name is: EEE.

******************LINQ Query*****************

Department Id is: 1 and Department Name is: CSE.
Department Id is: 2 and Department Name is: Mech.
Department Id is: 3 and Department Name is: EEE.
```

Code:

```csharp
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace HospitalCount
{

    /***********************************************************************
     * Author: Surya Teja
     * Purpose: Create your own class and variables and initialize with some
values(for, foreach, lambda, linq query)
     * ***********************************************************************/

    class Hospital
    {
        public int id;
        public string city;
        public int count;
    }

    internal class Program
    {
        static void Main(string[] args)
        {
            List<Hospital> hpt= new List<Hospital>()
            {
                new Hospital(){ id = 1, city = "Hyderabad", count = 150},
                new Hospital(){ id = 2, city = "Chennai", count = 125},
                new Hospital(){ id = 3, city = "Banglore", count = 200},
                new Hospital(){ id = 4, city = "Coimbatore", count = 50},
                new Hospital(){ id = 5, city = "Ongole", count = 75}
            };

            //For Loop
            Console.WriteLine("********************For
Loop******************\n");

            for(int i = 0; i < hpt.Count; i++)
            {
                if(hpt[i].count >= 100)
                    Console.WriteLine($"Hospital Id is: {hpt[i].id} and
Hospital City is: {hpt[i].city}.");
            }

            //For Each Loop
            Console.WriteLine("\n****************ForEach
Loop****************\n");

            foreach(Hospital hp in hpt)
            {
                if(hp.count >= 100)
                    Console.WriteLine($"Hospital Id is: {hp.id} and Hospital
City is: {hp.city}.");
            }

            //Lambda Expression
```

```csharp
            Console.WriteLine("\n***************Lambda
Expression***************\n");

            hpt.Where(hp => hp.count >= 100).ToList().ForEach(hp =>
Console.WriteLine($"Hospital Id is: {hp.id} and Hospital City is:
{hp.city}."));

            //LINQ Query
            Console.WriteLine("\n*******************LINQ
Query******************\n");

            var result = from hp in hpt
                        where hp.count >= 100
                        select hp;
            result.ToList().ForEach(hp => Console.WriteLine($"Hospital Id is:
{hp.id} and Hospital City is: {hp.city}."));

            Console.ReadLine();
        }
    }
}
```
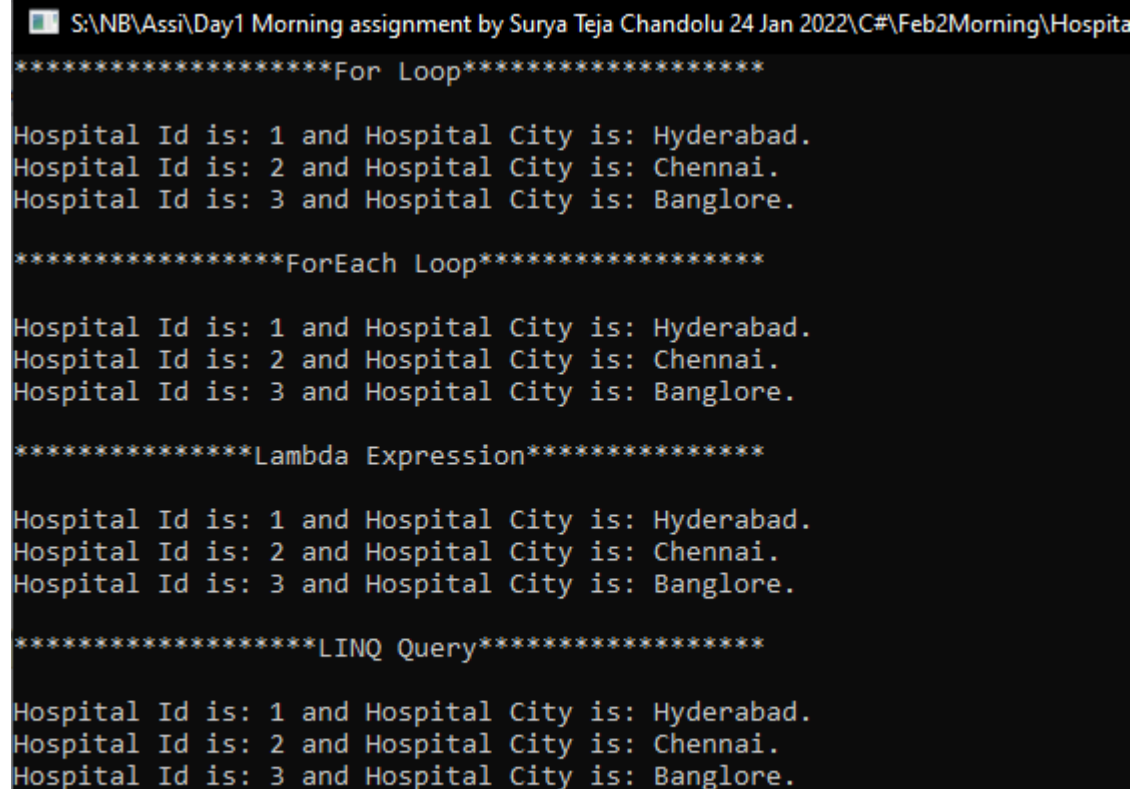
Output:

```
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********************For Loop********************

Hospital Id is: 1 and Hospital City is: Hyderabad.
Hospital Id is: 2 and Hospital City is: Chennai.
Hospital Id is: 3 and Hospital City is: Banglore.

******************ForEach Loop*******************

Hospital Id is: 1 and Hospital City is: Hyderabad.
Hospital Id is: 2 and Hospital City is: Chennai.
Hospital Id is: 3 and Hospital City is: Banglore.

***************Lambda Expression***************

Hospital Id is: 1 and Hospital City is: Hyderabad.
Hospital Id is: 2 and Hospital City is: Chennai.
Hospital Id is: 3 and Hospital City is: Banglore.

*******************LINQ Query******************

Hospital Id is: 1 and Hospital City is: Hyderabad.
Hospital Id is: 2 and Hospital City is: Chennai.
Hospital Id is: 3 and Hospital City is: Banglore.
```