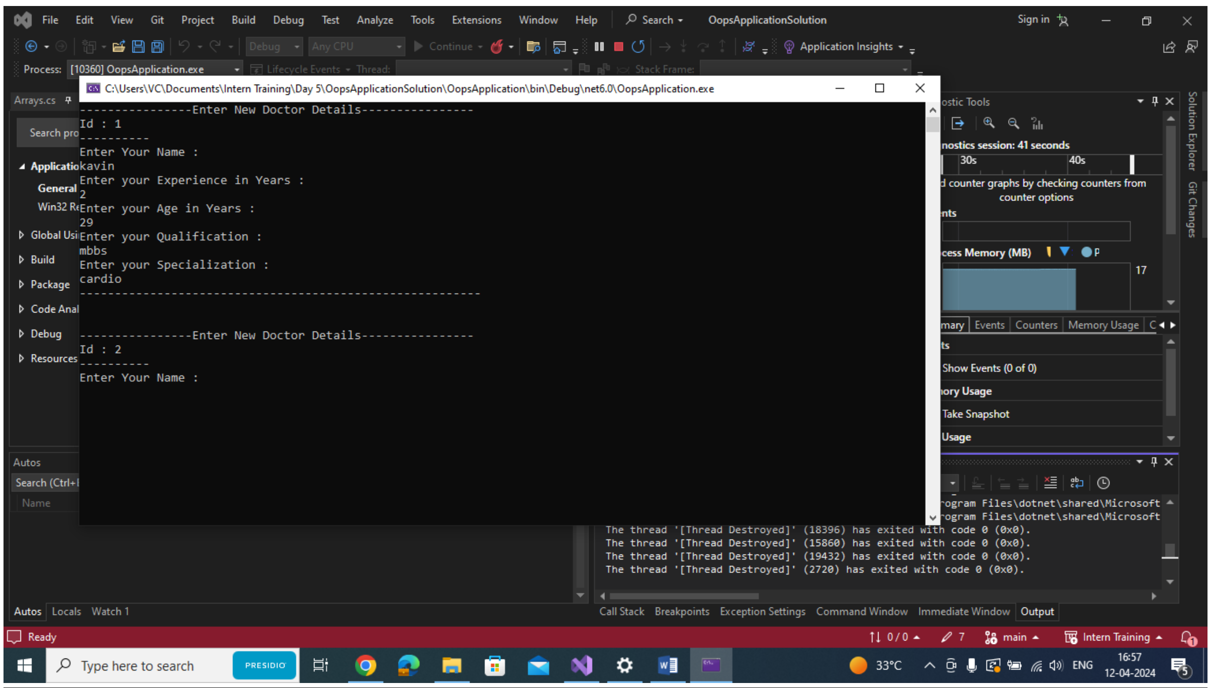
DOCTOR C# oops concepts:

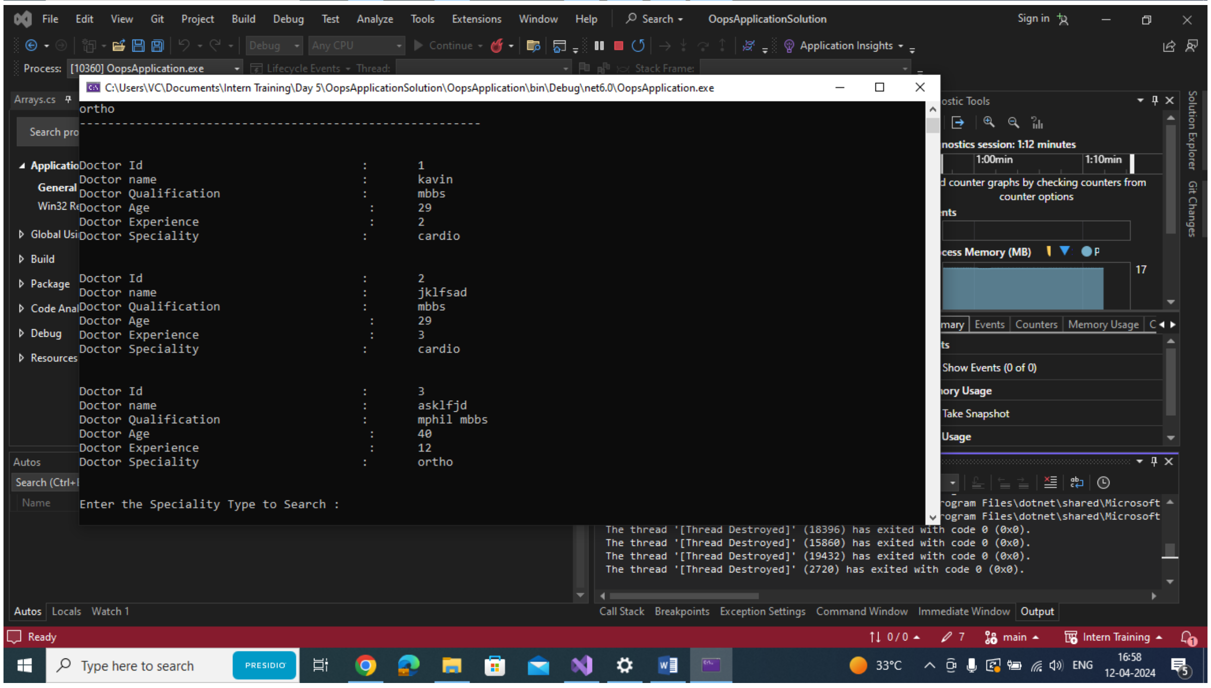
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace OopsApplication
{
    internal class Doctor
    {
        /// <summary>
        /// Initial constructor consists of default values when empty constructor
is called
        /// </summary>
        public Doctor() {
            Id = 0;
            Name = string.Empty;
            Age = 0;
            Experience = 0;
            Qualification = string.Empty;
            Speciality = string.Empty;
        }

        /// <summary>
        /// Constructor called when Id alone is defined by the user
        /// </summary>
        /// <param name="id">Id of Doctor</param>
        public Doctor(int id){Id = id;}

        /// <summary>
        /// This Constructor is called when all the details about the Doctors
were passed through parameters
        /// </summary>
        /// <param name="id"></param>
        /// <param name="name"></param>
        /// <param name="experience"></param>
        /// <param name="age"></param>
        /// <param name="qualification"></param>
        /// <param name="speciality"></param>
        public Doctor(int id, string name,double experience,int age,string
qualification, string speciality):this(id) {
            Name = name;
            Experience = experience;
            Age = age;
            Qualification = qualification;
            Speciality = speciality;
        }


        /// <summary>
        /// Here The Getters and Setters were Implemented for secured data
        /// </summary>
        public int Id { get; private set; }
        public string Name { get; set; }
        public double Experience { get; set; }
        public double Age { get; set; }
        public string Qualification {  get; set; }
        public string Speciality { get; set; }


        /// <summary>
        /// Function to print the Details of Every Doctors Registered so far.
        /// </summary>
        public void PrintDoctorDetails()
        {
            Console.WriteLine($"Doctor Id\t \t \t \t:\t{this.Id}");
            Console.WriteLine($"Doctor name\t \t \t \t:\t{this.Name}");
            Console.WriteLine($"Doctor Qualification\t \t 
\t:\t{this.Qualification}");
            Console.WriteLine($"Doctor Age \t \t \t \t :\t{this.Age}");
            Console.WriteLine($"Doctor Experience \t \t \t 
:\t{this.Experience}");
            Console.WriteLine($"Doctor Speciality\t \t \t:\t{this.Speciality}");
            Console.WriteLine();
            Console.WriteLine();
        }
    }
}
```

```
namespace OopsApplication
{
    internal class Program
    {
        static void specialityFind(Doctor[] doctors,String speciality)
        {
            for(int i = 0; i < doctors.Length; i++)
            {
                if (doctors[i].Speciality == speciality)
                {
                    doctors[i].PrintDoctorDetails();
                }
            }
        }

        Doctor CreateNewDoctorUsingConsoleData(int Id)
        {
            Doctor doctor = new Doctor(Id);
            Console.WriteLine($"----------------Enter New Doctor Details---------
-------");
            Console.WriteLine($"Id : {Id}");
            Console.WriteLine("----------");
            Console.WriteLine("Enter Your Name : ");
            doctor.Name = Console.ReadLine();
            Console.WriteLine("Enter your Experience in Years : ");
            int experience;
            while (!int.TryParse(Console.ReadLine(), out experience))
            {
                Console.WriteLine("Invalid Data, Please provide proper Experience
in year : ");
            }
            doctor.Experience = experience;
            Console.WriteLine("Enter your Age in Years : ");
            int age;
            while (!int.TryParse(Console.ReadLine(), out age))
            {
                Console.WriteLine("Invalid Data, Please provide proper Experience
in year : ");
            }
            doctor.Age = age;
            Console.WriteLine("Enter your Qualification : ");
            doctor.Qualification = Console.ReadLine();
            Console.WriteLine("Enter your Specialization : ");
            doctor.Speciality = Console.ReadLine();
            Console.WriteLine("-------------------------------------------------
-------");
            Console.WriteLine();
            Console.WriteLine();
            return doctor;
        }
        static void Main(string[] args)
        {
            Program program = new Program();
            Doctor[] doctors = new Doctor[3];

            Doctor doctor1 = new Doctor
            {
                Name = "kavin",
                Experience = 2,
                Age = 20,
                Qualification = "MBBS.,M.phil.",
                Speciality = "Cardio"
            };

            for (int ind = 0; ind < doctors.Length; ind++)
            {
                doctors[ind] = program.CreateNewDoctorUsingConsoleData(ind + 1);
            }
            for(int ind = 0;ind < doctors.Length; ind++)
            {
                doctors[ind].PrintDoctorDetails();
            }

            Console.WriteLine("Enter the Speciality Type to Search : ");
            string speciality = Console.ReadLine();
            specialityFind(doctors, speciality);
            Console.WriteLine();
        }
    }
}
```


C:\Users\VC\Documents\Intern Training\Day 5\OopsApplicationSolution\OopsApplication\bin\Debug\net6.0\OopsApplication.exe

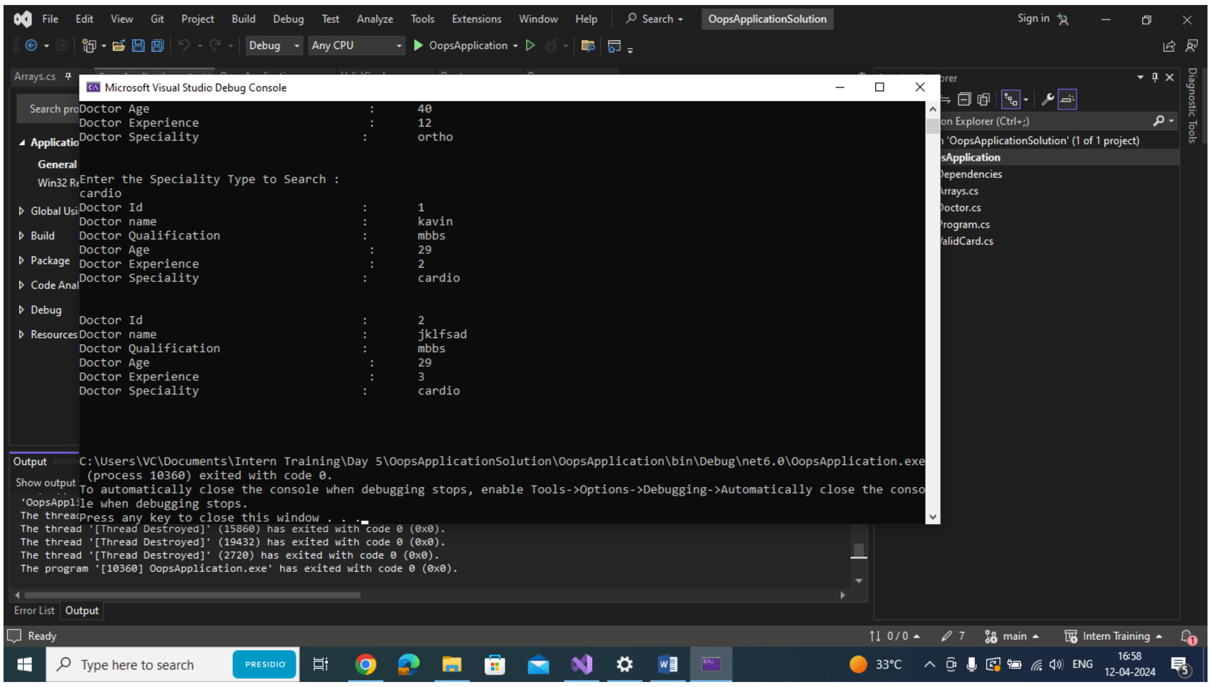
```
---------------Enter New Doctor Details---------------
Id : 1
---------
Enter Your Name :
kavin
Enter your Experience in Years :
2
Enter your Age in Years :
29
Enter your Qualification :
mbbs
Enter your Specialization :
cardio
----------------------------------------------------------

---------------Enter New Doctor Details---------------
Id : 2
---------
Enter Your Name :
```

```
The thread '[Thread Destroyed]' (18396) has exited with code 0 (0x0).
The thread '[Thread Destroyed]' (15860) has exited with code 0 (0x0).
The thread '[Thread Destroyed]' (19432) has exited with code 0 (0x0).
The thread '[Thread Destroyed]' (2720) has exited with code 0 (0x0).
```


C:\Users\VC\Documents\Intern Training\Day 5\OopsApplicationSolution\OopsApplication\bin\Debug\net6.0\OopsApplication.exe

```
ortho
----------------------------------------------------------


Doctor Id                              :       1
Doctor name                            :       kavin
Doctor Qualification                   :       mbbs
Doctor Age                              :      29
Doctor Experience                       :      2
Doctor Speciality                      :       cardio


Doctor Id                              :       2
Doctor name                            :       jklfsad
Doctor Qualification                   :       mbbs
Doctor Age                              :      29
Doctor Experience                       :      3
Doctor Speciality                      :       cardio


Doctor Id                              :       3
Doctor name                            :       asklfjd
Doctor Qualification                   :       mphil mbbs
Doctor Age                              :      40
Doctor Experience                       :      12
Doctor Speciality                      :       ortho


Enter the Speciality Type to Search :
```

```
The thread '[Thread Destroyed]' (18396) has exited with code 0 (0x0).
The thread '[Thread Destroyed]' (15860) has exited with code 0 (0x0).
The thread '[Thread Destroyed]' (19432) has exited with code 0 (0x0).
The thread '[Thread Destroyed]' (2720) has exited with code 0 (0x0).
```

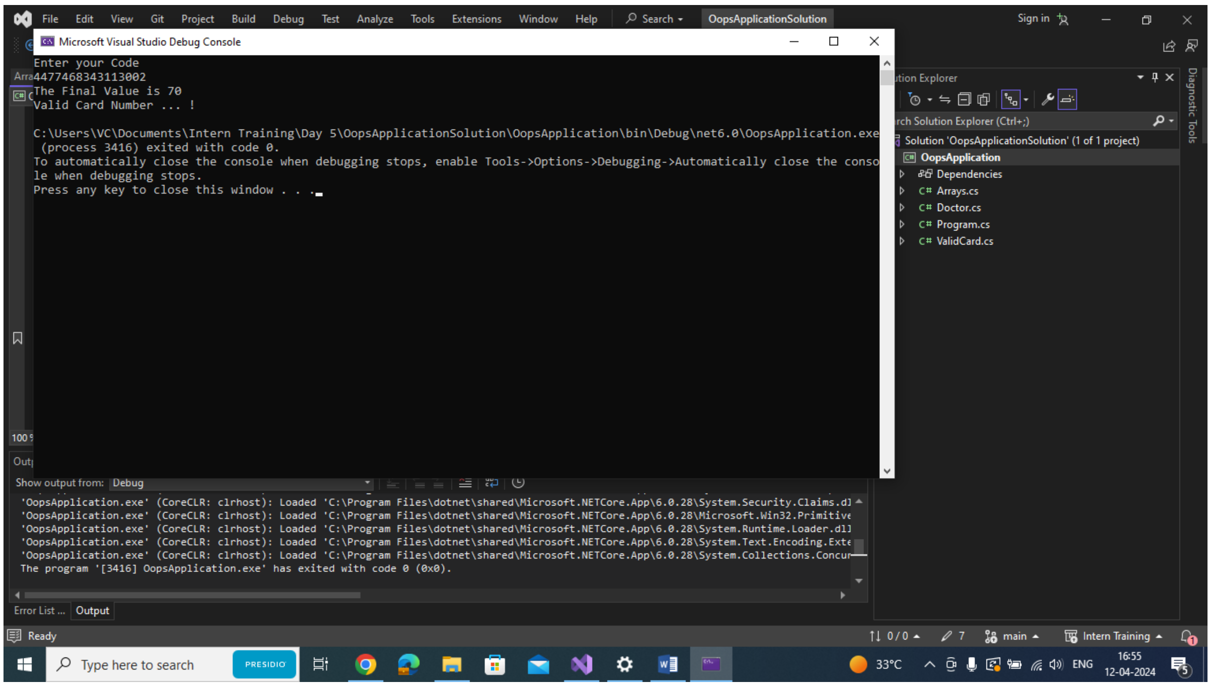


```
Doctor Age                      :       40
Doctor Experience               :       12
Doctor Speciality               :       ortho


Enter the Speciality Type to Search :
cardio
Doctor Id                       :       1
Doctor name                     :       kavin
Doctor Qualification            :       mbbs
Doctor Age                      :       29
Doctor Experience               :       2
Doctor Speciality               :       cardio


Doctor Id                       :       2
Doctor name                     :       jklfsad
Doctor Qualification            :       mbbs
Doctor Age                      :       29
Doctor Experience               :       3
Doctor Speciality               :       cardio



C:\Users\VC\Documents\Intern Training\Day 5\OopsApplicationSolution\OopsApplication\bin\Debug\net6.0\OopsApplication.exe
 (process 10360) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

```
The thread '[Thread Destroyed]' (15860) has exited with code 0 (0x0).
The thread '[Thread Destroyed]' (19432) has exited with code 0 (0x0).
The thread '[Thread Destroyed]' (2720) has exited with code 0 (0x0).
The program '[10360] OopsApplication.exe' has exited with code 0 (0x0).
```

VALID CARD NUMBER

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

namespace OopsApplication
{
    internal class ValidCard
    {

        /// <summary>
        /// Reversing the given card number and converting it to an reversed 
integer array for further arithmatic operation
        /// </summary>
        /// <param name="str"></param>
        /// <returns></returns>
        static int[] reverseNumberToIntegerArray(string str)
        {
            char[] charArray = str.ToCharArray();
            Array.Reverse(charArray);
            int[] numbers = new int[charArray.Length];
            for(int i = 0; i < charArray.Length; i++)
            {
                numbers[i] = charArray[i]-'0';
            }
            return numbers;
        }

        /// <summary>
        /// Arithmetic operations to be handled to complete the
        /// </summary>
        /// <param name="str"></param>
        /// <returns></returns>
        static bool verificationOperations(string str)
        {
            if(str.Length < 15) { return false; };
            int[] numbers = reverseNumberToIntegerArray(str);
            int total = 0;
            for(int ind = 0; ind < numbers.Length; ind++)
            {
                if((ind+1)%2 == 0)
                {
                    numbers[ind] *= 2;
                }
                if (numbers[ind] > 9)
                {
                    int once = numbers[ind] % 10;
                    int tens = numbers[ind] / 10;
                    numbers[ind] = once + tens;
                }
                total += numbers[ind];
            }

            Console.WriteLine("The Final Value is " + total);

            if (total % 10 == 0) return true;
            else return false;

        }

        static void Main(string[] args)
        {
            Console.WriteLine("Enter your Code");
            string cardNumber = Console.ReadLine();
            if (verificationOperations(cardNumber)) Console.WriteLine("Valid Card
Number ... !");
            else Console.WriteLine("Invalid Card Number ... !");
        }
    }
}
```



```
Enter your Code
4477468343113002
The Final Value is 70
Valid Card Number ... !

C:\Users\VC\Documents\Intern Training\Day 5\OopsApplicationSolution\OopsApplication\bin\Debug\net6.0\OopsApplication.exe
 (process 3416) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

Show output from: Debug

```
'OopsApplication.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.28\System.Security.Claims.dl
'OopsApplication.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.28\Microsoft.Win32.Primitive
'OopsApplication.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.28\System.Runtime.Loader.dll
'OopsApplication.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.28\System.Text.Encoding.Exte
'OopsApplication.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.28\System.Collections.Concur
The program '[3416] OopsApplication.exe' has exited with code 0 (0x0).
```