

Student ID : 16043

Q1. What is Class and role of object in a Class, explain in detail with the help of a suitable program?

Ans.

Class:

A class is a template or datatype which can be used in large programs. A class defines its property member and function members in it. A class is like an object constructor, or a "blueprint" for creating objects.

Role of object in a Class:

An object is an element (or instance) of a class; objects have the behaviors of their class. The object is the actual component of programs, while the class specifies how instances are created and how they behave.

In the example we will have human as a class and then properties / attribute of that class is name, height, width, weight just for the sake of simplicity we will define only four of them. The code syntax is most commonly used language.

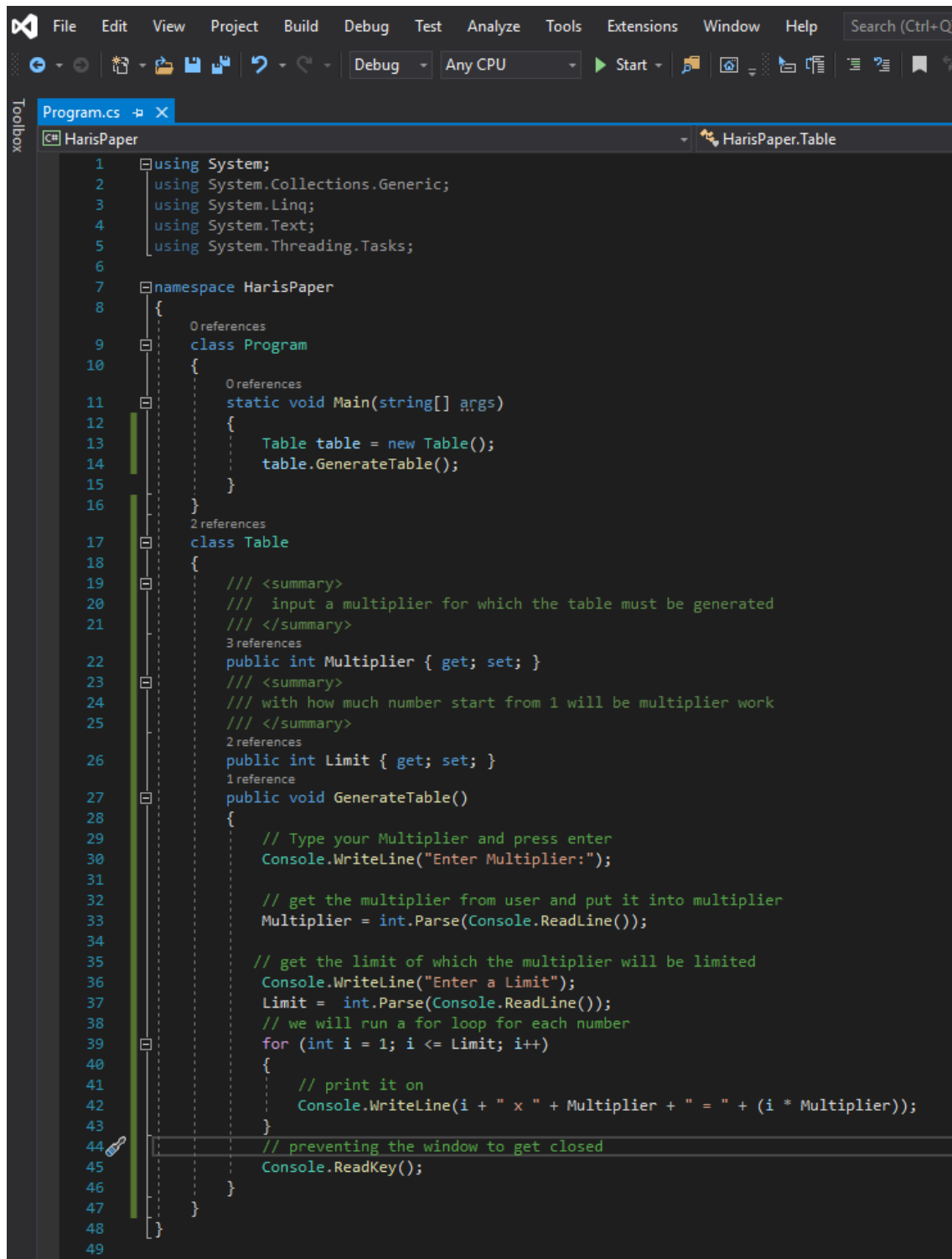
The class has one another aspect (functions or member functions) of which we can use that class stated just below properties. Now we can create an object of that class in the line number 15. And we can access the object properties and method (behavior function) with the use.(dot) operator.

```
1. class Human:
2.     Property 1.
3.     Name
4.     Property 2.
5.     Height
6.     Property 3.
7.     Width
8.     Property 5.
9.     behavior of the human class
10.    Def walk()
11.    print("human is walking");

12.// behavior of the human class
13.    def talk()
14.    print("human is talking");


15. objHuman = Human();
16. objHuman.walk()
```

Q2. Write a program about table printing which takes input from the user on the basis of OOP and explain in detail.



```
1  using System;
2  using System.Collections.Generic;
3  using System.Linq;
4  using System.Text;
5  using System.Threading.Tasks;
6
7  namespace HarisPaper
8  {
9      class Program
10     {
11         static void Main(string[] args)
12         {
13             Table table = new Table();
14             table.GenerateTable();
15         }
16     }
17     class Table
18     {
19         /// <summary>
20         /// input a multiplier for which the table must be generated
21         /// </summary>
22         public int Multiplier { get; set; }
23         /// <summary>
24         /// with how much number start from 1 will be multiplier work
25         /// </summary>
26         public int Limit { get; set; }
27         public void GenerateTable()
28         {
29             // Type your Multiplier and press enter
30             Console.WriteLine("Enter Multiplier:");
31
32             // get the multiplier from user and put it into multiplier
33             Multiplier = int.Parse(Console.ReadLine());
34
35             // get the limit of which the multiplier will be limited
36             Console.WriteLine("Enter a Limit");
37             Limit = int.Parse(Console.ReadLine());
38             // we will run a for loop for each number
39             for (int i = 1; i <= Limit; i++)
40             {
41                 // print it on
42                 Console.WriteLine(i + " x " + Multiplier + " = " + (i * Multiplier));
43             }
44             // preventing the window to get closed
45             Console.ReadKey();
46         }
47     }
48 }
49
```

Out put

 C:\Users\Ahmad\source\repos\HarisPaper\HarisPaper\bin\Debug\HarisPaper.exe

```
Enter Multiplier:
```

```
5
```

```
Enter a Limit
```

```
10
```

```
1 x 5 = 5
```

```
2 x 5 = 10
```

```
3 x 5 = 15
```

```
4 x 5 = 20
```

```
5 x 5 = 25
```

```
6 x 5 = 30
```

```
7 x 5 = 35
```

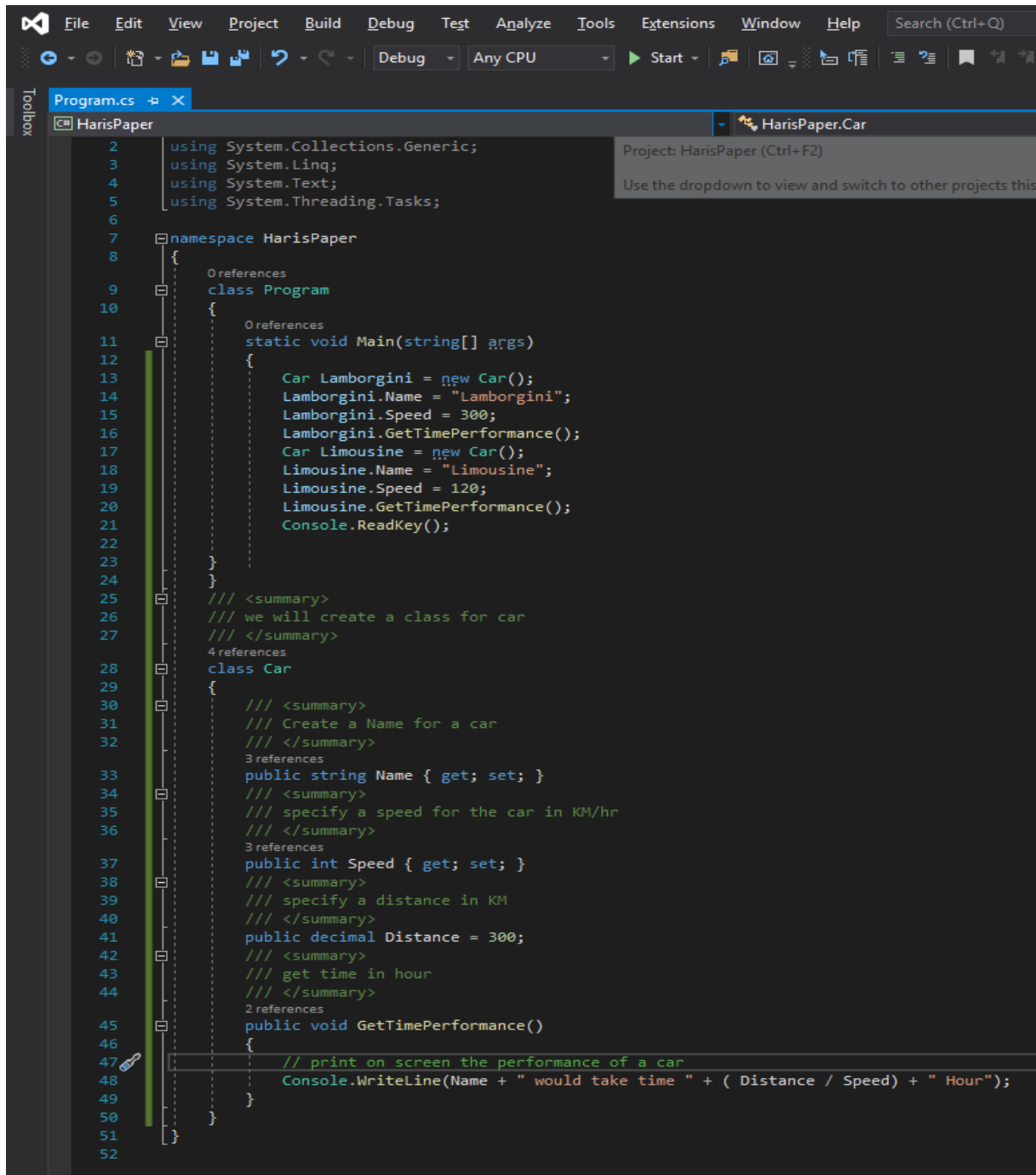
```
8 x 5 = 40
```

```
9 x 5 = 45
```

```
10 x 5 = 50
```

```
█
```

Q3. Write a program about any 2 cars which can calculate the performance of both of them and explain in detail.



The image shows a screenshot of the Visual Studio IDE with a C# program open. The program is titled 'Program.cs' and is part of a project named 'HarisPaper'. The code defines a namespace 'HarisPaper' containing two classes: 'Program' and 'Car'.

```
2 using System.Collections.Generic;
3 using System.Linq;
4 using System.Text;
5 using System.Threading.Tasks;
6
7 namespace HarisPaper
8 {
9     0 references
10    class Program
11    {
12        0 references
13        static void Main(string[] args)
14        {
15            Car Lamborgini = new Car();
16            Lamborgini.Name = "Lamborgini";
17            Lamborgini.Speed = 300;
18            Lamborgini.GetTimePerformance();
19            Car Limousine = new Car();
20            Limousine.Name = "Limousine";
21            Limousine.Speed = 120;
22            Limousine.GetTimePerformance();
23            Console.ReadKey();
24        }
25    }
26    /// <summary>
27    /// we will create a class for car
28    /// </summary>
29    4 references
30    class Car
31    {
32        /// <summary>
33        /// Create a Name for a car
34        /// </summary>
35        3 references
36        public string Name { get; set; }
37        /// <summary>
38        /// specify a speed for the car in KM/hr
39        /// </summary>
40        3 references
41        public int Speed { get; set; }
42        /// <summary>
43        /// specify a distance in KM
44        /// </summary>
45        public decimal Distance = 300;
46        /// <summary>
47        /// get time in hour
48        /// </summary>
49        2 references
50        public void GetTimePerformance()
51        {
52            // print on screen the performance of a car
53            Console.WriteLine(Name + " would take time " + ( Distance / Speed) + " Hour");
54        }
55    }
56 }
```

Output



C:\Users\Ahmad\source\repos\HarisPaper\HarisPap

```
Lamborghini would take time 1 Hour
```

```
Limousine would take time 2.5 Hour
```