

Universidad Rafael Landívar

Facultad de ingeniería

Ingeniería en sistemas

Pensamiento computacional

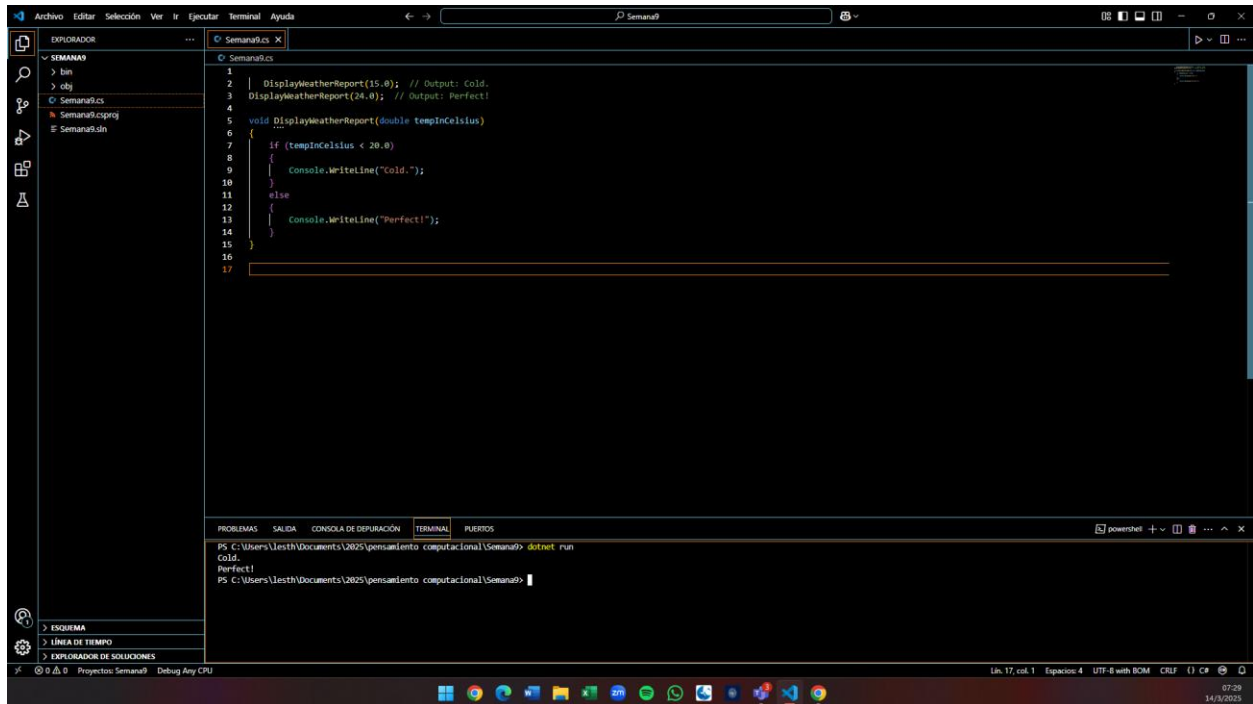
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Semana 9

1) Instrucción selección if



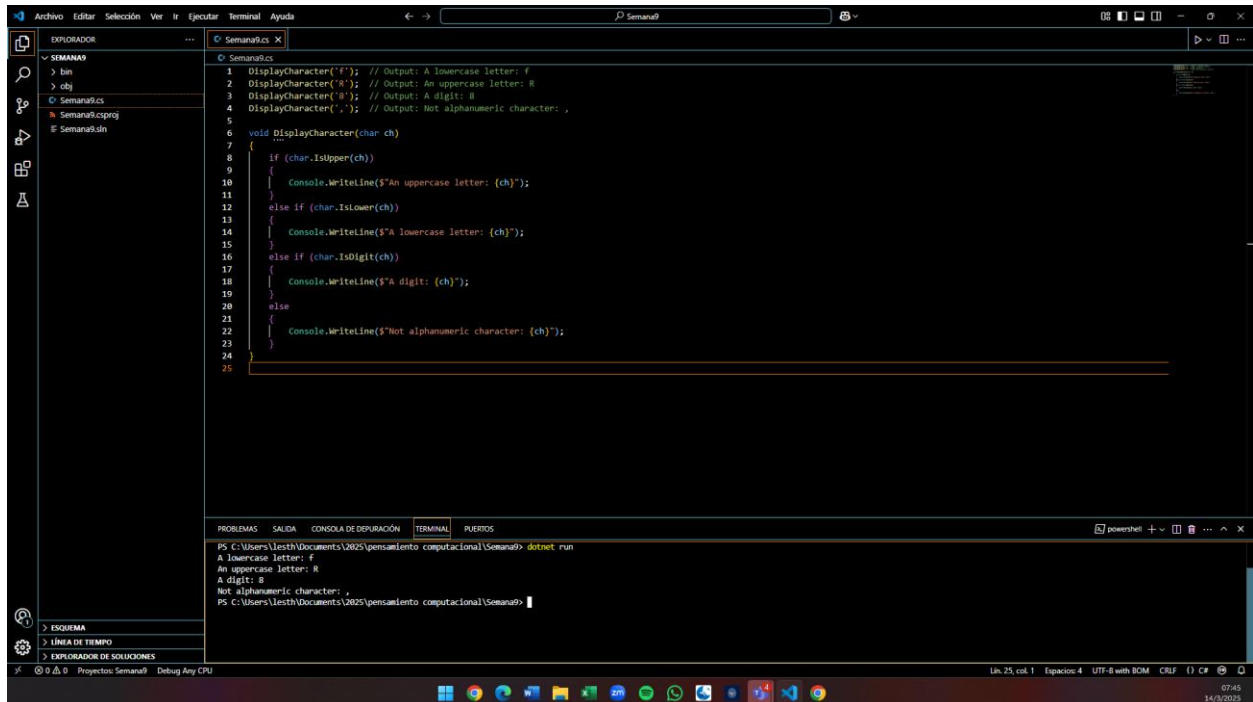
The screenshot shows the Visual Studio Code interface with a C# file named `Semana9.cs`. The code defines a `DisplayWeatherReport` method that takes a `tempInCelsius` parameter. It uses an `if` statement to check if the temperature is less than 20.0. If true, it prints "Cold."; otherwise, it prints "Perfect!". The terminal shows the output of the program.

```
1
2 | DisplayWeatherReport(15.0); // Output: Cold.
3 | DisplayWeatherReport(24.0); // Output: Perfect!
4
5 void DisplayWeatherReport(double tempInCelsius)
6 {
7     if (tempInCelsius < 20.0)
8     {
9         Console.WriteLine("Cold.");
10    }
11    else
12    {
13        Console.WriteLine("Perfect!");
14    }
15 }
16
17
```

Terminal output:

```
PS C:\Users\Iesth\Documents\2025\pensamiento computacional\Semana9> dotnet run
Cold.
Perfect!
PS C:\Users\Iesth\Documents\2025\pensamiento computacional\Semana9>
```

2. else if



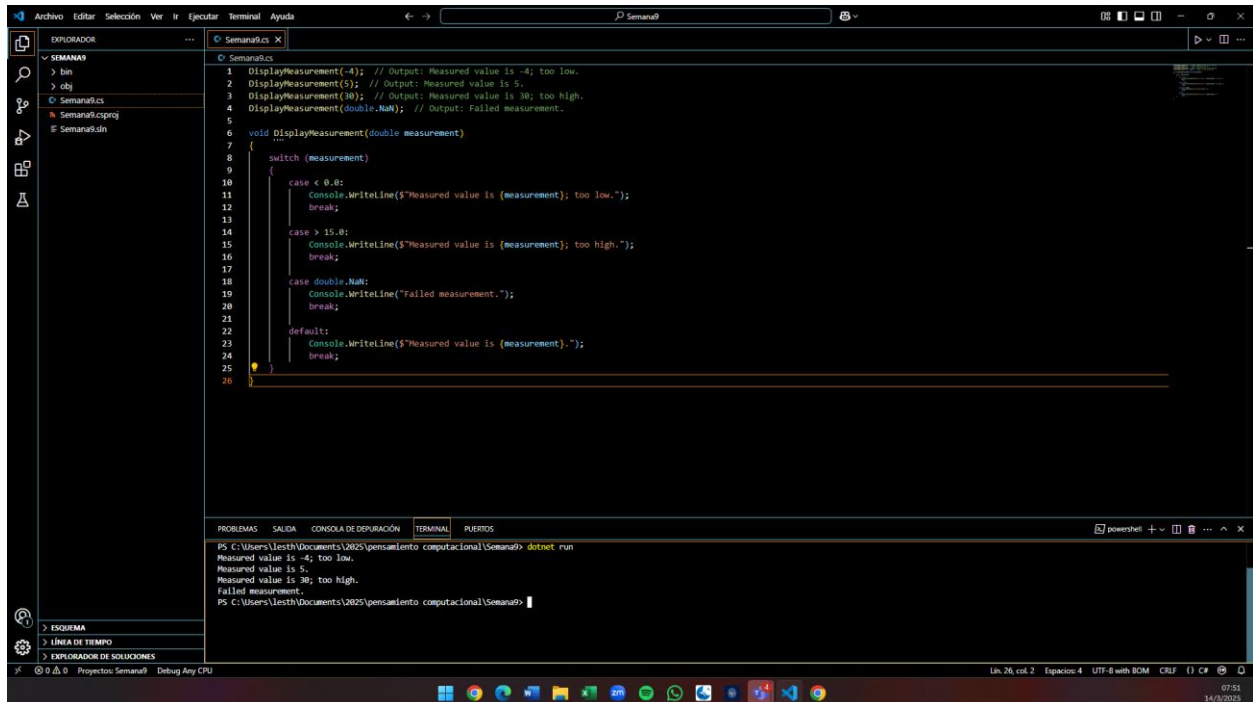
The screenshot shows the Visual Studio Code interface with a C# file named `Semana9.cs`. The code defines a `DisplayCharacter` method that takes a `char ch` parameter. It uses an `if-else-if` chain to check the character type: uppercase letter, lowercase letter, digit, or not alphanumeric. The terminal shows the output of the program.

```
1 DisplayCharacter('f'); // Output: A lowercase letter: f
2 DisplayCharacter('R'); // Output: An uppercase letter: R
3 DisplayCharacter('8'); // Output: A digit: 8
4 DisplayCharacter(','); // Output: Not alphanumeric character: ,
5
6 void DisplayCharacter(char ch)
7 {
8     if (char.IsUpper(ch))
9     {
10        Console.WriteLine($"An uppercase letter: {ch}");
11    }
12    else if (char.IsLower(ch))
13    {
14        Console.WriteLine($"A lowercase letter: {ch}");
15    }
16    else if (char.IsDigit(ch))
17    {
18        Console.WriteLine($"A digit: {ch}");
19    }
20    else
21    {
22        Console.WriteLine($"Not alphanumeric character: {ch}");
23    }
24 }
25
```

Terminal output:

```
PS C:\Users\Iesth\Documents\2025\pensamiento computacional\Semana9> dotnet run
A lowercase letter: f
An uppercase letter: R
A digit: 8
Not alphanumeric character: ,
PS C:\Users\Iesth\Documents\2025\pensamiento computacional\Semana9>
```

3. Estructura case & switch



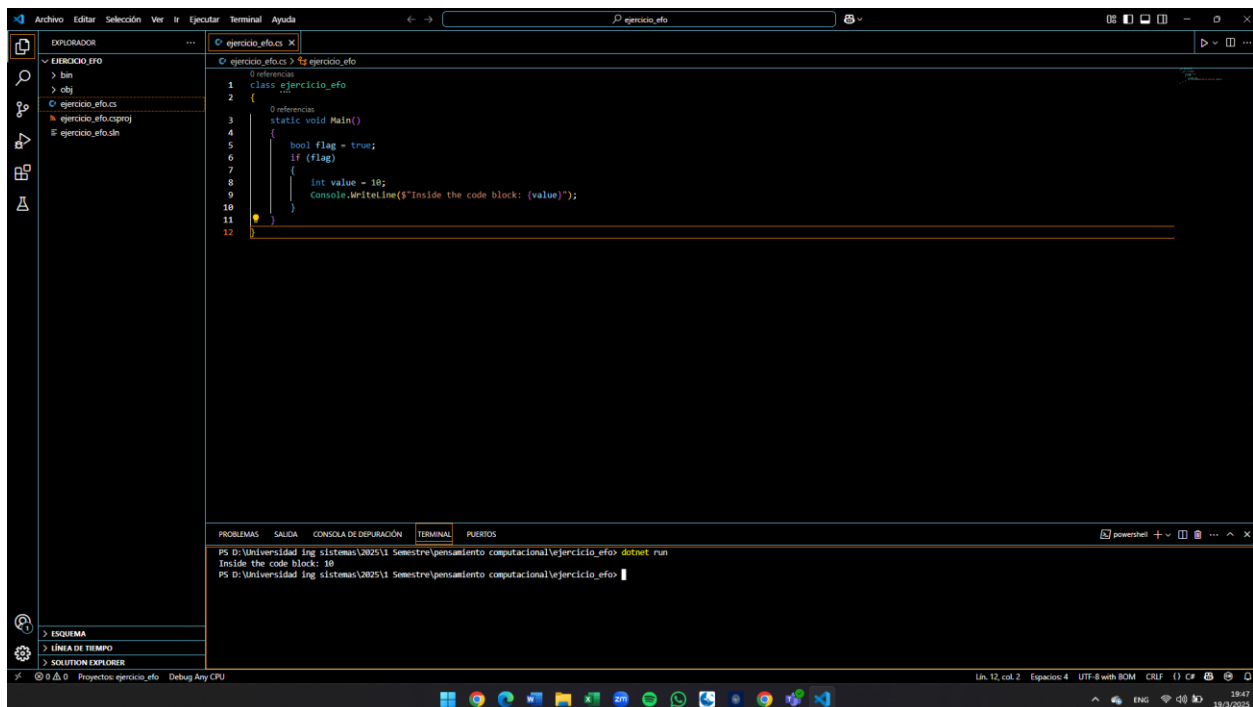
The screenshot shows the Visual Studio IDE with a C# file named `Semana9.cs`. The code defines a `DisplayMeasurement` method that uses a `switch` statement to validate a measurement value. The switch statement has four cases: `case < 0.0;`, `case > 15.0;`, `case double.NaN;`, and a `default;` case. Each case prints a message to the console and then `break;`. The `main` method calls `DisplayMeasurement` with three different values: `-4`, `5`, and `double.NaN`. The terminal output shows the results of these calls.

```
1 DisplayMeasurement(-4); // Output: Measured value is -4; too low.
2 DisplayMeasurement(5); // Output: Measured value is 5.
3 DisplayMeasurement(30); // Output: Measured value is 30; too high.
4 DisplayMeasurement(double.NaN); // Output: Failed measurement.
5
6 void DisplayMeasurement(double measurement)
7 {
8     switch (measurement)
9     {
10         case < 0.0:
11             Console.WriteLine($"Measured value is {measurement}; too low.");
12             break;
13         case > 15.0:
14             Console.WriteLine($"Measured value is {measurement}; too high.");
15             break;
16         case double.NaN:
17             Console.WriteLine("Failed measurement.");
18             break;
19         default:
20             Console.WriteLine($"Measured value is {measurement}.");
21             break;
22     }
23 }
24
25
26
```

Terminal output:

```
PS C:\Users\lesth\Documents\2025\pensamiento computacional\Semana9> dotnet run
Measured value is -4; too low.
Measured value is 5.
Measured value is 30; too high.
Failed measurement.
PS C:\Users\lesth\Documents\2025\pensamiento computacional\Semana9>
```

4. Funcion if con una variable booleana



The screenshot shows the Visual Studio IDE with a C# file named `ejercicio_efo.cs`. The code defines a `Main` method that uses an `if` statement to check a boolean variable `flag`. If `flag` is `true`, it prints a message and assigns the value `10` to a variable `value`. The terminal output shows the result of the program execution.

```
1 class ejercicio_efo
2 {
3     static void Main()
4     {
5         bool flag = true;
6         if (flag)
7         {
8             int value = 10;
9             Console.WriteLine($"Inside the code block: {value}");
10        }
11    }
12 }
```

Terminal output:

```
PS D:\Universidad Ing sistemas\2025\1 Semestre\pensamiento computacional\ejercicio_efo> dotnet run
Inside the code block: 10
PS D:\Universidad Ing sistemas\2025\1 Semestre\pensamiento computacional\ejercicio_efo>
```

5. Si se asigna un valor después del if se imprimirá el valor asignado después del if

The screenshot shows the Visual Studio IDE with a C# project named 'ejercicio_efo'. The code in 'ejercicio_efo.cs' is as follows:

```
1 class ejercicio_efo
2 {
3     // Referencias
4     static void Main()
5     {
6         bool flag = true;
7         int value = 0;
8
9         if (flag)
10        {
11            Console.WriteLine($"Inside the code block: {value}");
12        }
13
14        value = 10;
15        Console.WriteLine($"Outside the code block: {value}");
16    }
17 }
```

The terminal output shows the execution results:

```
PS D:\Universidad Ing sistemas\2025\1 Semestre\pensamiento computacional\ejercicio_efo> dotnet run
Inside the code block: 0
Outside the code block: 10
PS D:\Universidad Ing sistemas\2025\1 Semestre\pensamiento computacional\ejercicio_efo> |
```

6. Como funciona la estructura IF con una variable de tipo string, escrito en una sola línea.

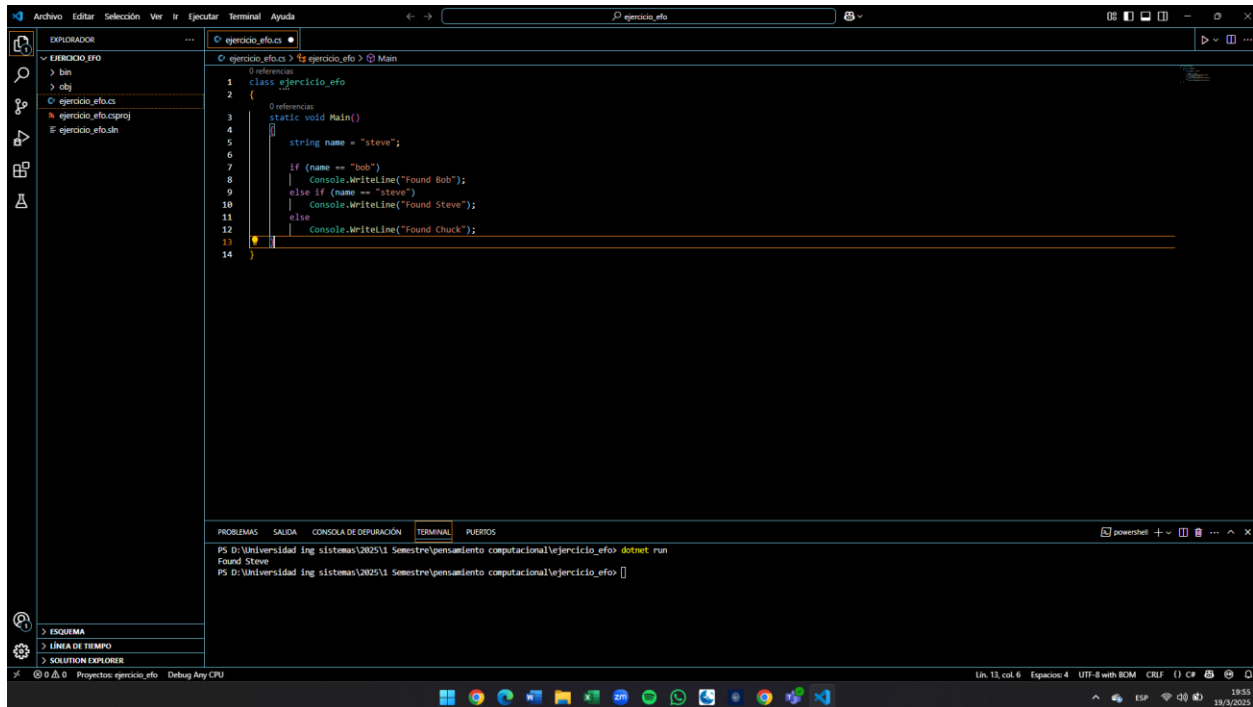
The screenshot shows the Visual Studio IDE with a C# project named 'ejercicio_efo'. The code in 'ejercicio_efo.cs' is as follows:

```
1 class ejercicio_efo
2 {
3     // Referencias
4     static void Main()
5     {
6         string name = "steve";
7         if (name == "bob") Console.WriteLine("Found Bob");
8         else if (name == "steve") Console.WriteLine("Found Steve");
9         else Console.WriteLine("Found Chuck");
10    }
11 }
```

The terminal output shows the execution results:

```
PS D:\Universidad Ing sistemas\2025\1 Semestre\pensamiento computacional\ejercicio_efo> dotnet run
Found Steve
PS D:\Universidad Ing sistemas\2025\1 Semestre\pensamiento computacional\ejercicio_efo> |
```

7. Es más sencillo leerlo así



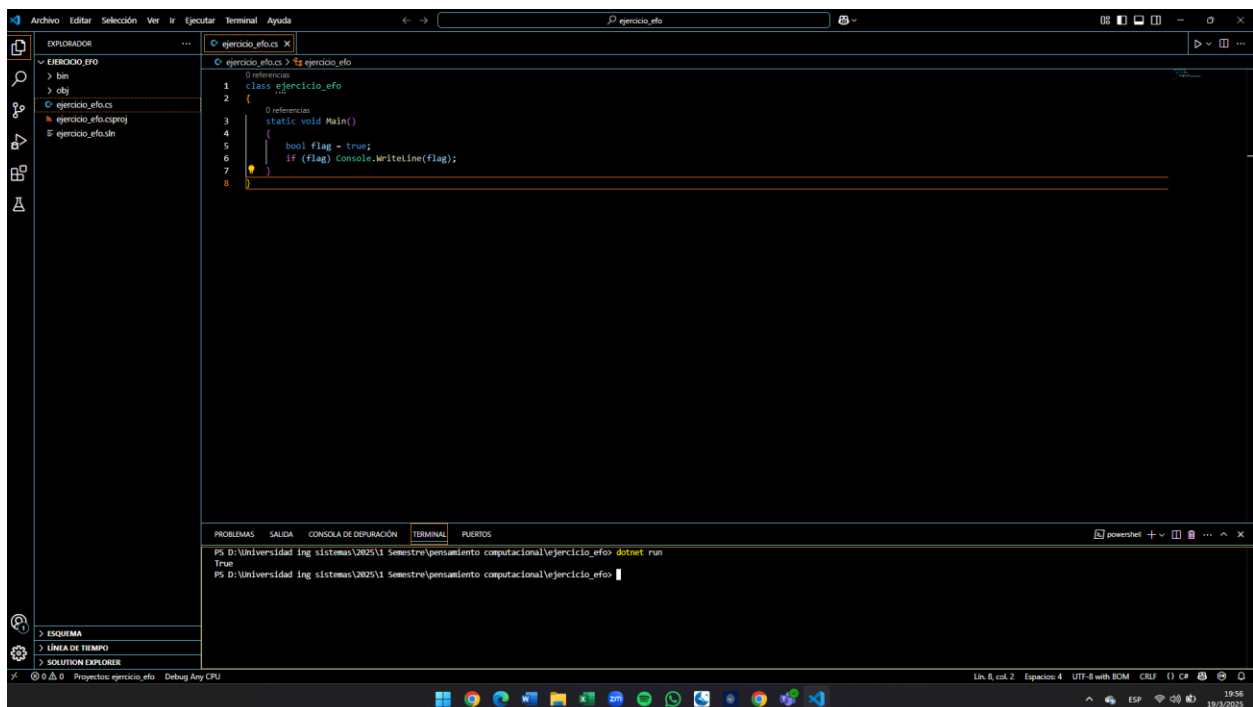
The screenshot shows the Visual Studio IDE with a C# project named 'ejercicio_efo'. The code in 'ejercicio_efo.cs' defines a class 'ejercicio_efo' with a static method 'Main()'. Inside 'Main()', a string 'name' is initialized to 'steve'. An if-else statement checks the value of 'name': if it's 'bob', it prints 'Found Bob'; if it's 'steve', it prints 'Found Steve'; otherwise, it prints 'Found Chuck'. The terminal window shows the command 'dotnet run' being executed, resulting in the output 'Found Steve'.

```
1 class ejercicio_efo
2 {
3     static void Main()
4     {
5         string name = "steve";
6
7         if (name == "bob")
8         {
9             Console.WriteLine("Found Bob");
10        }
11        else if (name == "steve")
12        {
13            Console.WriteLine("Found Steve");
14        }
15        else
16        {
17            Console.WriteLine("Found Chuck");
18        }
19    }
20 }
```

Terminal Output:

```
PS D:\Universidad Ing sistemas\2025\1 Semestre\pensamiento computacional\ejercicio_efo> dotnet run
Found Steve
PS D:\Universidad Ing sistemas\2025\1 Semestre\pensamiento computacional\ejercicio_efo>
```

8. Al ser un valor booleano, se imprimirá su valor de verdad



The screenshot shows the Visual Studio IDE with a C# project named 'ejercicio_efo'. The code in 'ejercicio_efo.cs' defines a class 'ejercicio_efo' with a static method 'Main()'. Inside 'Main()', a boolean variable 'flag' is initialized to 'true'. An if statement checks the value of 'flag', and if it's true, it prints the value of 'flag'. The terminal window shows the command 'dotnet run' being executed, resulting in the output 'True'.

```
1 class ejercicio_efo
2 {
3     static void Main()
4     {
5         bool flag = true;
6         if (flag) Console.WriteLine(flag);
7     }
8 }
```

Terminal Output:

```
PS D:\Universidad Ing sistemas\2025\1 Semestre\pensamiento computacional\ejercicio_efo> dotnet run
True
PS D:\Universidad Ing sistemas\2025\1 Semestre\pensamiento computacional\ejercicio_efo>
```