# VB.NET - BIT SHIFT OPERATORS

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Assume that the variable A holds 60 and variable B holds 13, then:

| Operator | Description | Example |
|---|---|---|
| And | Bitwise AND Operator copies a bit to the result if it exists in both operands. | *AANDB* will give 12, which is 0000 1100 |
| Or | Binary OR Operator copies a bit if it exists in either operand. | *AOrB* will give 61, which is 0011 1101 |
| Xor | Binary XOR Operator copies the bit if it is set in one operand but not both. | *AXorB* will give 49, which is 0011 0001 |
| Not | Binary Ones Complement Operator is unary and has the effect of 'flipping' bits. | *NotA* will give -61, which is 1100 0011 in 2's complement form due to a signed binary number. |
| << | Binary Left Shift Operator. The left operand's value is moved left by the number of bits specified by the right operand. | A << 2 will give 240, which is 1111 0000 |
| >> | Binary Right Shift Operator. The left operand's value is moved right by the number of bits specified by the right operand. | A >> 2 will give 15, which is 0000 1111 |

Try the following example to understand all the bitwise operators available in VB.Net:

```
Module BitwiseOp
   Sub Main()
      Dim a As Integer = 60        ' 60 = 0011 1100
      Dim b As Integer = 13        ' 13 = 0000 1101
      Dim c As Integer = 0
      c = a And b        ' 12 = 0000 1100
      Console.WriteLine("Line 1 - Value of c is {0}", c)
      c = a Or b        ' 61 = 0011 1101
      Console.WriteLine("Line 2 - Value of c is {0}", c)
      c = a Xor b        ' 49 = 0011 0001
      Console.WriteLine("Line 3 - Value of c is {0}", c)
      c = Not a           ' -61 = 1100 0011
      Console.WriteLine("Line 4 - Value of c is {0}", c)
      c = a << 2     ' 240 = 1111 0000
      Console.WriteLine("Line 5 - Value of c is {0}", c)
      c = a >> 2    ' 15 = 0000 1111
      Console.WriteLine("Line 6 - Value of c is {0}", c)
      Console.ReadLine()
   End Sub
End Module
```

When the above code is compiled and executed, it produces the following result:

```
Line 1 - Value of c is 12
Line 2 - Value of c is 61
Line 3 - Value of c is 49
Line 4 - Value of c is -61
Line 5 - Value of c is 240
Line 6 - Value of c is 15
```

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