


Asymptotic Performance


```
void Loop(int N)
{
    var counter = 0;
    while(counter < N)
    {
        Console.WriteLine(counter);
        counter = counter + 1;
    }
}
```



Complexity (N):

Asymptotic Performance

```
void Loop(int N)
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    var counter = 0;
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Complexity (N):

1

Asymptotic Performance

```
void Loop(int N)
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    var counter = 0;
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    while(counter < N)
```

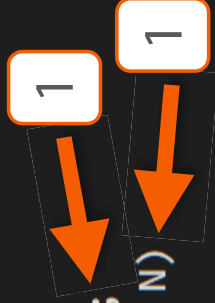
```
    {
```

```
        Console.WriteLine(counter);
```

```
        counter = counter + 1;
```

```
    }
```

```
}
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Complexity (N):

1

Asymptotic Performance

```
void Loop(int N)
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    var counter = 0;
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    while(counter < N)
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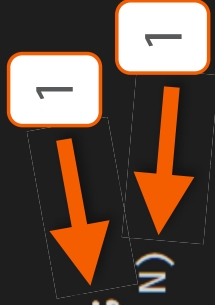
```
    {
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        Console.WriteLine(counter);
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        counter = counter + 1;
```

```
    }
```

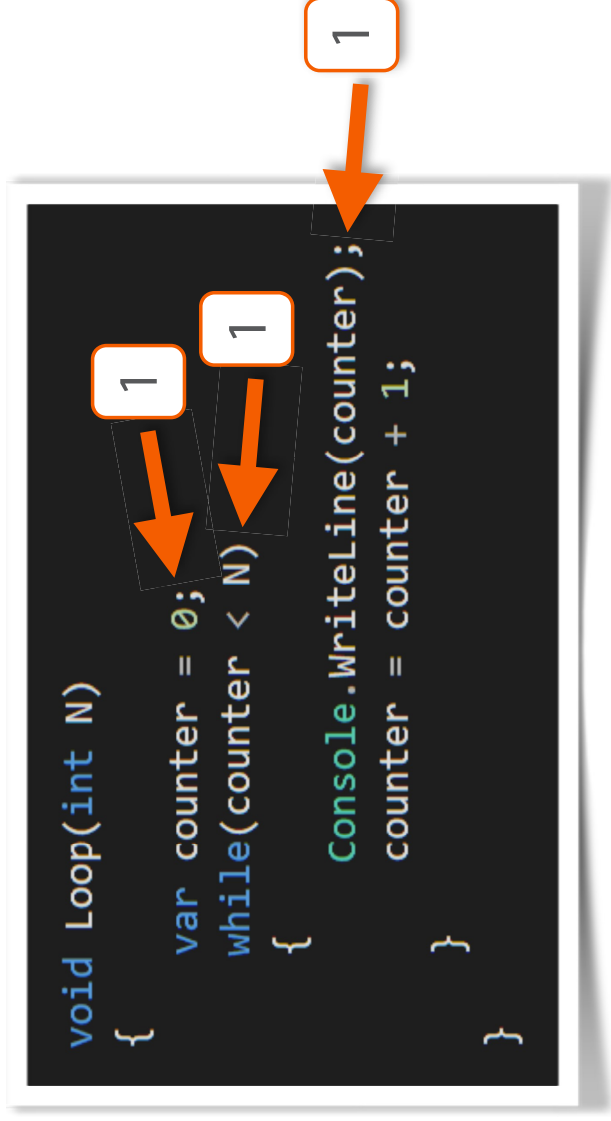
```
}
```



Complexity (N):

$$1 + 1$$

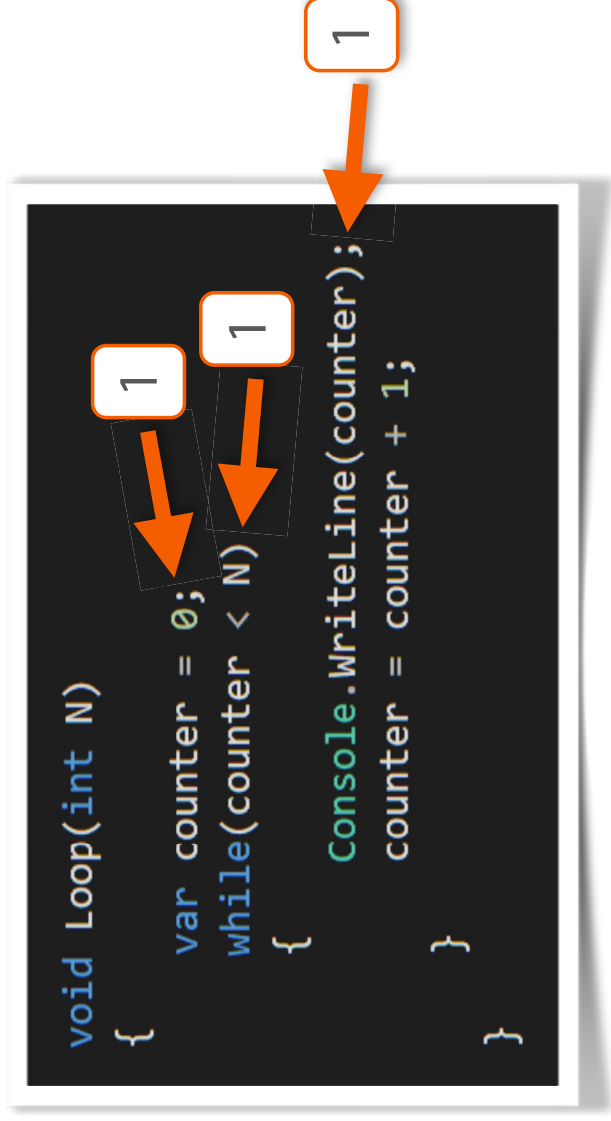
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Complexity (N):

$$1 + 1$$

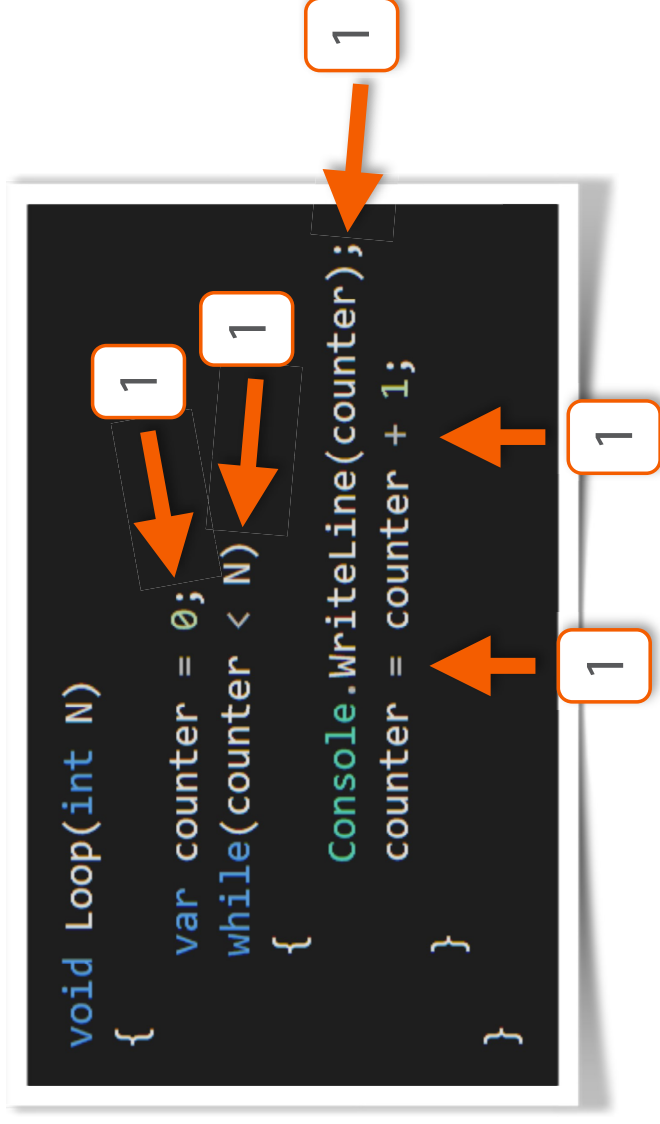
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Complexity (N):

$$1 + 1 + 1$$

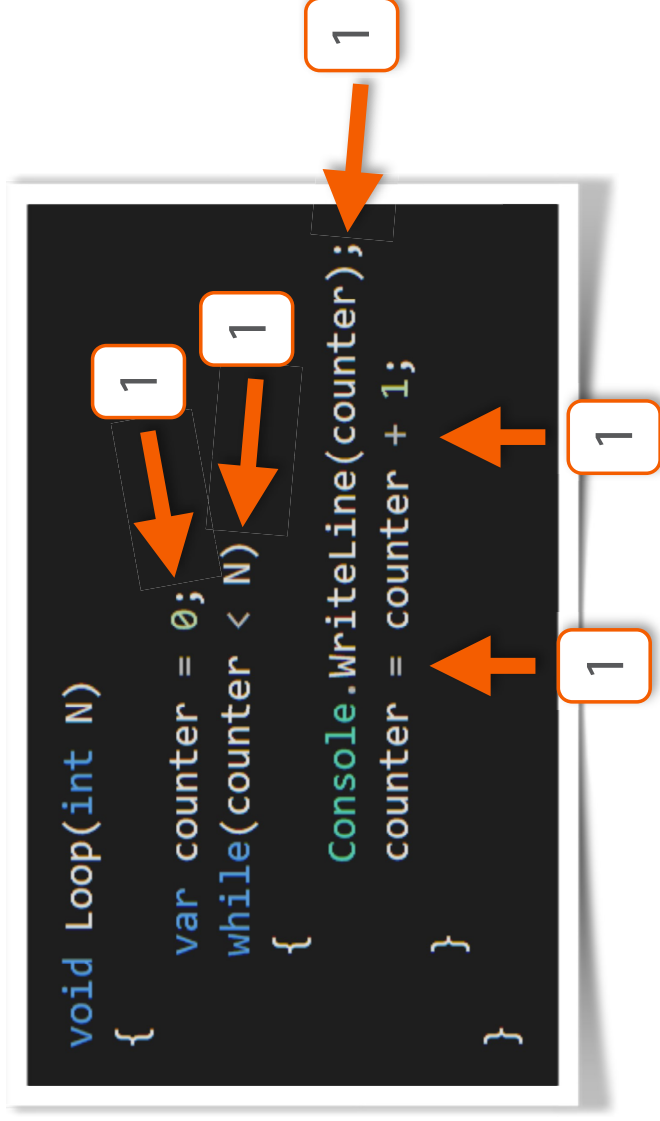
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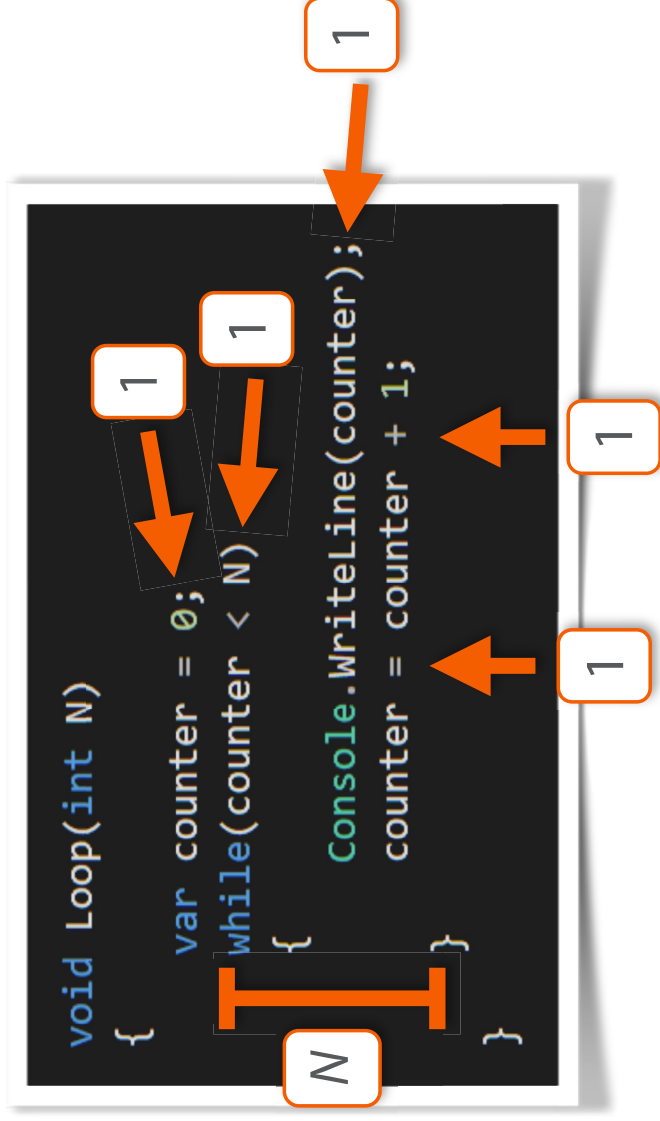
Complexity (N):

$$1 + 1 + 1$$

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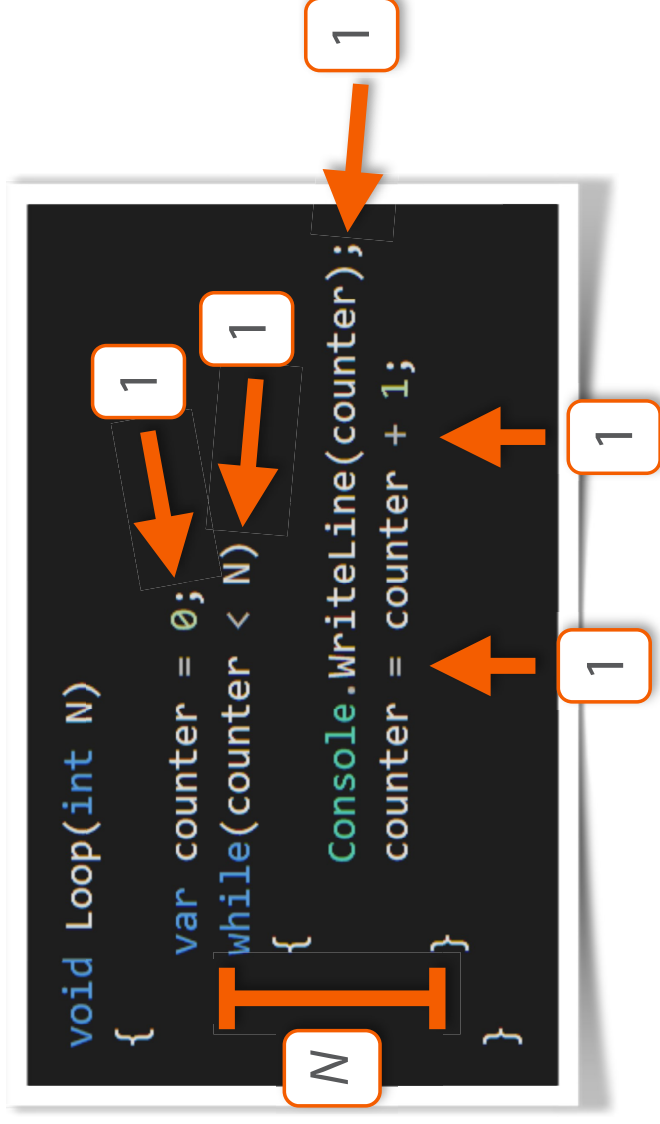
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Complexity (N):

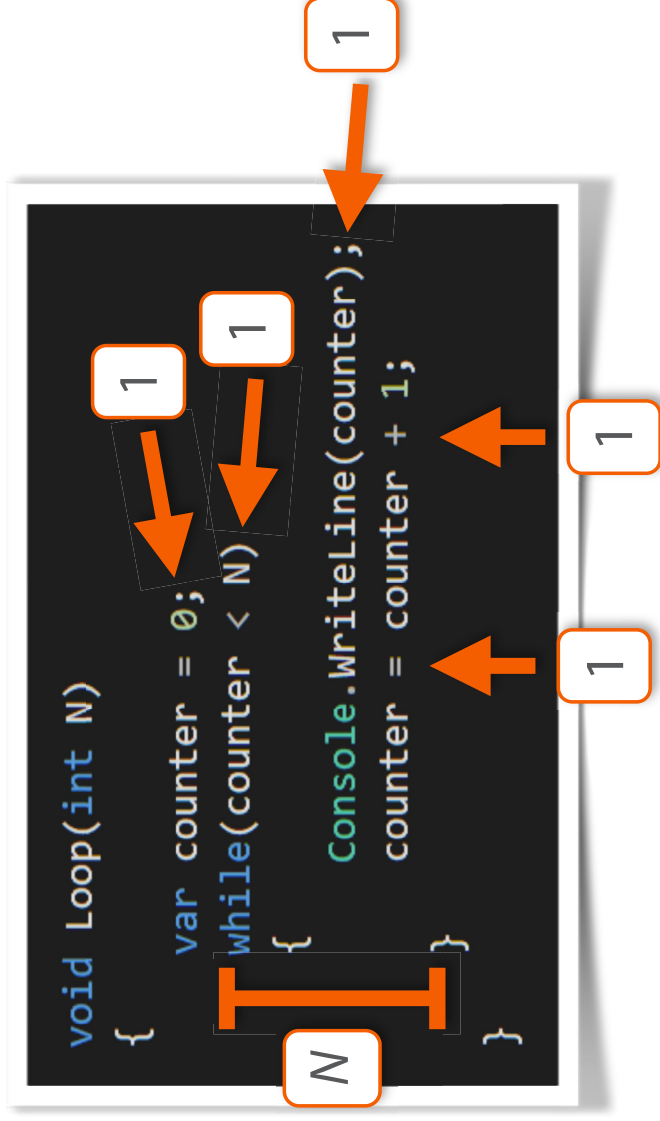
$$1 + 1 + 1 + 2$$

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Complexity (N):
 $1 + (1 + 1 + 2) N$

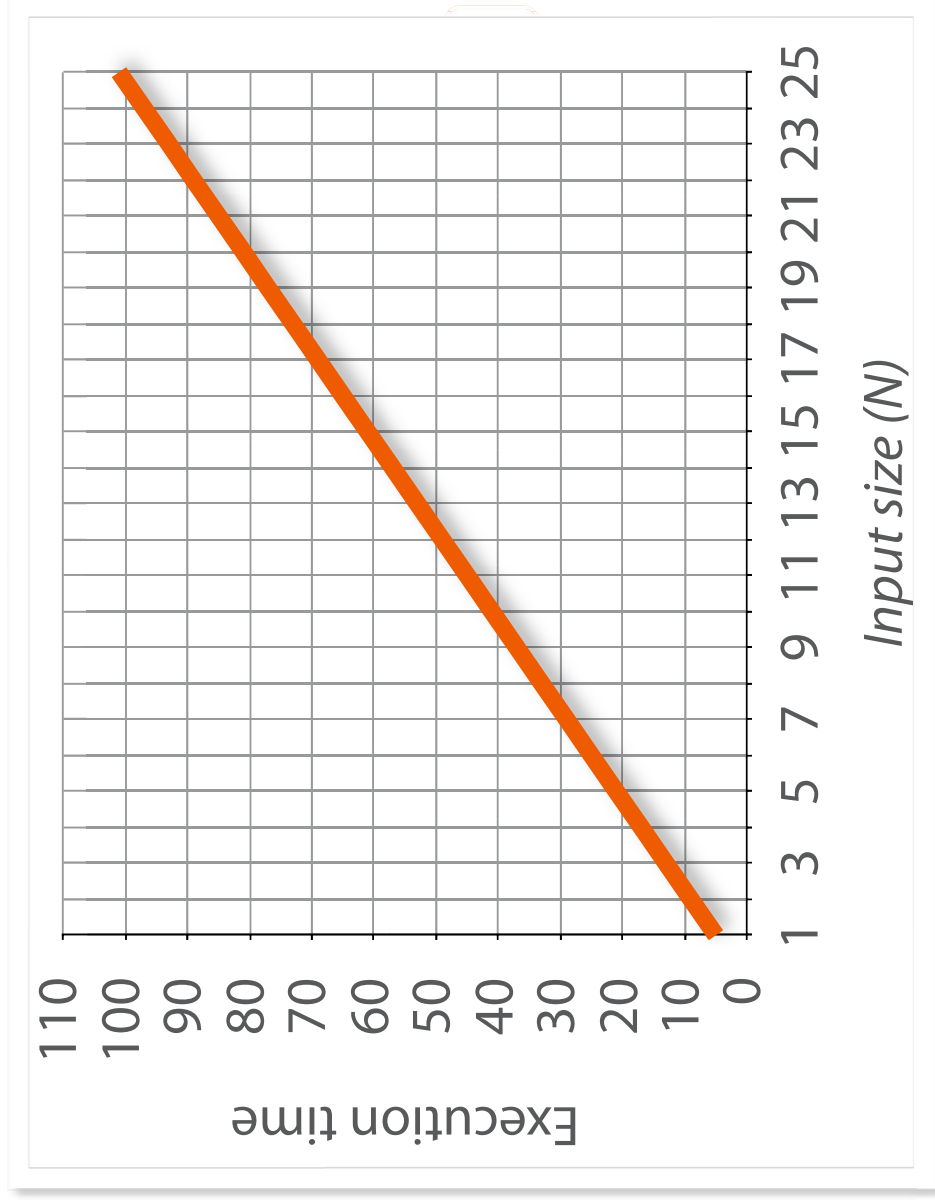
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Complexity (N):

$$1 + (1 + 1 + 2) N$$
$$= 1 + 4 N$$

Asymptotic Performance



Complexity (N):

$$\begin{aligned} &1 + (1 + 1 + 2) N \\ &= 1 + 4 N \end{aligned}$$