**After this line of code:**

Stack nums = new Stack(); // assume that the array is 3 elements long

 **The Stack object will look like:**

|  |
| --- |
| **int [] items** |
| **Index 🡪** | **0** | **1** | **2** |
| **Element at that index 🡪** | **0** | **0** | **0** |

|  |
| --- |
| **int iTop** |
|  **0** |

(or whatever you’ve decided to call these – the other document suggests “topOfStack” instead of “iTop” and “rgNums” instead of “items”)

**Mentally trace through this code:**

if (nums.isEmpty() )

 Console.WriteLine("Stack started out empty");

else

 Console.WriteLine("Stack started out NON empty");

**Mentally trace through this code:**

int x;

nums.Peek(out x); // what is the return value?

**After this code:**

nums.Push(10); // what is the return value?

**The Stack object will look like:**

|  |
| --- |
| **int [] items** |
| **Index 🡪** | **0** | **1** | **2** |
| **Element at that index 🡪** |  |  |  |

|  |
| --- |
| **int iTop** |
|  |

**After this code:**

nums.Push(20); // what is the return value?

nums.Push(30); // what is the return value?

**The Stack object will look like:**

|  |
| --- |
| **int [] items** |
| **Index 🡪** | **0** | **1** | **2** |
| **Element at that index 🡪** |  |  |  |
| **int iTop** |
|  |

**Mentally trace through this code:**

nums.Push(40); // what is the return value?

**Mentally trace through this code:**

if (nums.isEmpty() )

 Console.WriteLine("Stack empty after 3 pushes!");

else

 Console.WriteLine("Stack contains stuff after 3 pushes!");

nums.Peek(out x); // what is the return value?

Console.WriteLine("top most element is {0}", x);

**After this code:**

nums.Pop(out x); // what is the return value?

Console.WriteLine("top most element WAS {0}, but we just removed it", x);

**The Stack object will look like:**

|  |
| --- |
| **int [] items** |
| **Index 🡪** | **0** | **1** | **2** |
| **Element at that index 🡪** |  |  |  |

|  |
| --- |
| **int iTop** |
|  |

 **After this code:**

nums.Pop(out x); // we’re going to ignore x

nums.Pop(out x);

Console.WriteLine("first element is {0}", x);

**The Stack object will look like:**

|  |
| --- |
| **int [] items** |
| **Index 🡪** | **0** | **1** | **2** |
| **Element at that index 🡪** |  |  |  |

|  |
| --- |
| **int iTop** |
|  |

**Mentally trace through this code:**

nums.Pop(out x); // what is the return value? What is x?

**Mentally trace through this code:**

if (nums.isEmpty() )

 Console.WriteLine("Stack empty!");

else

 Console.WriteLine("Stack contains stuff!");