Array Memory Trace

Understanding Java Arrays and References

```
public class ArrayTest {
  static int s_var = 10;

  public static int[] foo(int[] a) {
     s_var--;
     int[] b = new int[a.length];

     for (int i = 0; i < b.length; i++)
        b[i] = a[i]++;

     return b;

  }

  public static void main(String[] args) {
     int i = ++s_var;
     i+=5;
     int[] a = {2, 4, 6, 8};
     int[] b = new int[a.length];
     int[] c = a;

     c = foo(a);
  }
}
```

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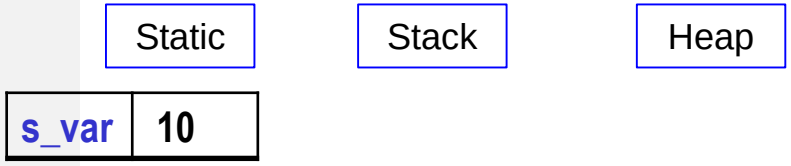
```



Understanding Java Arrays and References

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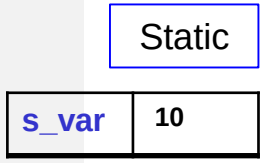

c	
b	
a	
i	
args	

Understanding Java Arrays and References

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     return b;

  }

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     int[] b = new int[
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```

++s_var;
i = s;

c	
b	
a	
i	
args	

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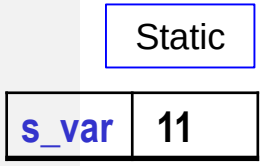

c	
b	
a	
i	
args	

Understanding Java Arrays and References

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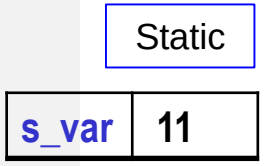

c	
b	
a	
i	11
args	

Understanding Java Arrays and References

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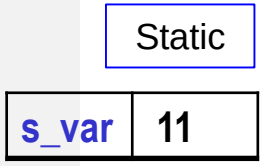

c	
b	
a	
i	16
args	

Understanding Java Arrays and References

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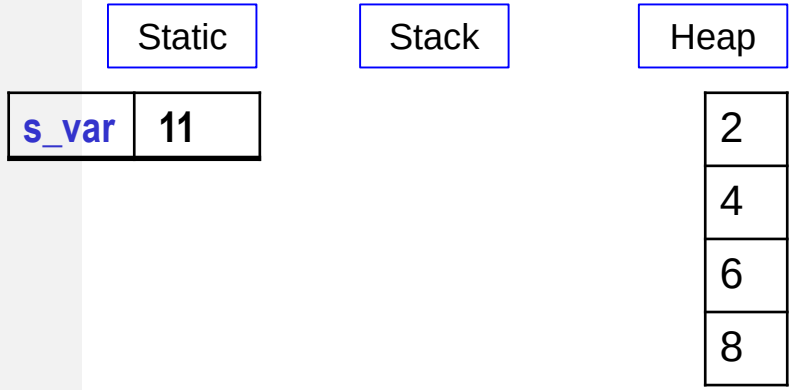

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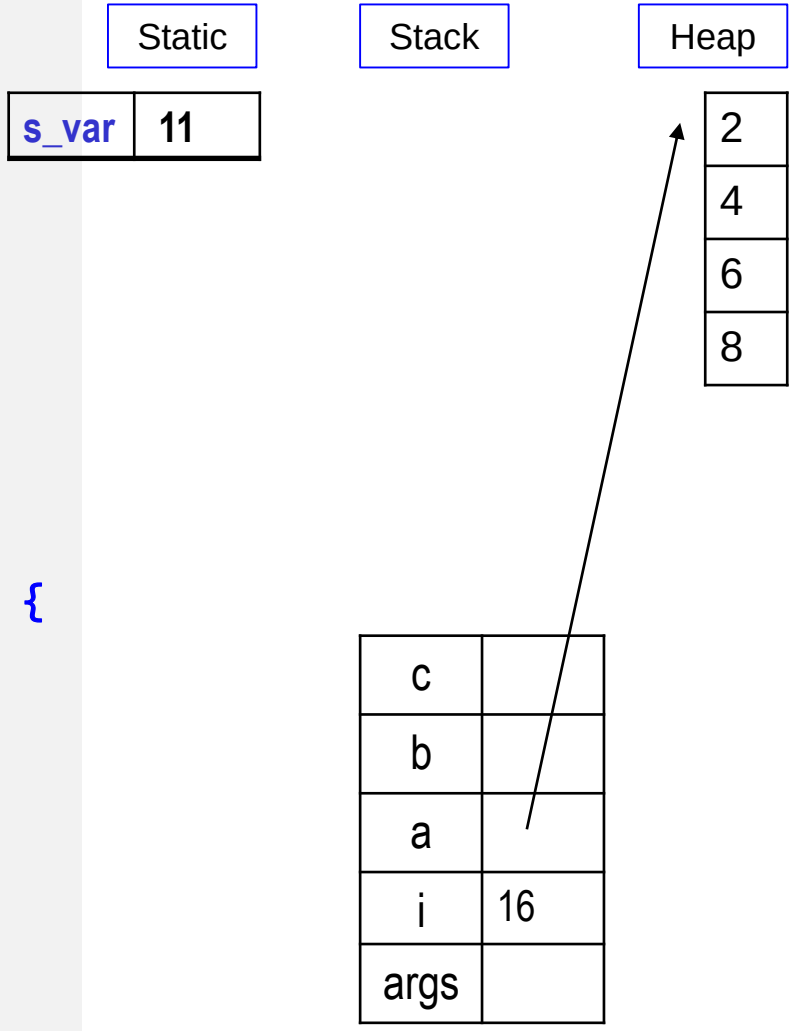

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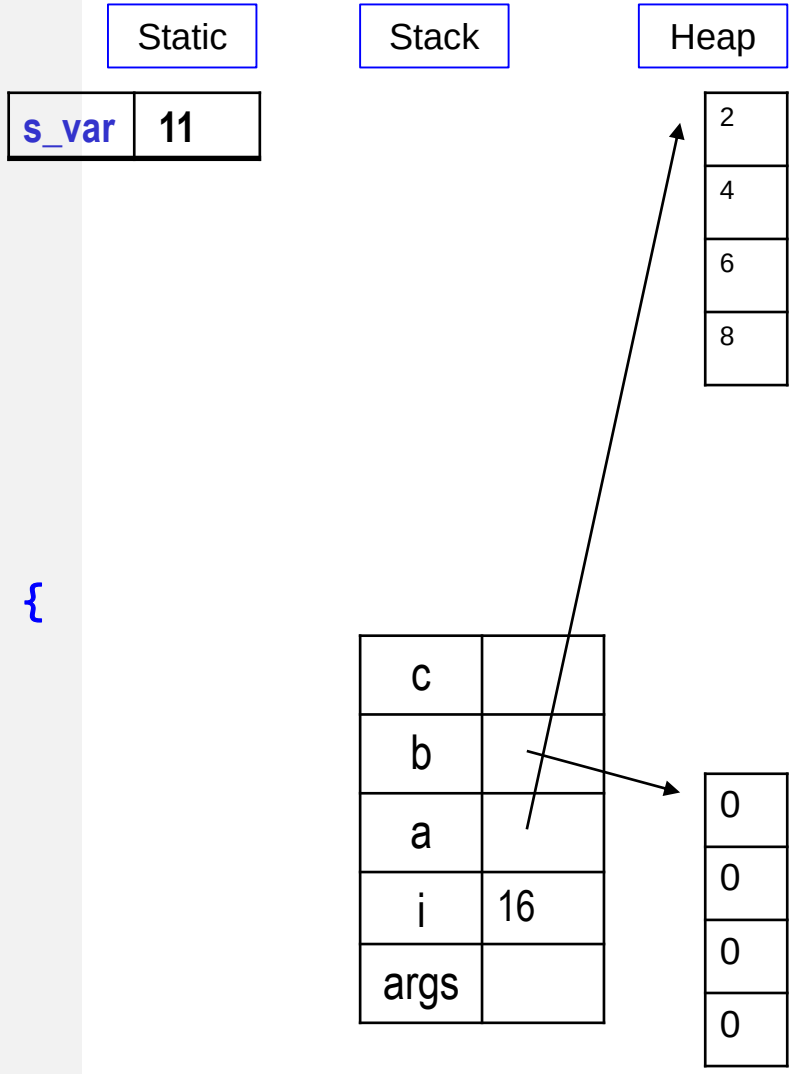

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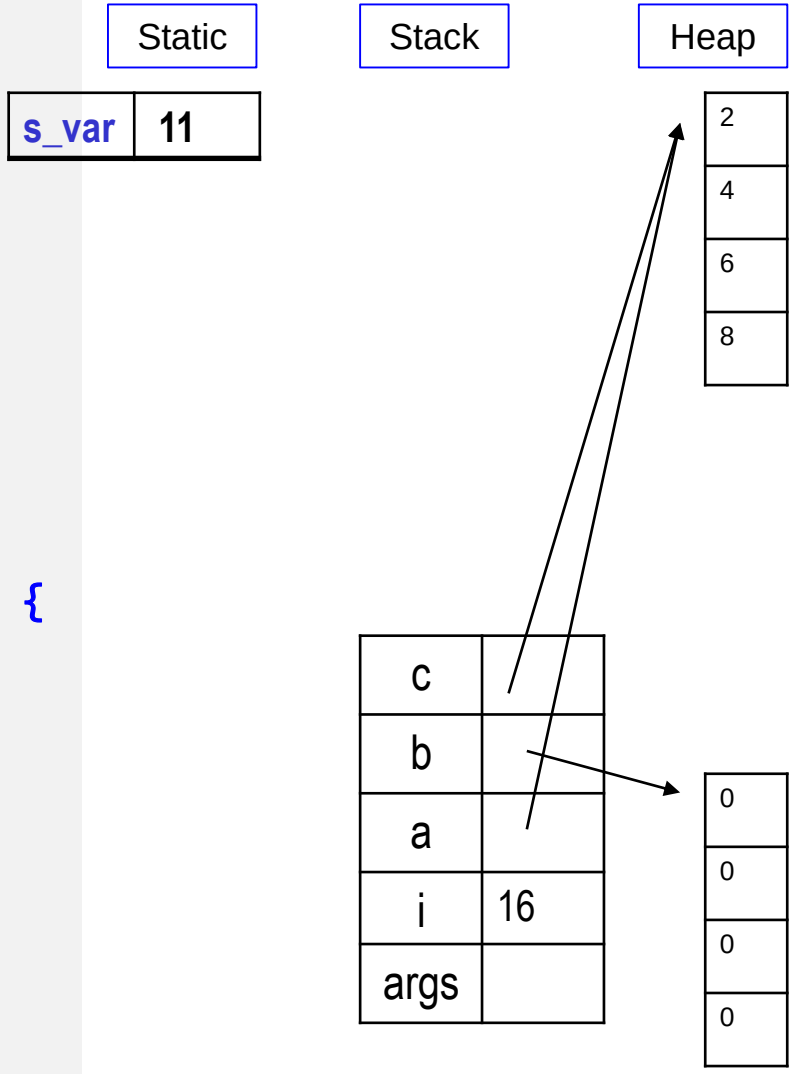

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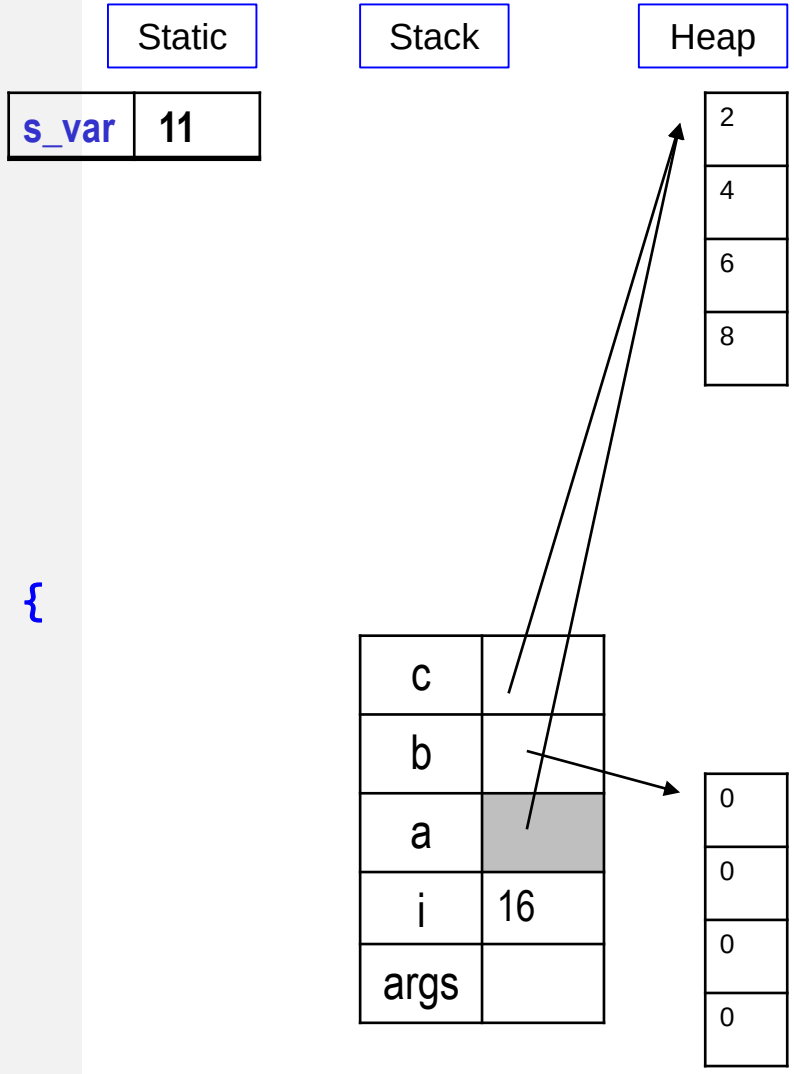

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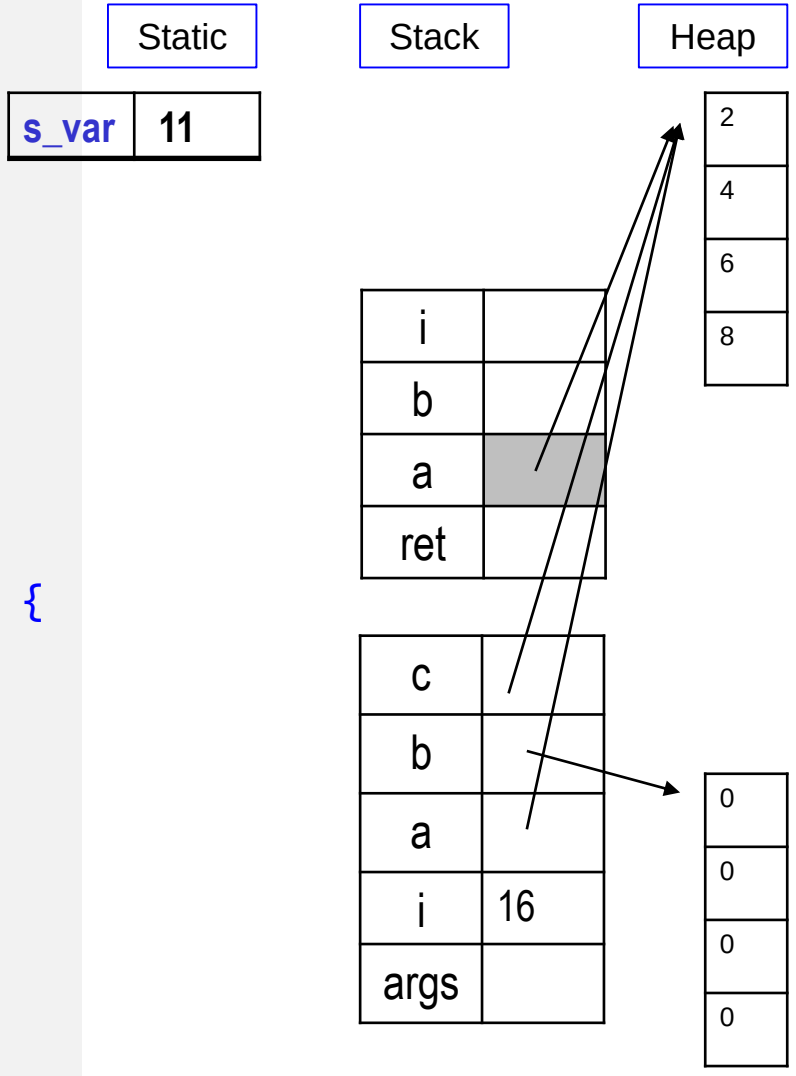

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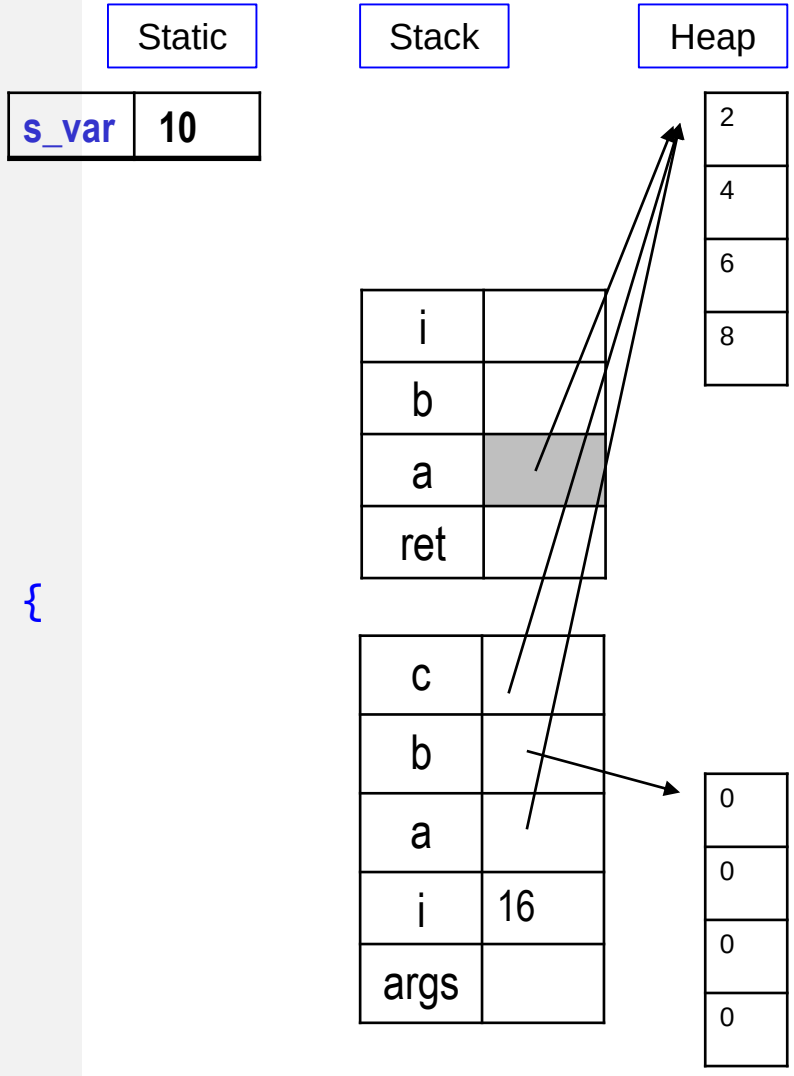

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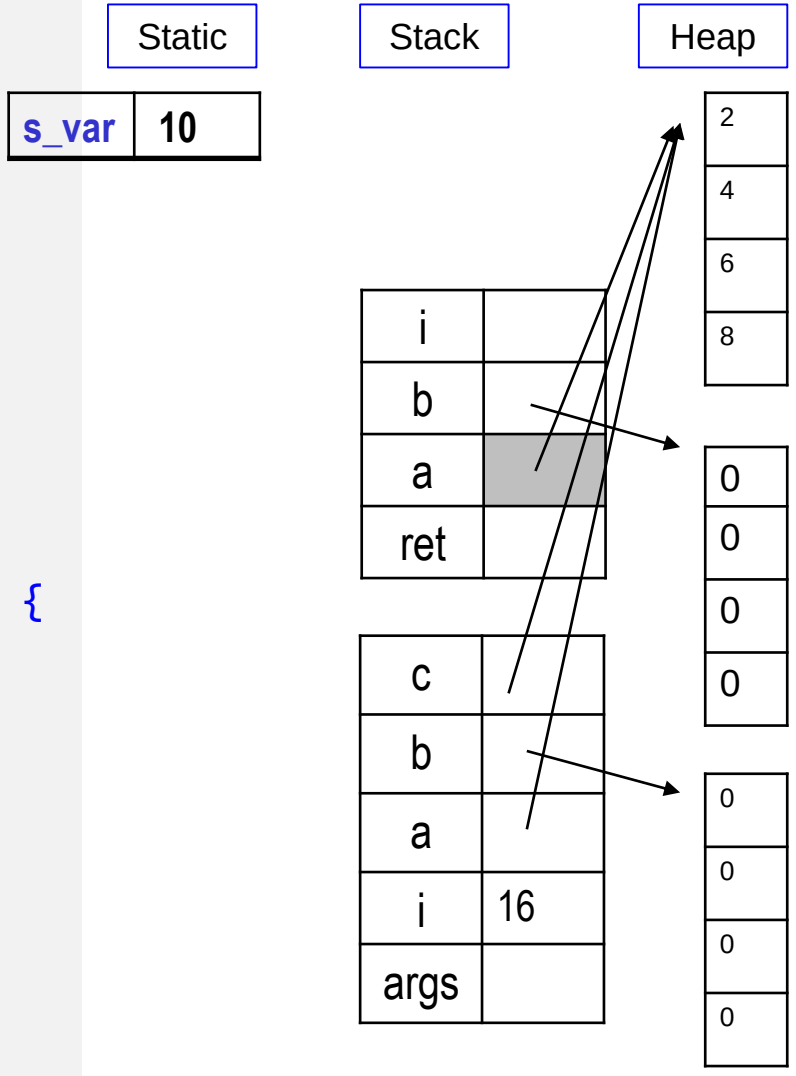

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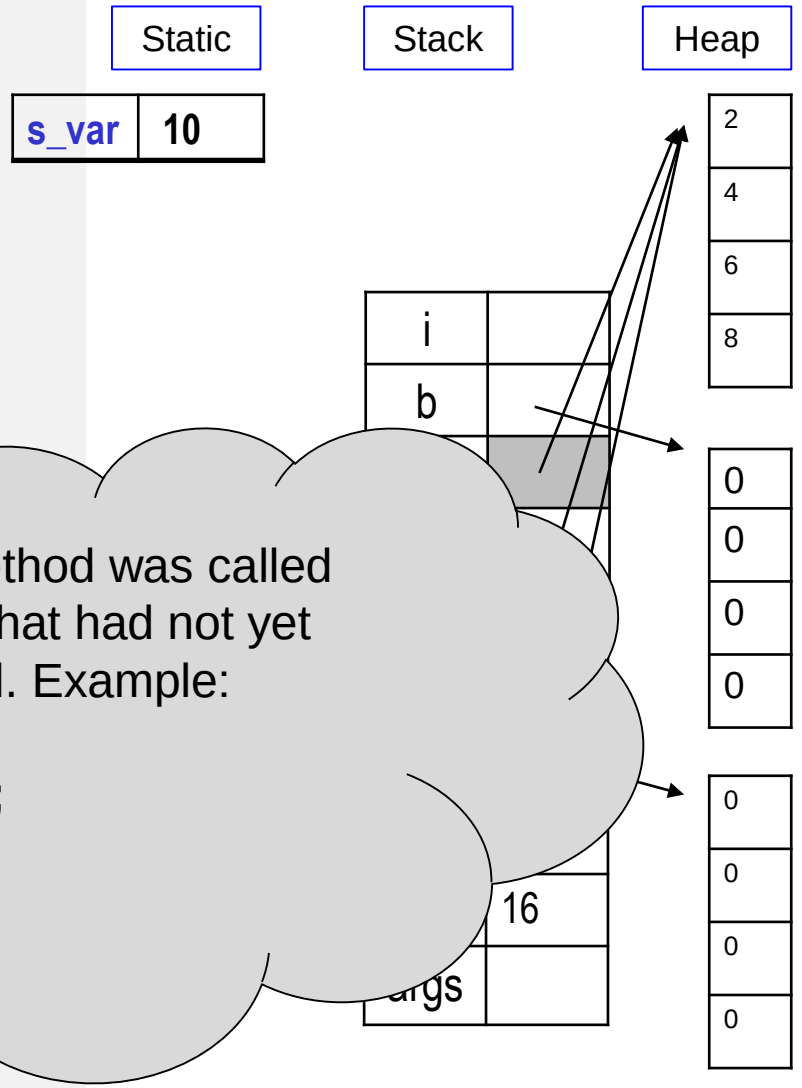

Understanding Java Arrays and References

```
public class ArrayTest {
  static int s_var = 10;

  public static int[] foo(int[] a) {
     s_var--;
     int[] b = new int[a.length]; //error

     for (int i = 0; i < b.length; i++)
        b[i] = a[i]++;

     return b;

  }

  public static void main
     int i = ++s_var;
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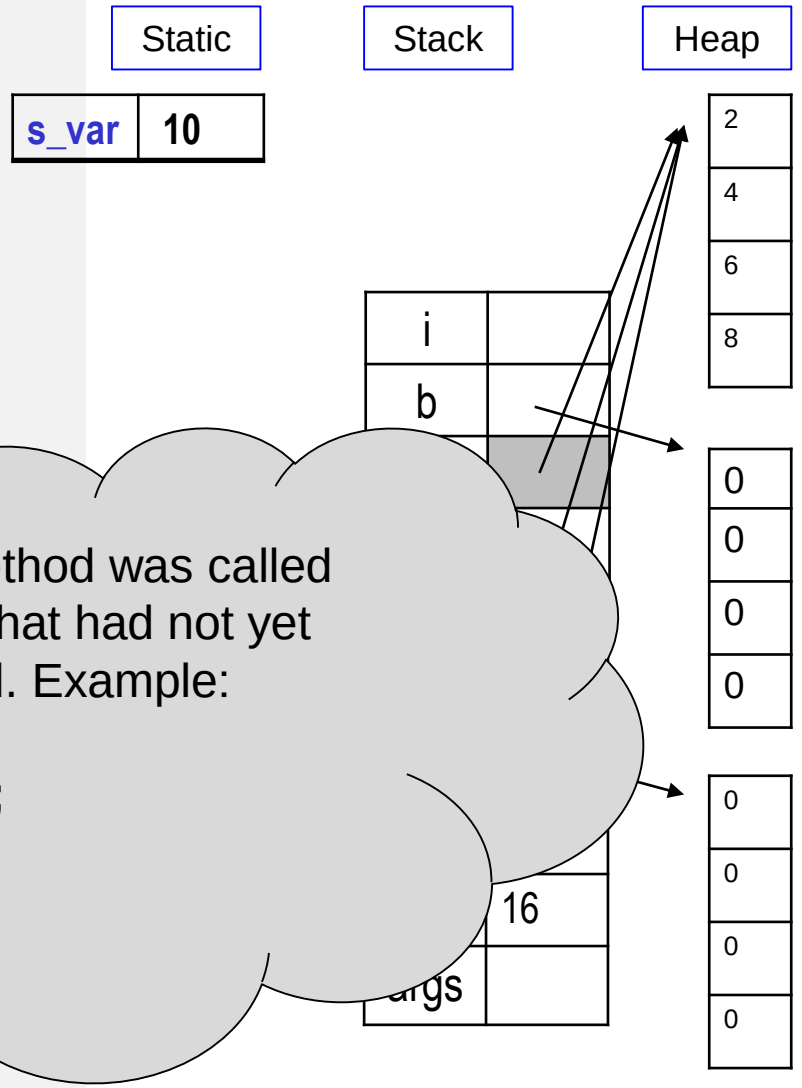

Understanc

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     s_var--;
     int[] b = new int[a.l

     for (int i = 0; i < b
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     return b;

  }

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     int[] b = new int[a.length];
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  }
}
```
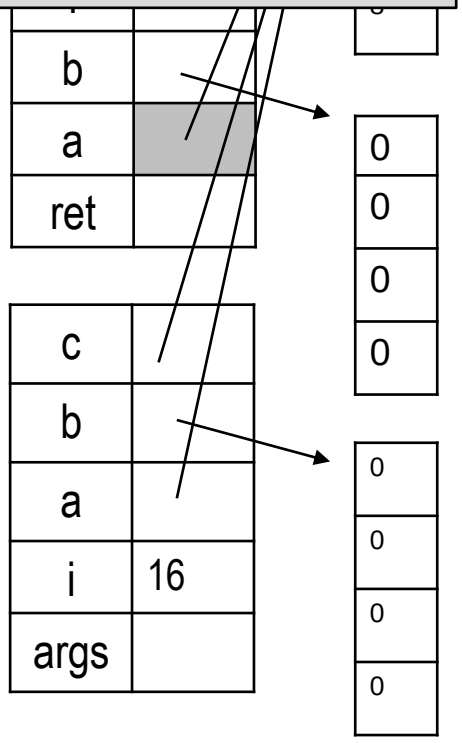

Add error checking to the beginning of the method:

```
{
   if (a == null)
       throw new illegalArgumentException();

   // method continues...
    s_var--;
      .
      .
```



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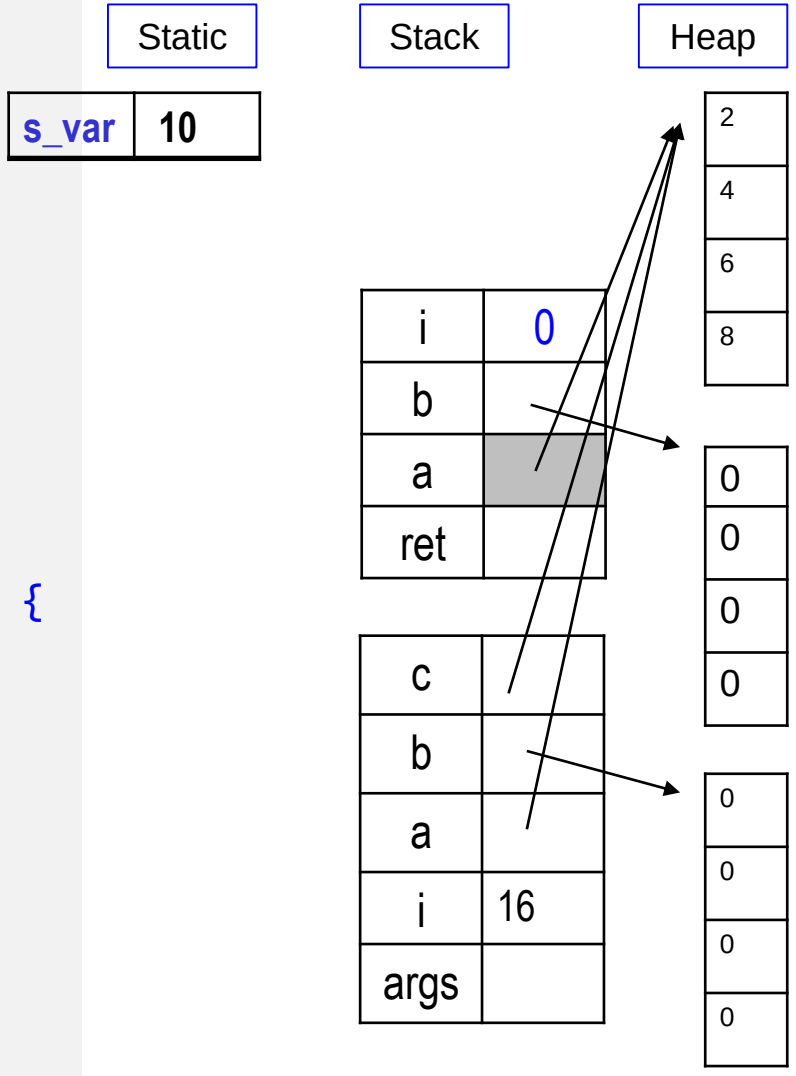

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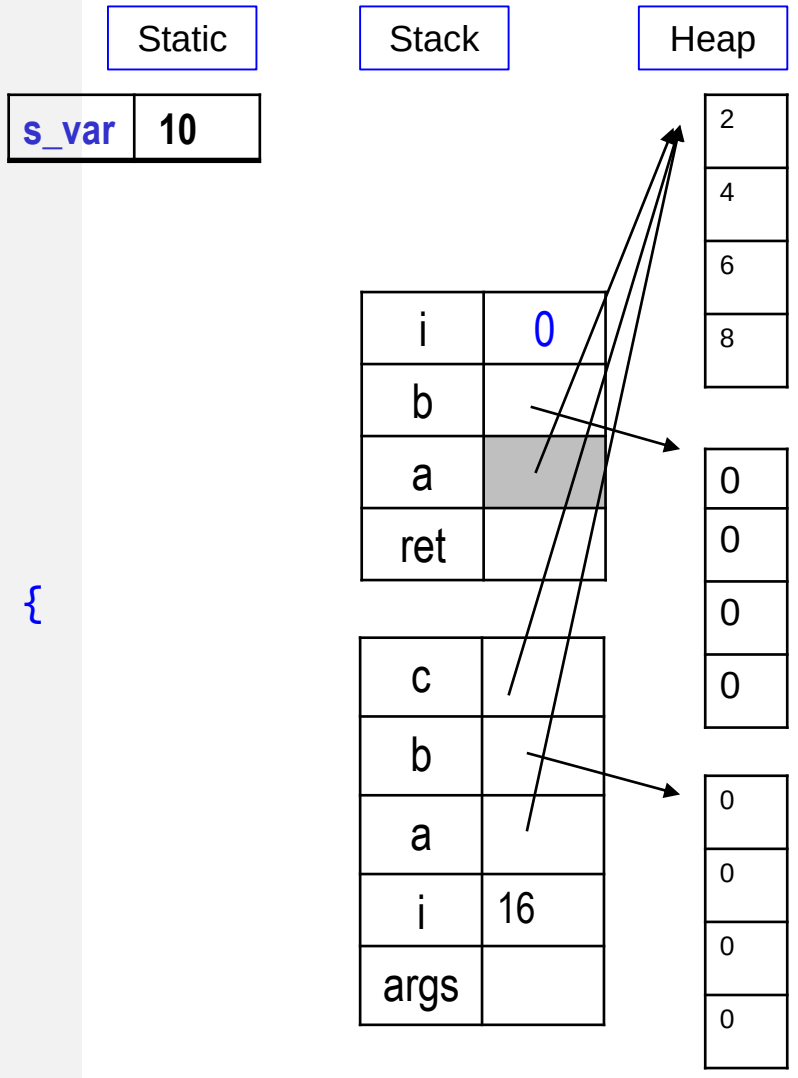
```

b[i] = a[i];
a[i]++;



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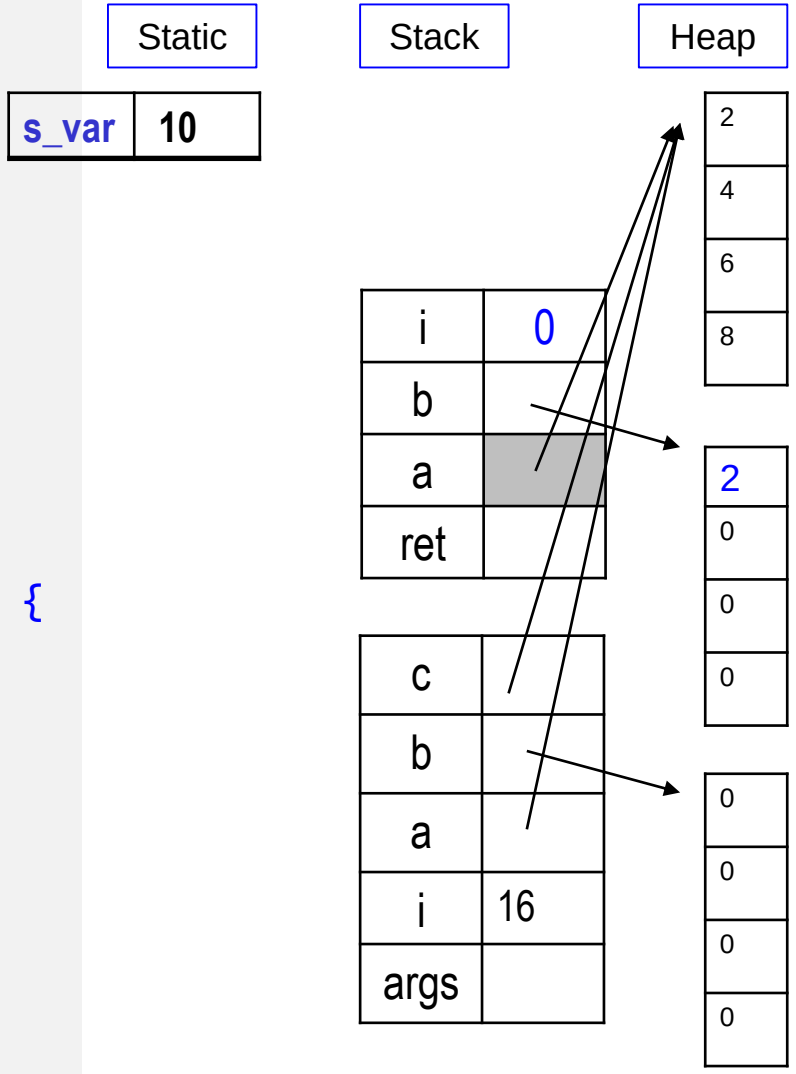

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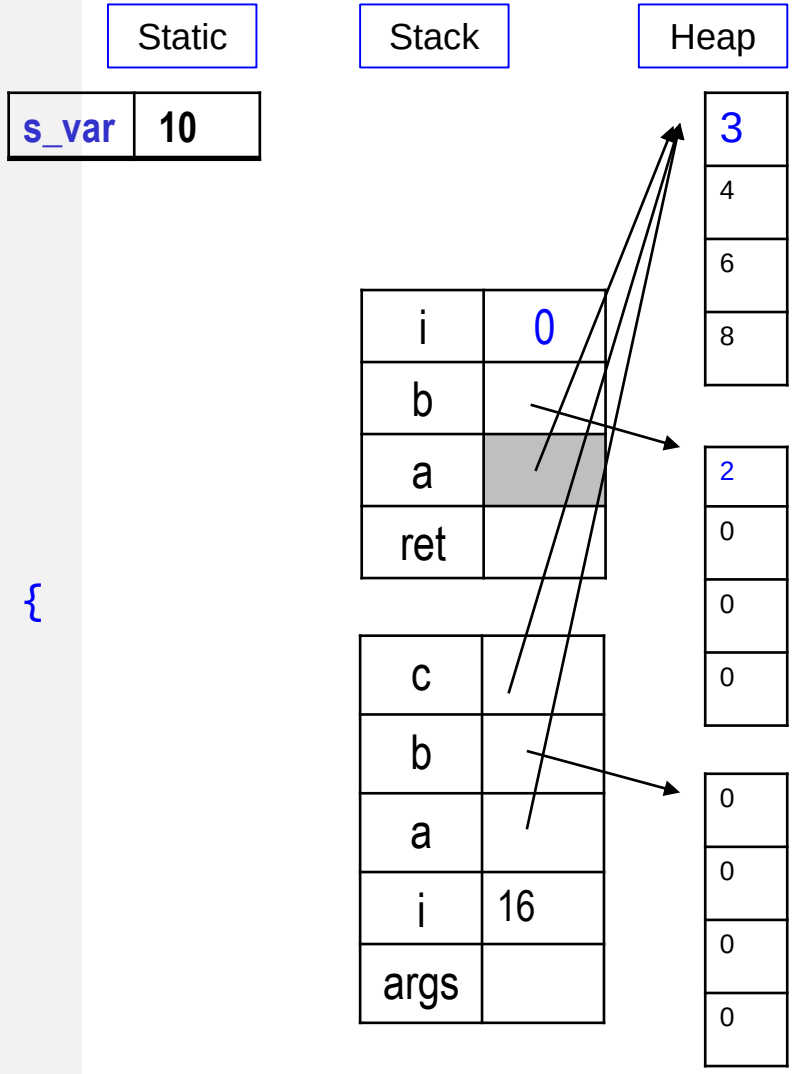

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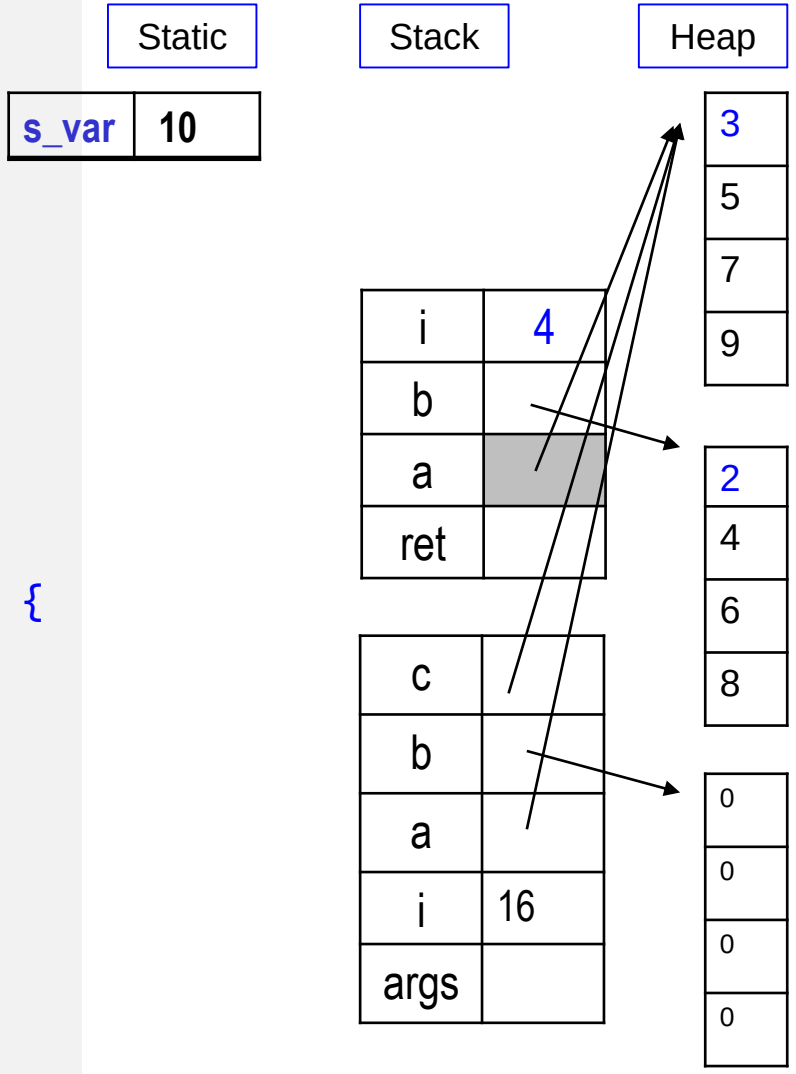

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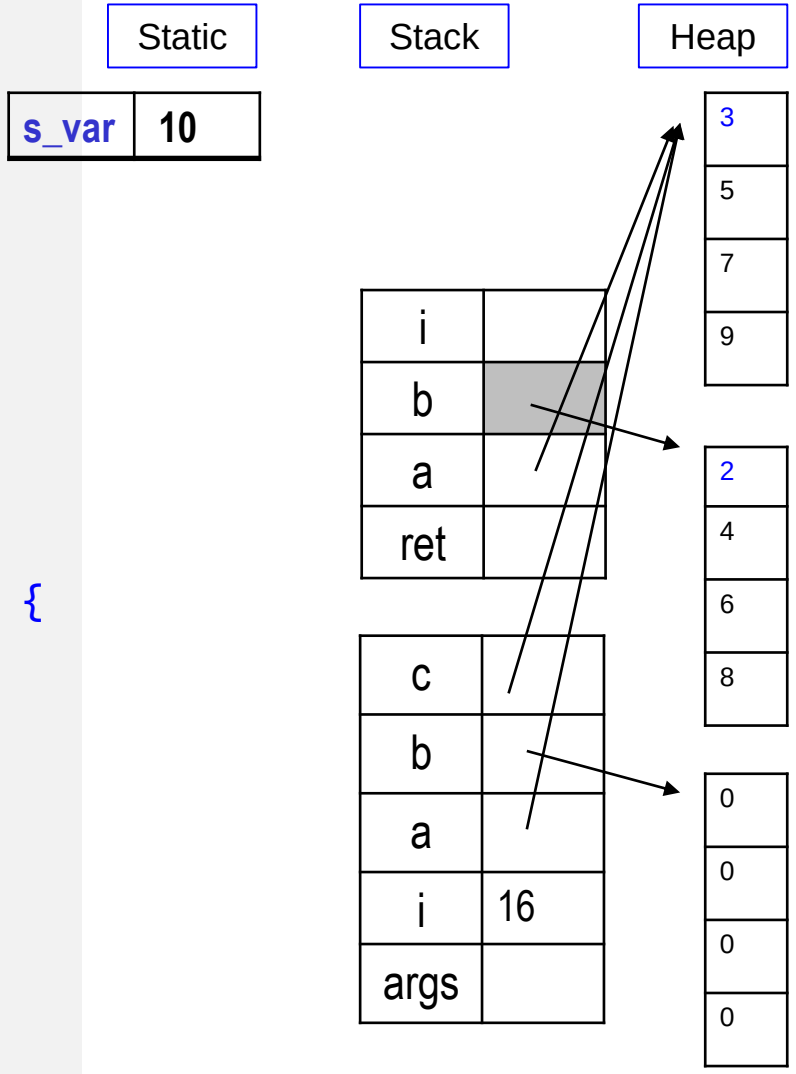

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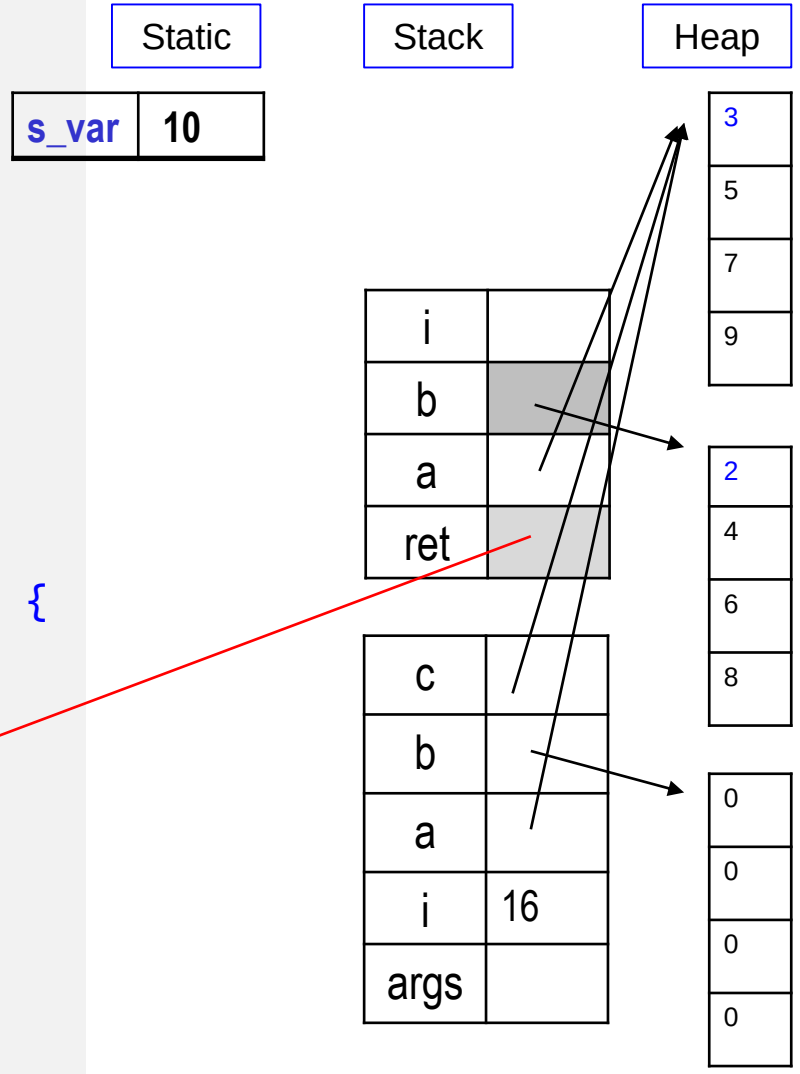

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}
```
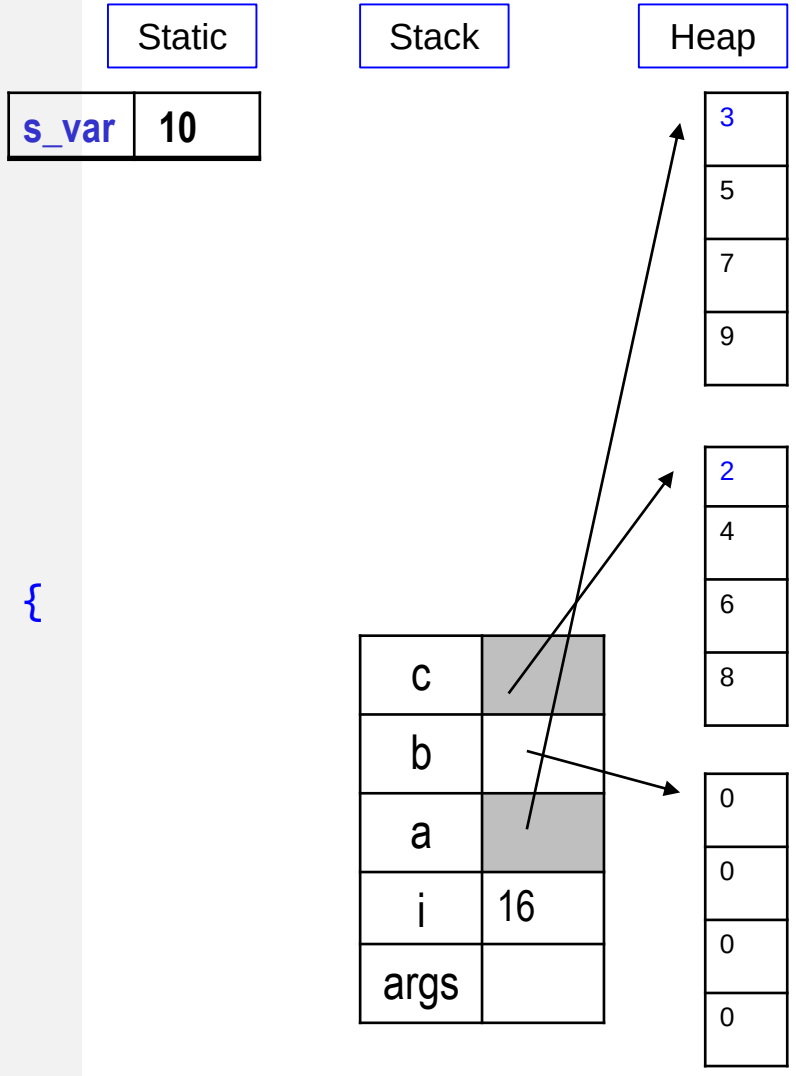
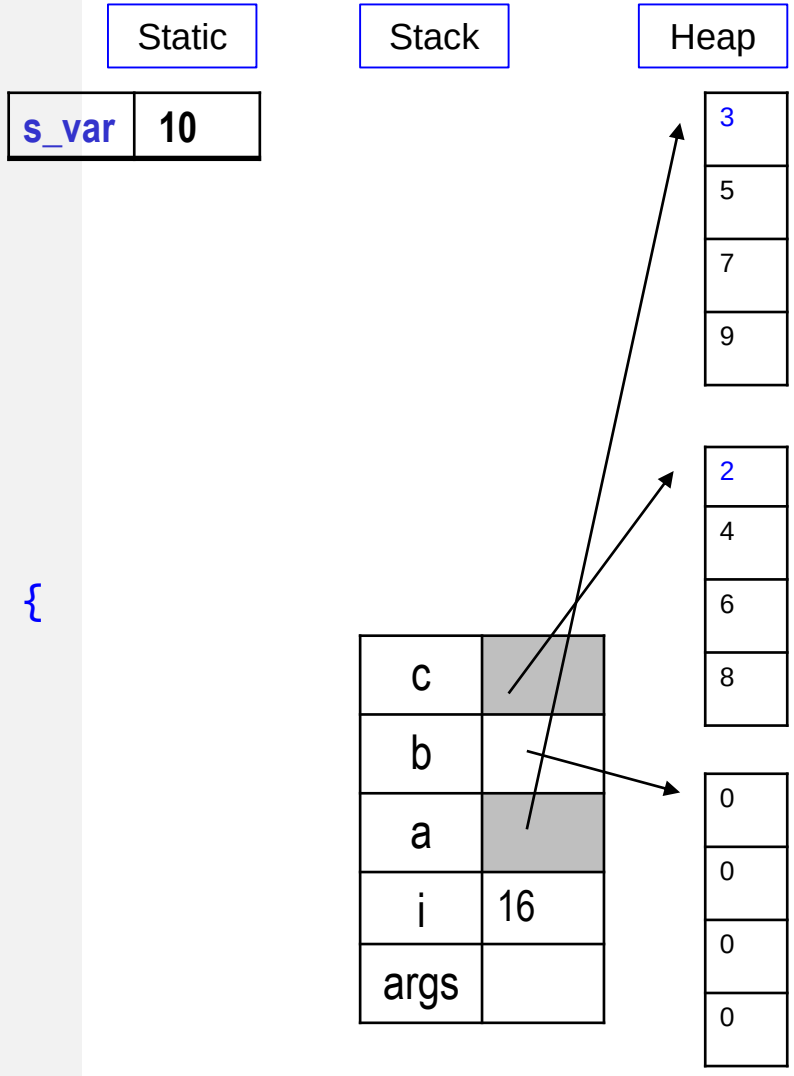



Understanding Java Arrays and References

```
public class ArrayTest {
  static int s_var = 10;

  public static int[] foo(int[] a) {
     s_var--;
     int[] b = new int[a.length];

     for (int i = 0; i < b.length; i++)
        b[i] = a[i]++;

     return b;

  }

  public static void main(String[] args) {
     int i = ++s_var;
     i+=5;
     int[] a = {2, 4, 6, 8};
     int[] b = new int[a.length];
     int[] c = a;

     c = foo(a);
  }
}
```



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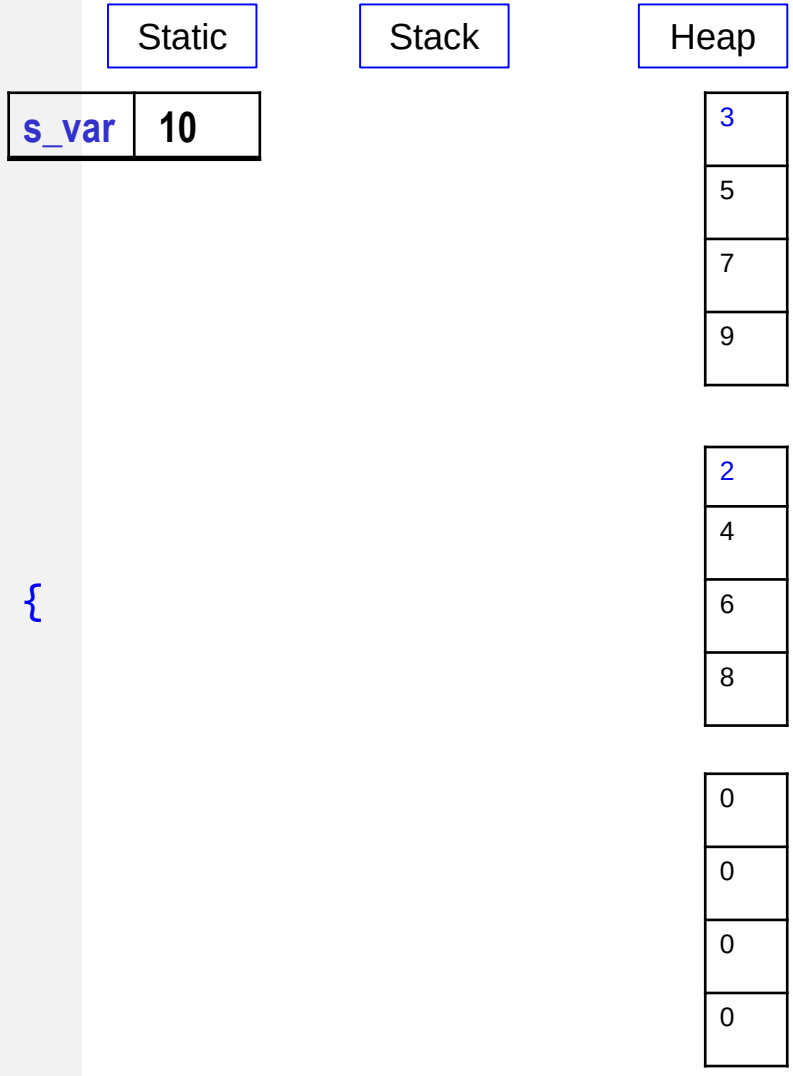
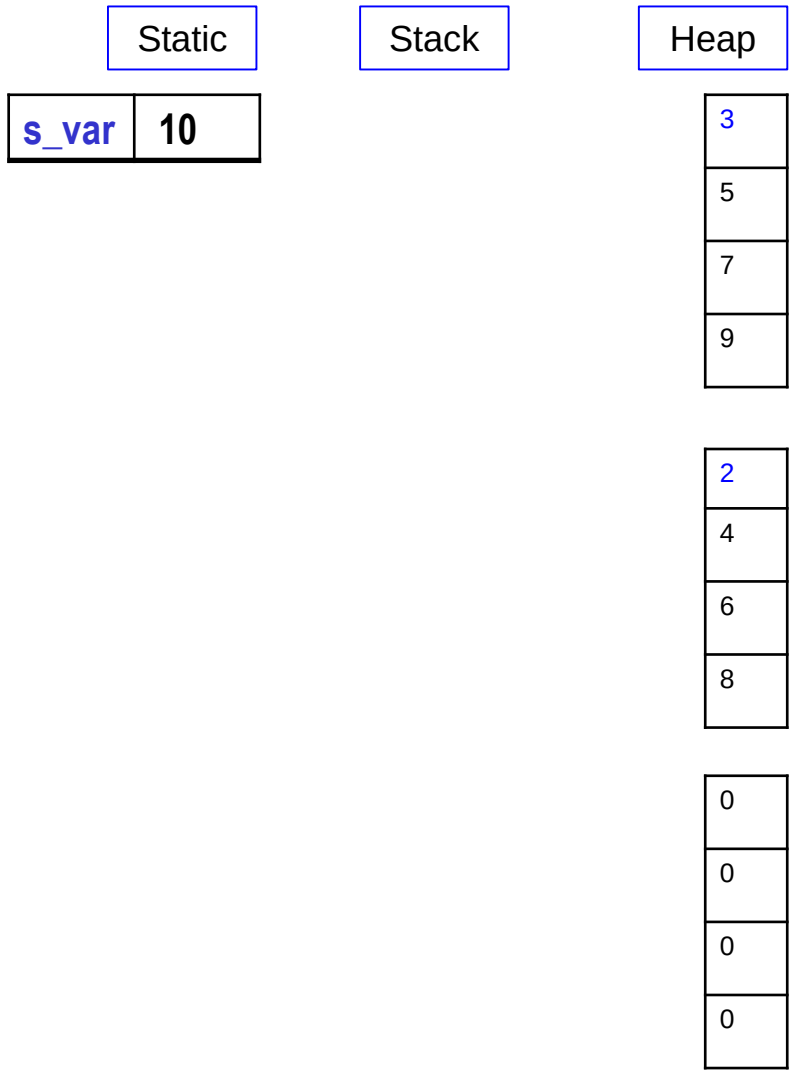
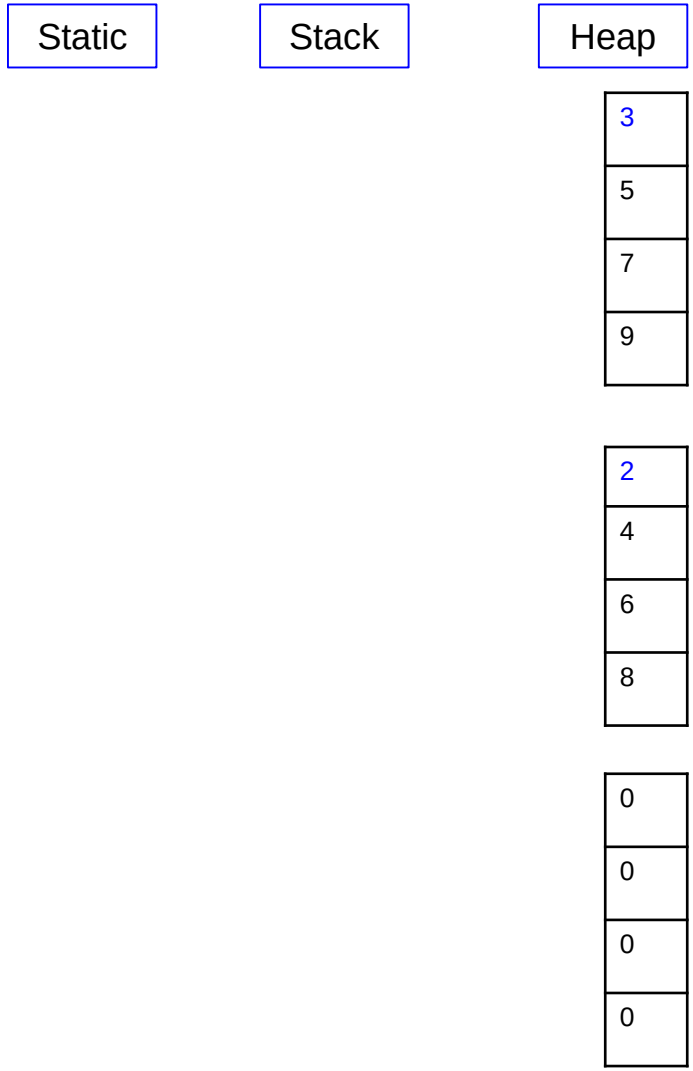


Understanding Java Arrays and References



Understanding Java Arrays and References

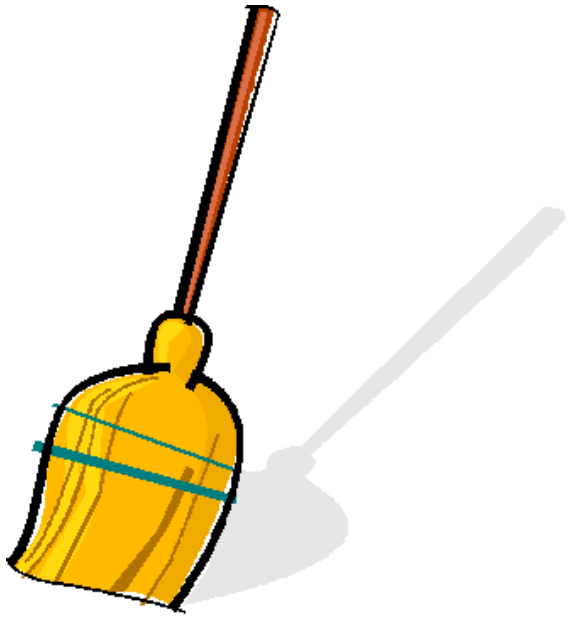


Understanding Java Arrays and References

Static

Stack

Heap



3
5
7
9

2
4
6
8

0
0
0
0

Understanding Java Arrays and References

Static

Stack

Heap

3
5
7
9

2
4
6
8

0
0
0
0