Problem Set 2, Part I

Problem 1: String objects and their methods

1-1

```
a) s1.substring(6) + " " + s2.substring(0, 2)
b) s1.charAt(6) + s1.substring(9) + “ “ + s2.substring(3,8)
c) s1.toUpperCase().charAt(0) + s1.toUpperCase().substring(9) +
s2.charAt(8)
d) s1.charAt(0) + “” + s1.charAt(9) + s2.substring(0,2)
e) s1.charAt(8)
f) s1.substring(8,9)
g) s1.charAt(0) + “” + s2.charAt(0)
h) s1.indexOf(‘i’)
i) s1.replace(‘t’, ‘u’)
```

Problem 2: Understanding code that uses an array

2-1)

i	val1	val2	arr
-	-	-	{0, 1, 2, 3, 4, 5, 6, 7}
0	-	-	
1	1	0	{0, 0, 2, 3, 4, 5, 6, 7}
3	3	2	{0, 0, 2, 2, 4, 5, 6, 7}
5	5	4	{0, 0, 2, 2, 4, 4, 6, 7}
7	7	6	{0, 0, 2, 2, 4, 4, 6, 6}
0	0	6	{6, 0, 2, 2, 4, 4, 6, 6}

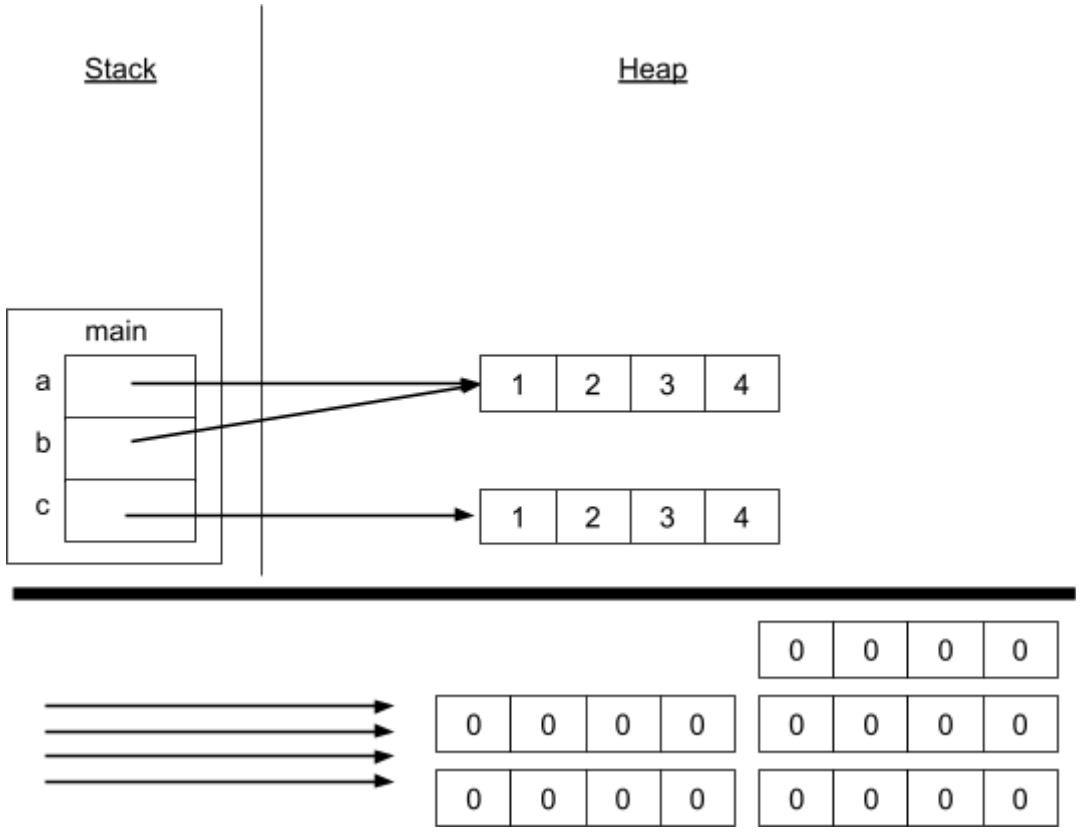
2-2)

{6, 0, 2, 2, 4, 4, 6, 6}

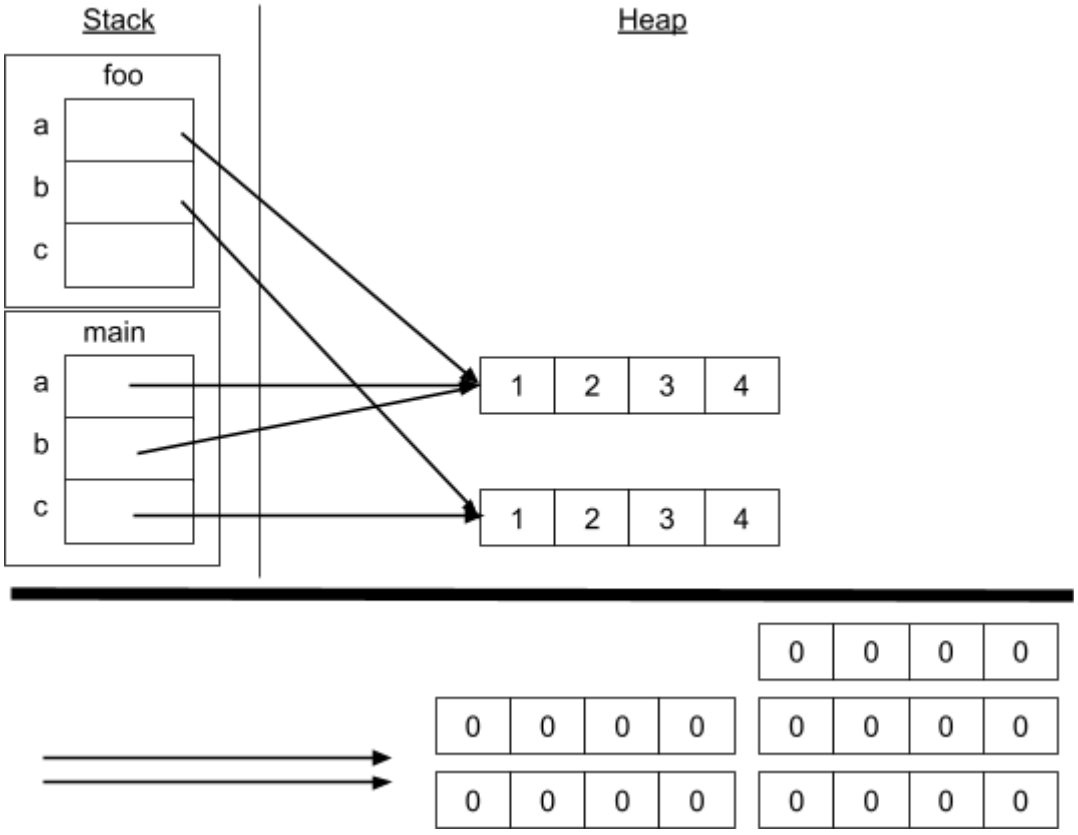
3-3)

Yes we do see the changes because we are updating the array and the elements are getting modified.

Problem 3: Memory management and arrays
3-1)



3-2)


Stack
Heap
foo
a
b
c
main
a
b
c
1
2
3
4
1
2
3
4

0
0
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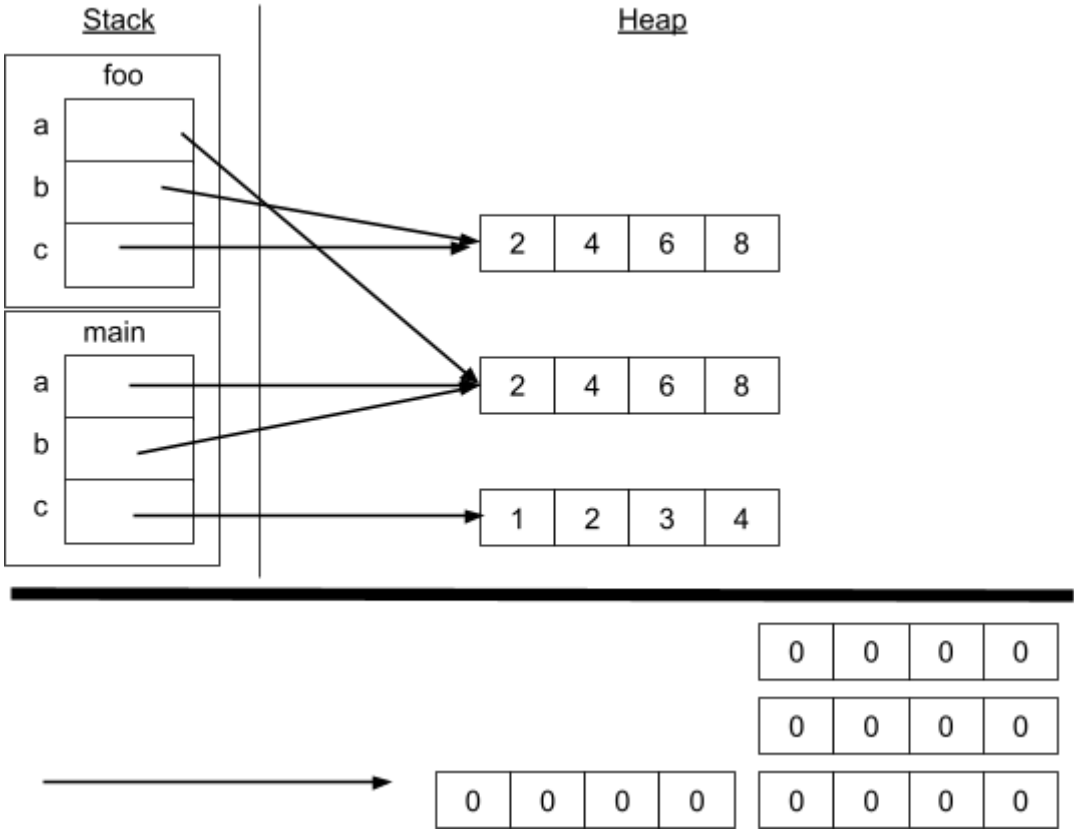
3-3)


Stack
Heap
foo
a
b
c
main
a
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c
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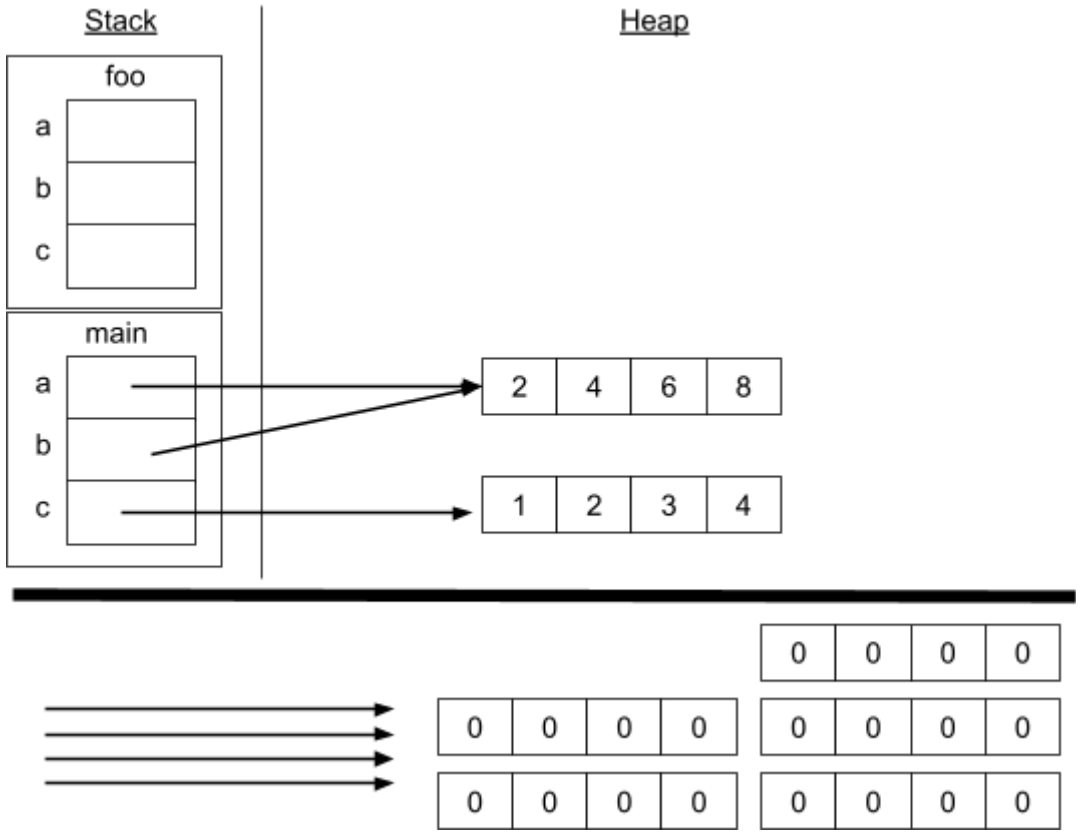
3-4)


Stack
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Problem 4: Two-dimensional arrays

4-1)

```
twoD[3][2] = 30
```

4-2)

```
for (int r = 0; r < twoD.length; r++) {
   System.out.println(twoD[r][twoD.length - 1]
}
```

4-3)

```
for (int r = 0; r < twoD.length; r++) {
   for ( int c = 0; c < twoD[r].length; c++) {
      if (r - c == 0)
      System.out.println(twoD[r][c]);
   }
}
```

Problem 5: Our `Rectangle` class revisited

5-1)

type of method: Mutator

Header: public void shrink(int a)

5-2)

type of method: Accessor

Header:public double diagonal()

5-3)

problems in code:

- There is a scope issue where we have to make the variable differently.

```
Rectangle rect = new Rectangle(10,20);
System.out.println("width = "+rect.getWidth());
rect.setWidth(rect.getWidth()+rect.getHeight());
System.out.println(rect);
```