CS 314: Data Structures

February 1, 2021

Sam's Section

Slides available at: www.cs.utexas.edu/~slaberge

Style Issues for CodeCamp

- Class Style Guide:

  - https://www.cs.utexas.edu/~scottm/cs314/handouts/hygiene_guide/code_hygiene_guide_framed.html

- Come to Help Hours if you have style questions.

- For specific questions, you can ask on Piazza

Style Issues for CodeCamp

- Many Style Issues can be avoided by using your IDE's auto-formatter:

	Windows/Linux	macOS
IntelliJ	Ctrl+Alt+L	Command+Option+L
Eclipse	Ctrl+Shift+F	Command+Shift+F
VSCode	Shift+Alt+L	Shift+Option+F

isPermutation()

isPermutation()
Shallow vs. Deep Copies

```
int[] original = null;
int[] copy = null;
```
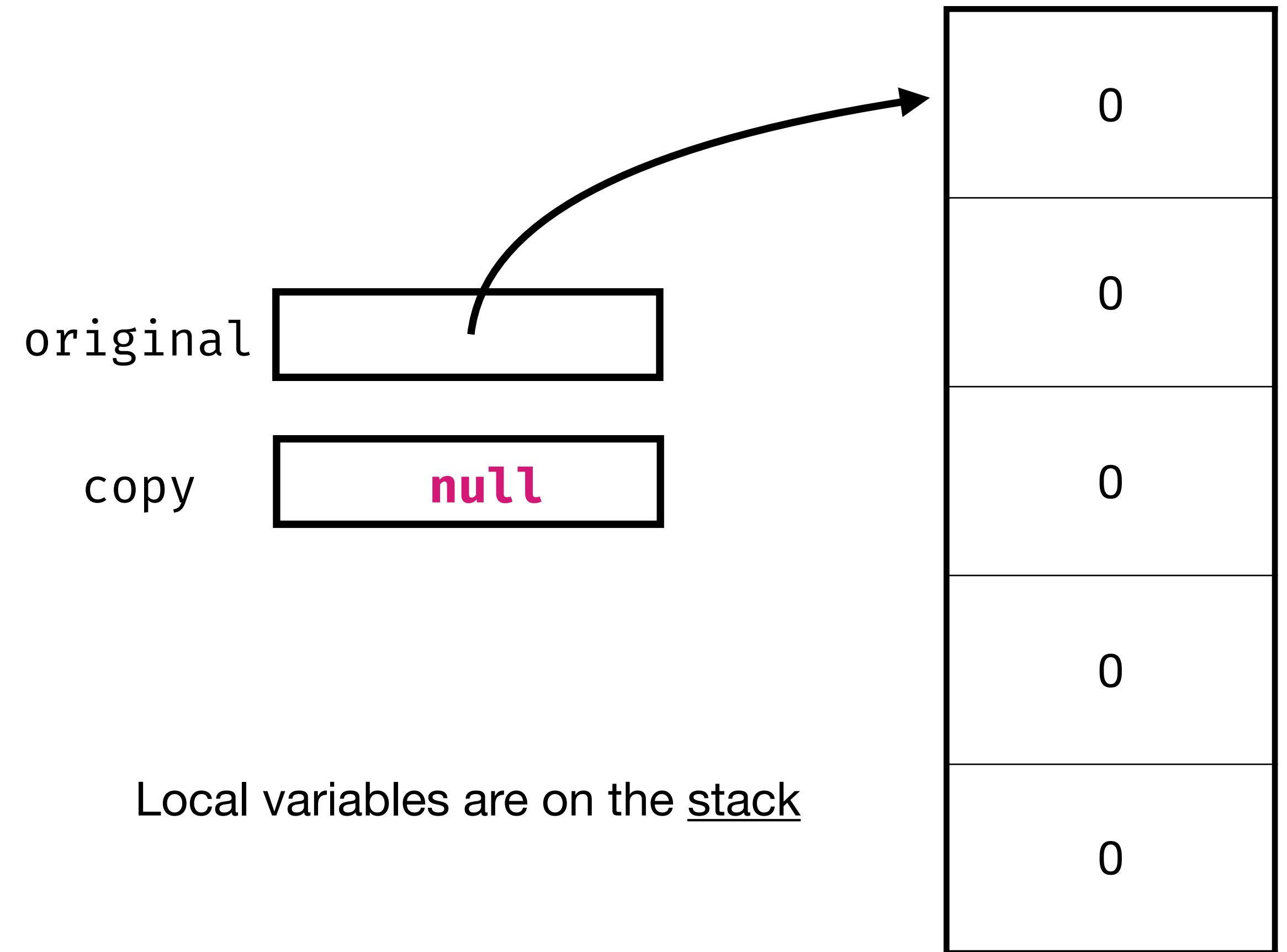
original `null`

copy `null`

isPermutation()
Shallow vs. Deep Copies

```
original = new int[5];
```

original

copy   null

Local variables are on the <u>stack</u>
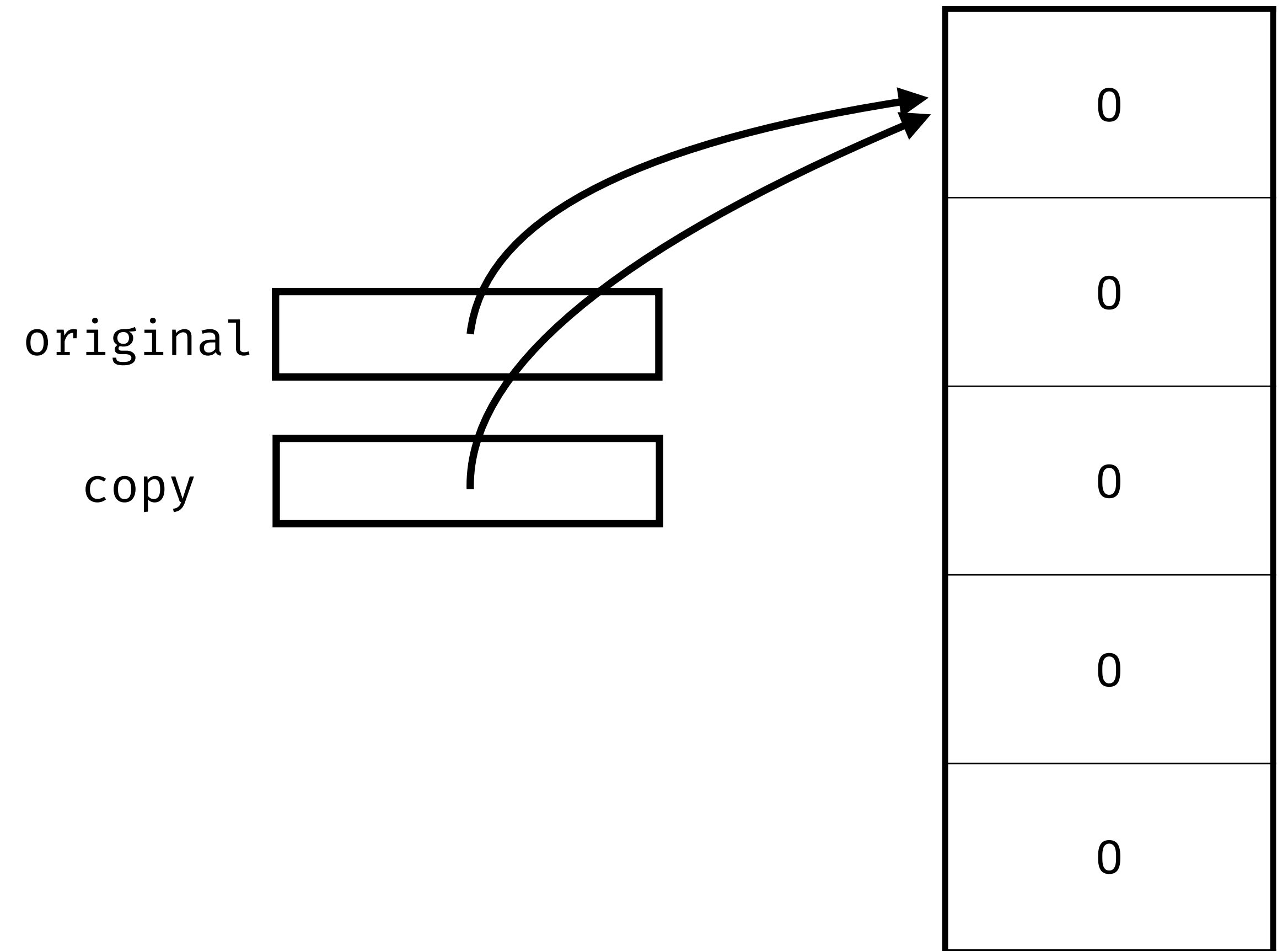
```
0
0
0
0
0
```

Objects are in the <u>heap</u>

isPermutation()
Shallow vs. Deep Copies

```
original = new int[5];
// shallow copy
copy = original;
```
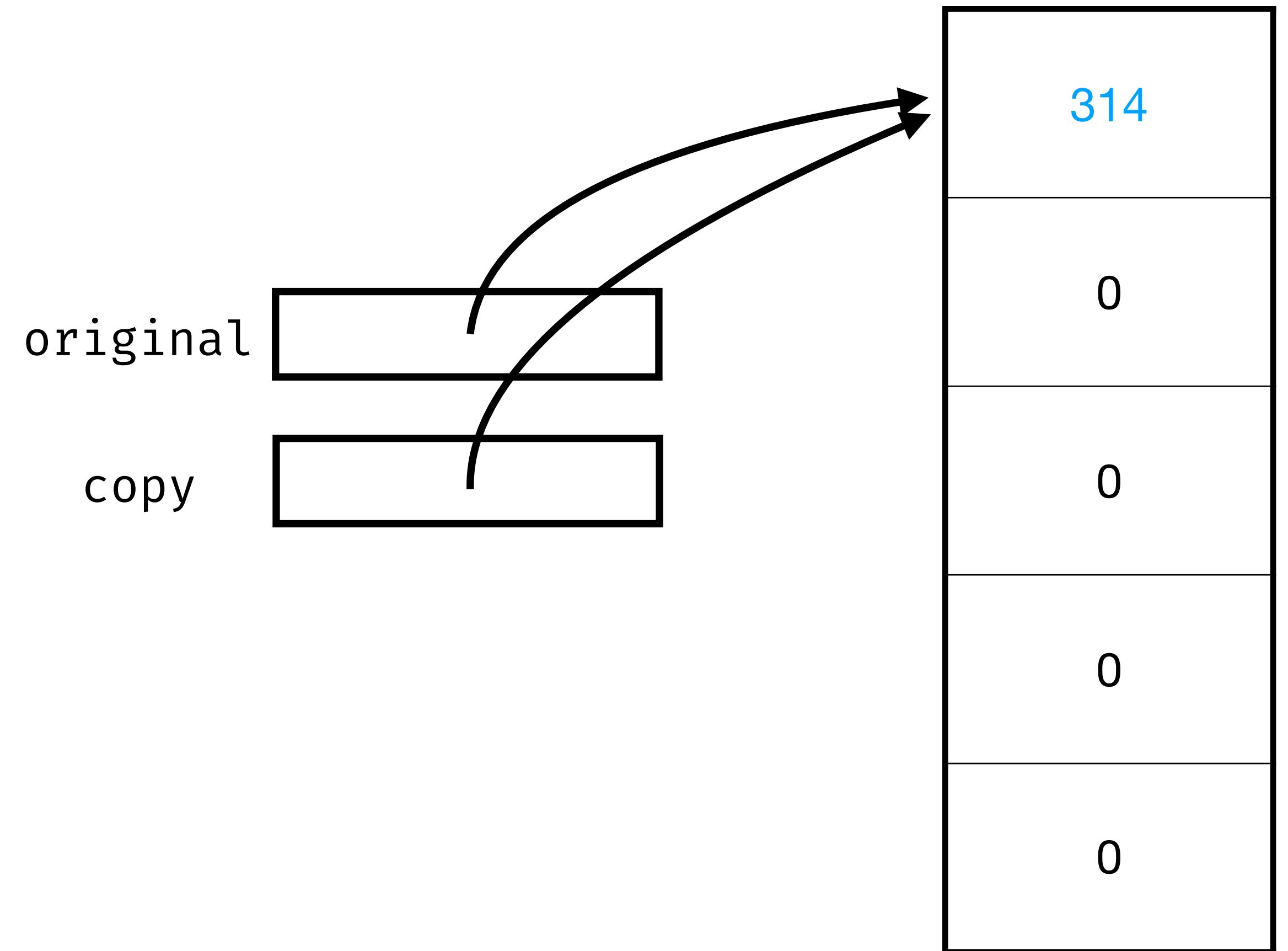
isPermutation()
Shallow vs. Deep Copies

```
original = new int[5];
// shallow copy
copy = original;

copy[0] = 314;
System.out.println(original[0]);
```
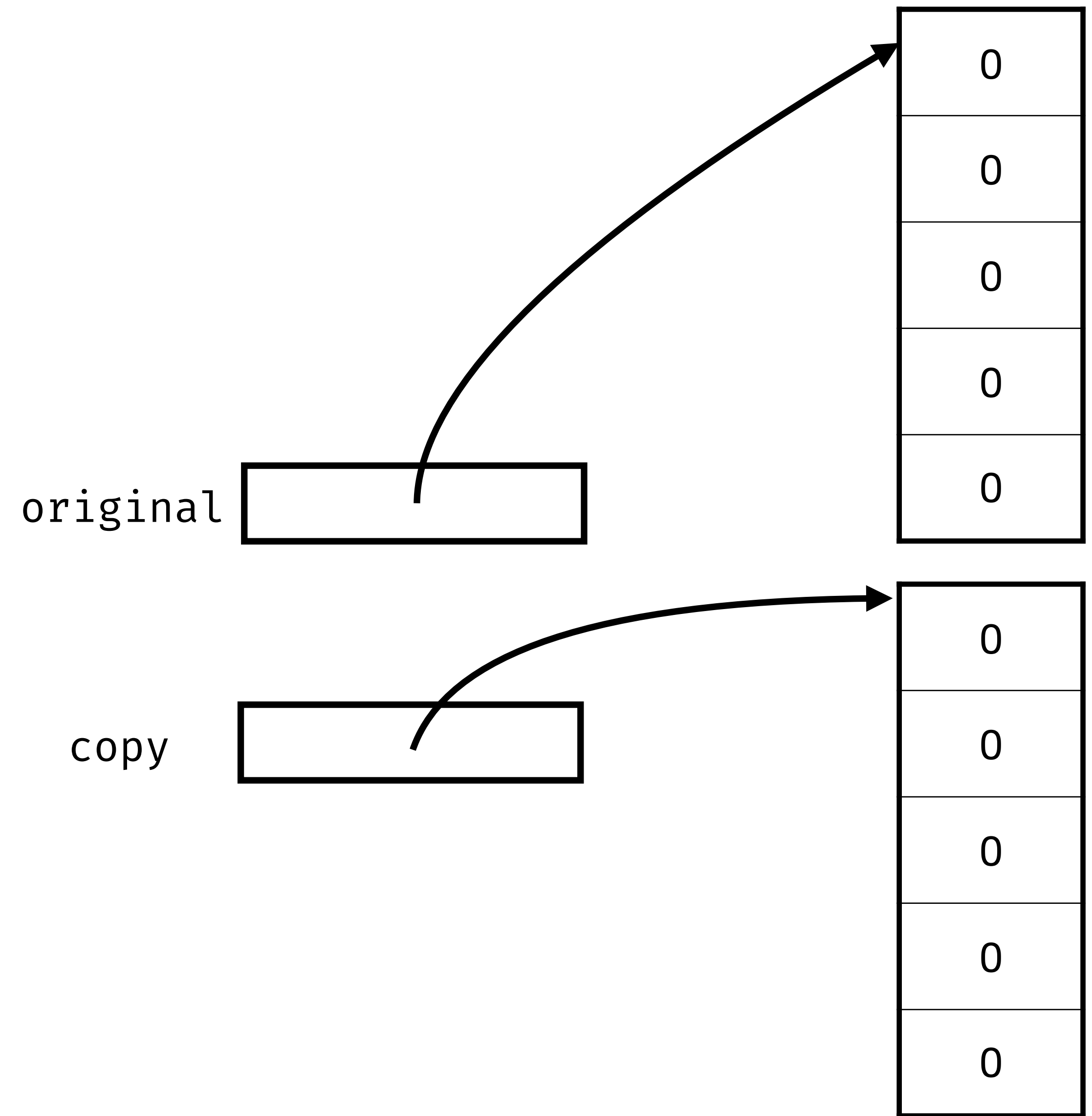
What is printed out here? Why?

isPermutation()
Shallow vs. Deep Copies

```java
original = new int[5];
// deep copy
copy = new int[original.length];
for(int i = 0; i < copy.length; i++)
    copy[i] = original[i];
```

isPermutation()
Shallow vs. Deep Copies

```java
original = new int[5];
// deep copy
copy = new int[original.length];
for(int i = 0; i < copy.length; i++)
    copy[i] = original[i];

copy[0] = 314;
System.out.println(original[0]);
```
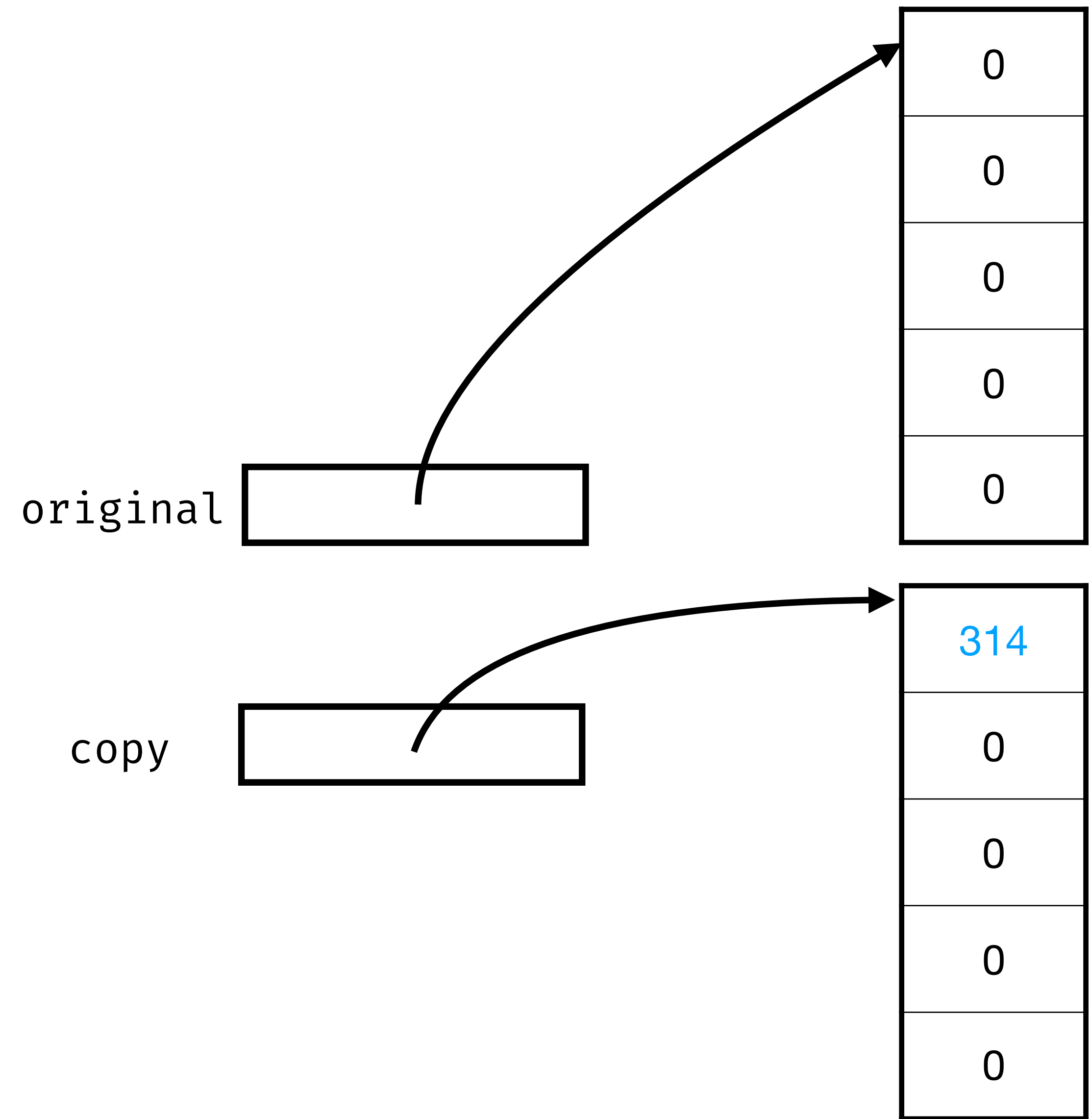
What is printed out *here*? Why is it not the same as last time?

Slides Redacted

(See Discussion Section Recording)

Assignment 2: MathMatrix

Due: Thursday, February 4, 2020

MathMatrix
Matrix Multiplication "Review"

a	b	c
d	e	f
g	h	i

X

j	k
m	n
p	q

3×3

3×2

These two need to be the same! (precondition)

These two are your resulting matrix size:

3×2
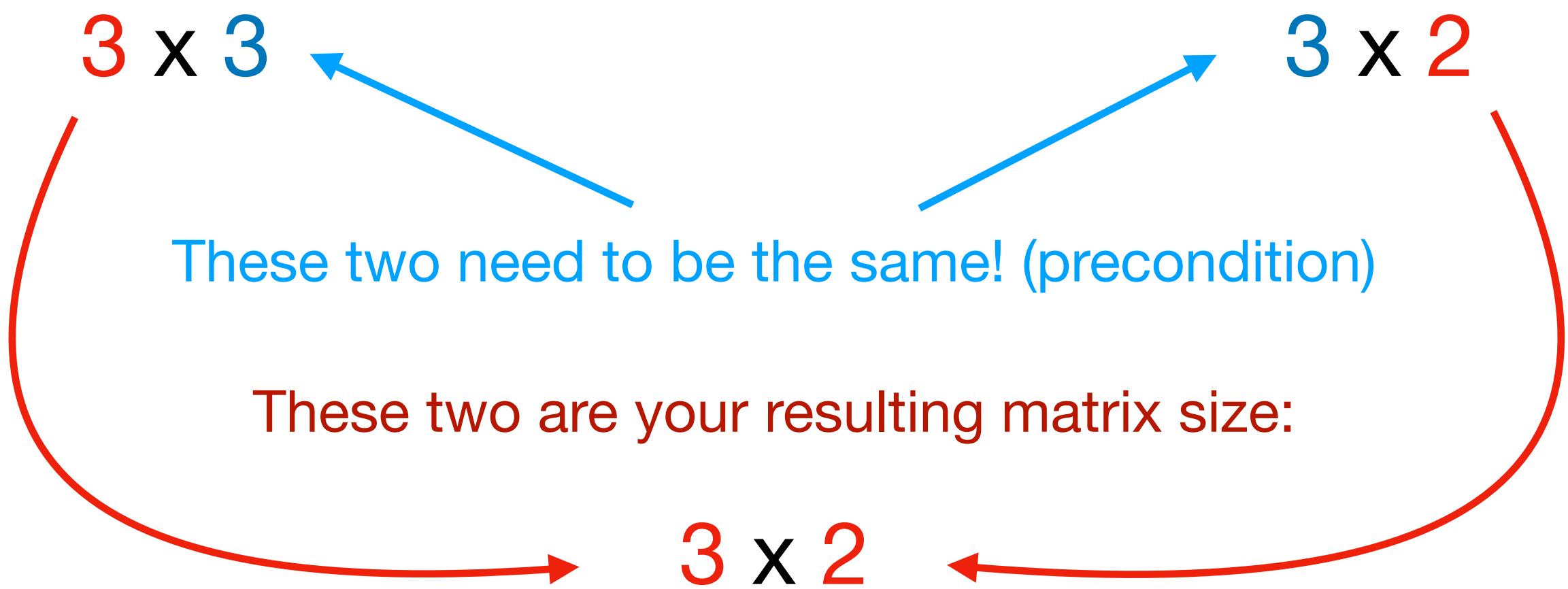
MathMatrix
Matrix Multiplication "Review"

a	b	c
d	e	f
g	h	i

X

j	k
m	n
p	q

=

aj + bm + cp	

MathMatrix
Matrix Multiplication "Review"

a	b	c
d	e	f
g	h	i

X

j	k
m	n
p	q

=

aj + bm + cp	ak + bn + cq

MathMatrix
Matrix Multiplication "Review"

a	b	c
d	e	f
g	h	i

X

j	k
m	n
p	q

=

aj + bm + cp	ak + bn + cq
dj + em + fp	

MathMatrix
Matrix Multiplication "Review"

MathMatrix
Matrix Multiplication "Review"

a	b	c
d	e	f
g	h	i

X

j	k
m	n
p	q

And so on…   =

aj + bm + cp	ak + bn + cq
dj + em + fp	dk + en + fq
gj + hm + ip	gk + hn + iq

Section Problem

Array-based Lists