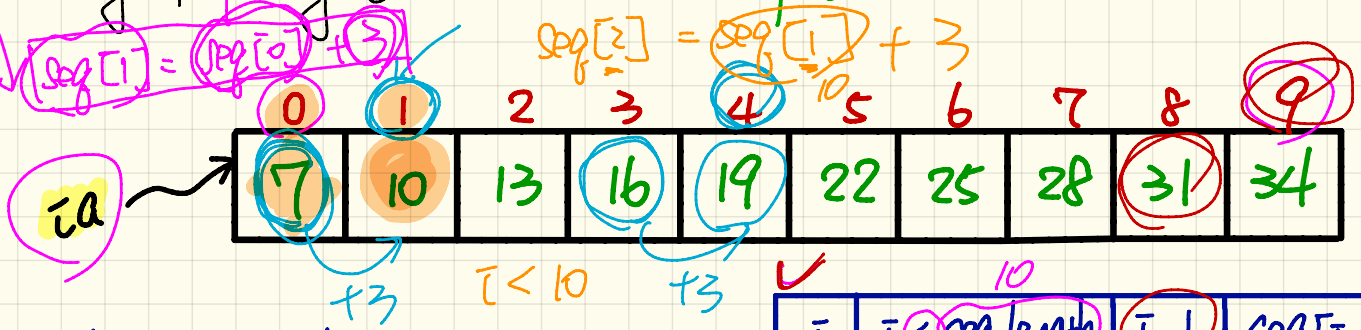
Monday February 11

Lecture 11

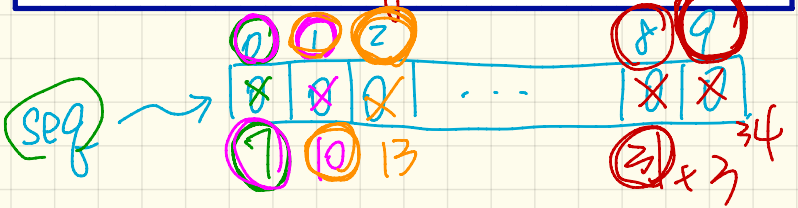
Array of Integers (2)

there is pattern on stored values



Declaration and Initialization:

```
int[] seq = new int[10];
seq[0] = 7;
for(int i = 1; i < seq.length; i++) {
  seq[i] = seq[i - 1] + 3;
}
```



i	i < seq.length	i-1	seq[i-1]
1	1<10 (T)	0	7
2	2<10 (T)	1	10
⋮	⋮	⋮	⋮
9	9<10 (T)	8	⋮
10	10<10 (F)	9	31

```
int[] a = new int[?];
String[] names = new String[?];
```

Re-assignment of a slot:

```
a[2] = 8;
```

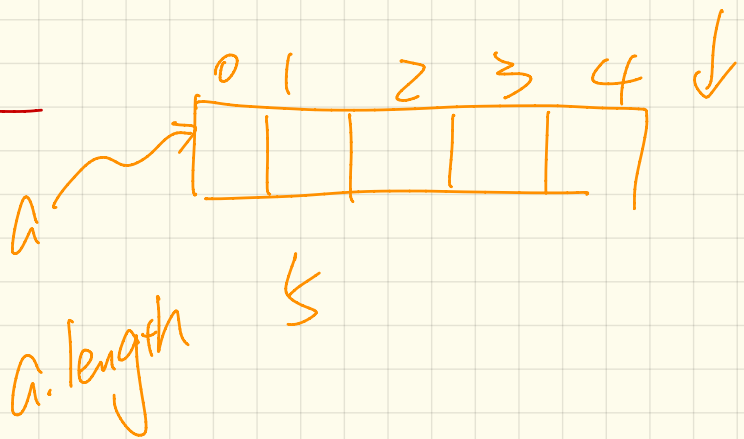
Accessing the value stored in a slot:

```
println( a[3] )
```

for (int i = 0; i <= nums.length; i++) {

[a[i]

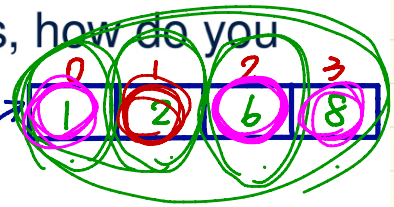
]



Computational Problem: Average

Problem: Given an array `numbers` of integers, how do you print its average?

e.g., Given array {1, 2, 6, 8}, print `4.25`.




```
int sum = 0;
for(int i = 0; i < numbers.length; i ++) {
    sum += numbers[i];
}
double average = (double) sum / numbers.length;
System.out.println("Average is " + average);
```

i	i<ns.length
0	0<4 T
1	1<4 T

Test Case 1

int[] numbers = {1, 2, 6, 8}

Test Case 2

int[] numbers = {}

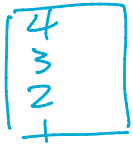
division by zero

numbers.length

Computational Problem: Printing Backwards

Problem: Given an array `numbers` of integers, how do you print its contents backwards?

e.g., Given array $\{1, 2, 3, 4\}$, print `4 3 2 1`.



Solution 1: Change bounds and updates of loop counter.

```
for(int i = numbers.length - 1; i >= 0; i --) {
  System.out.println(numbers[i]);
}
```

Solution 2: Change indexing.

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