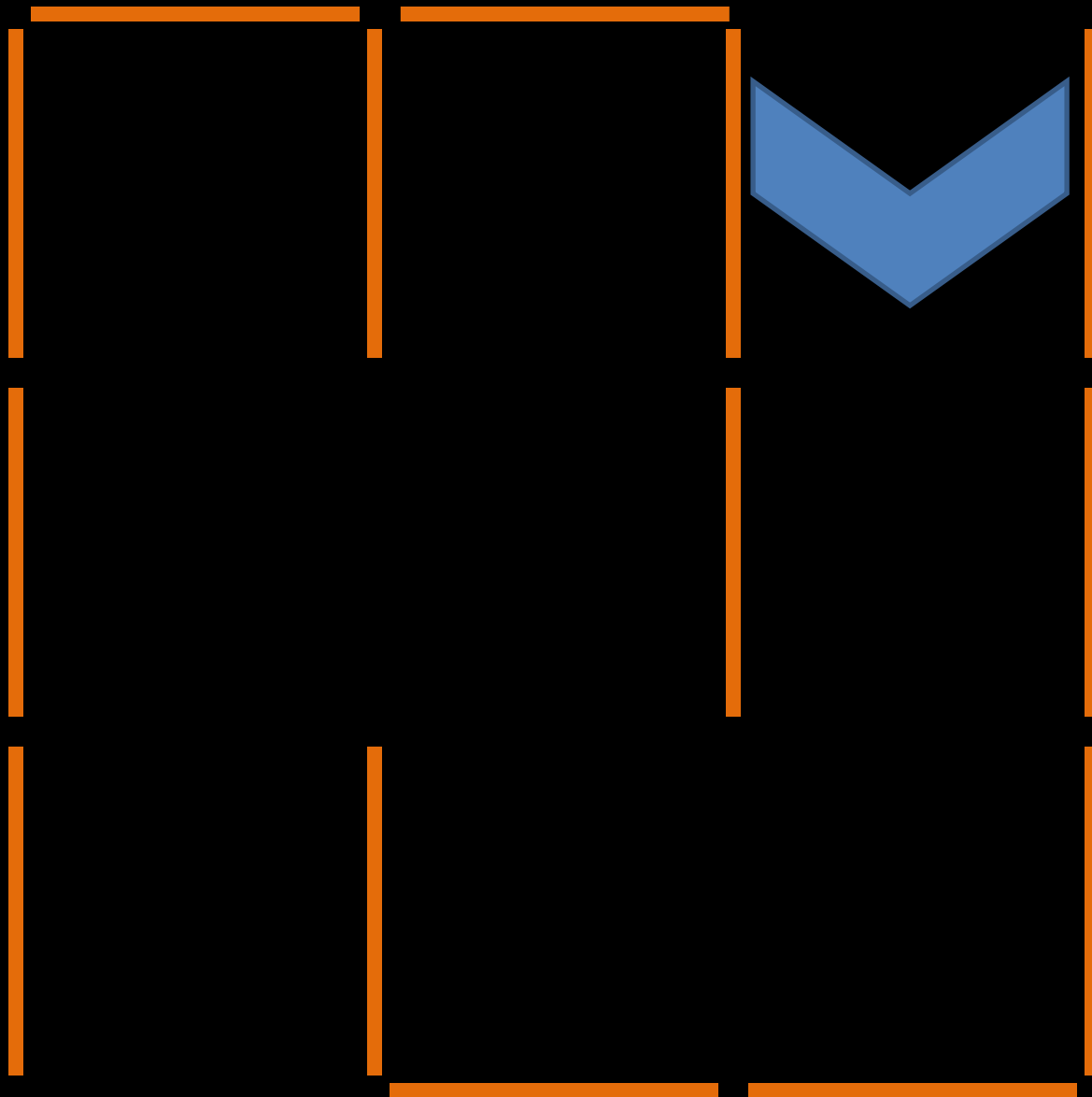
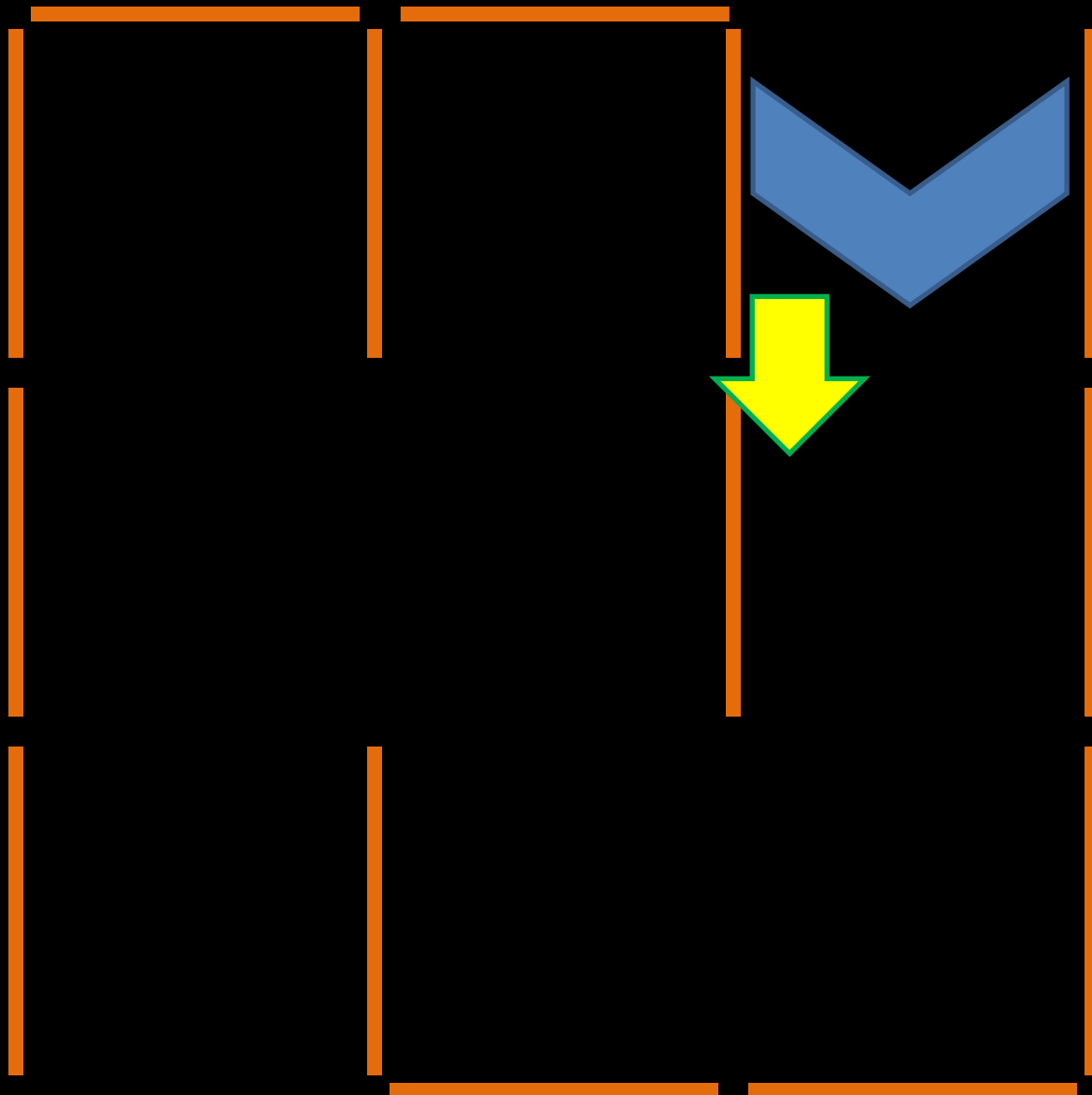


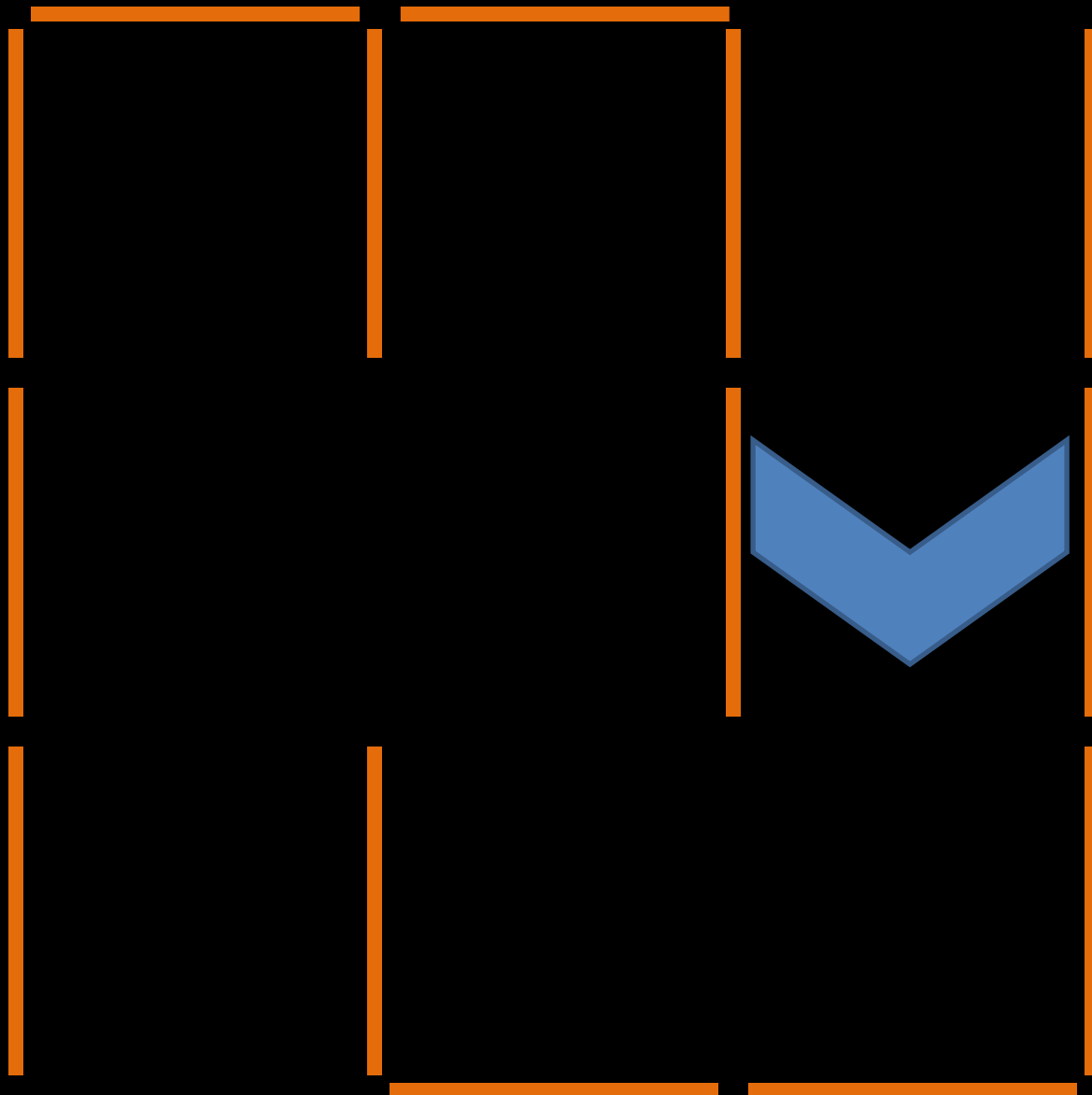
CS 105

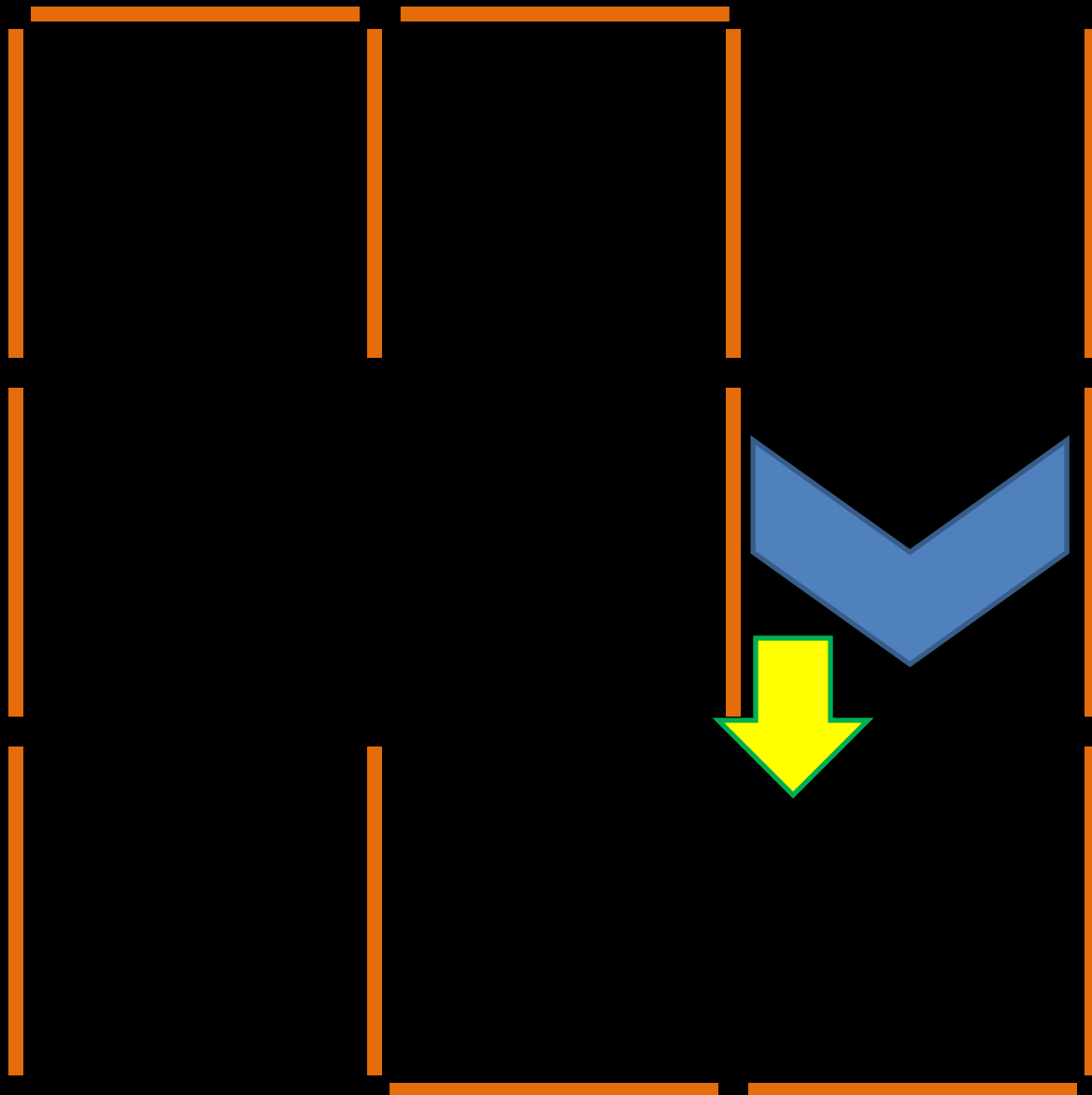
Week 3, continued

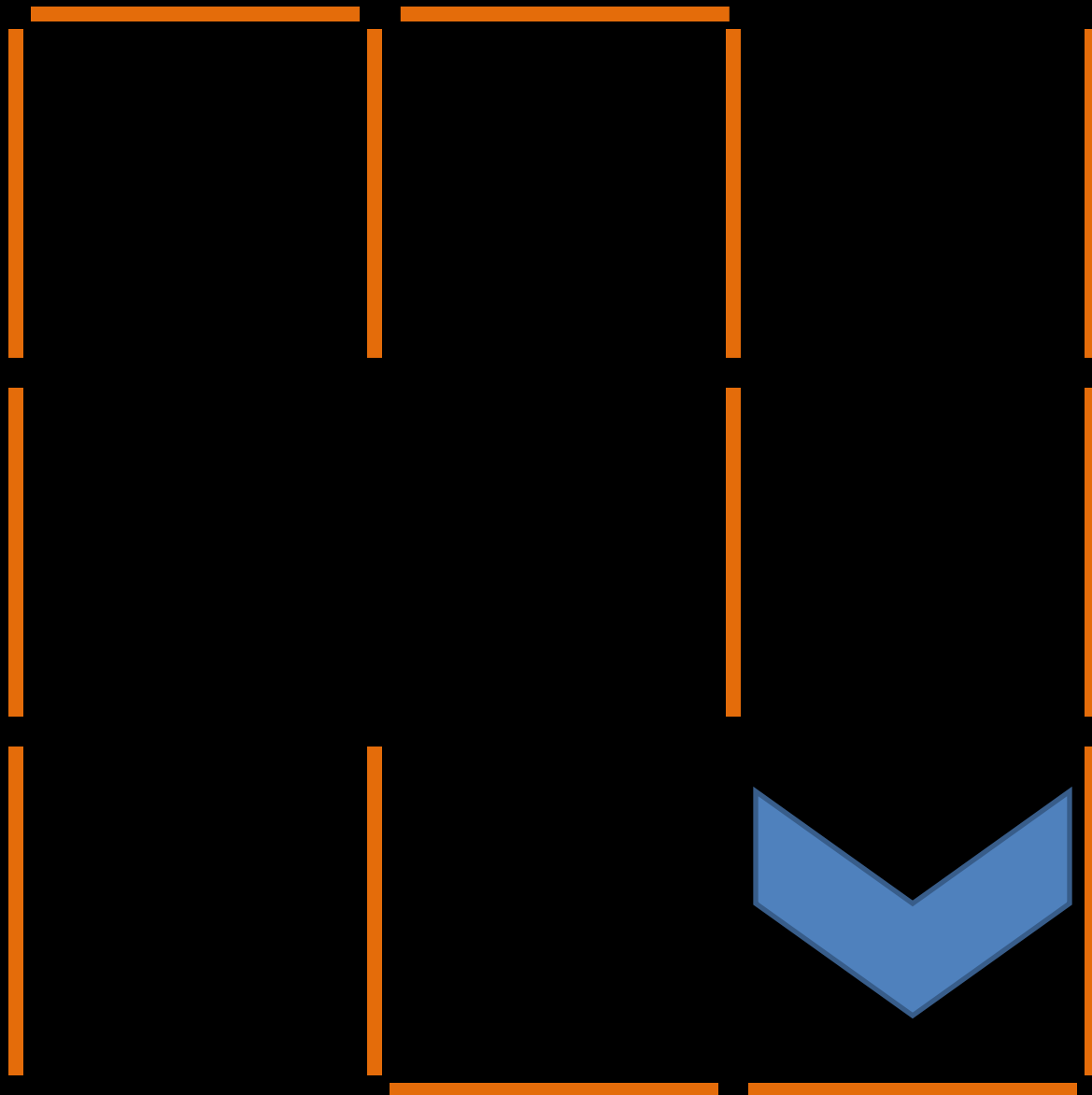
MP1

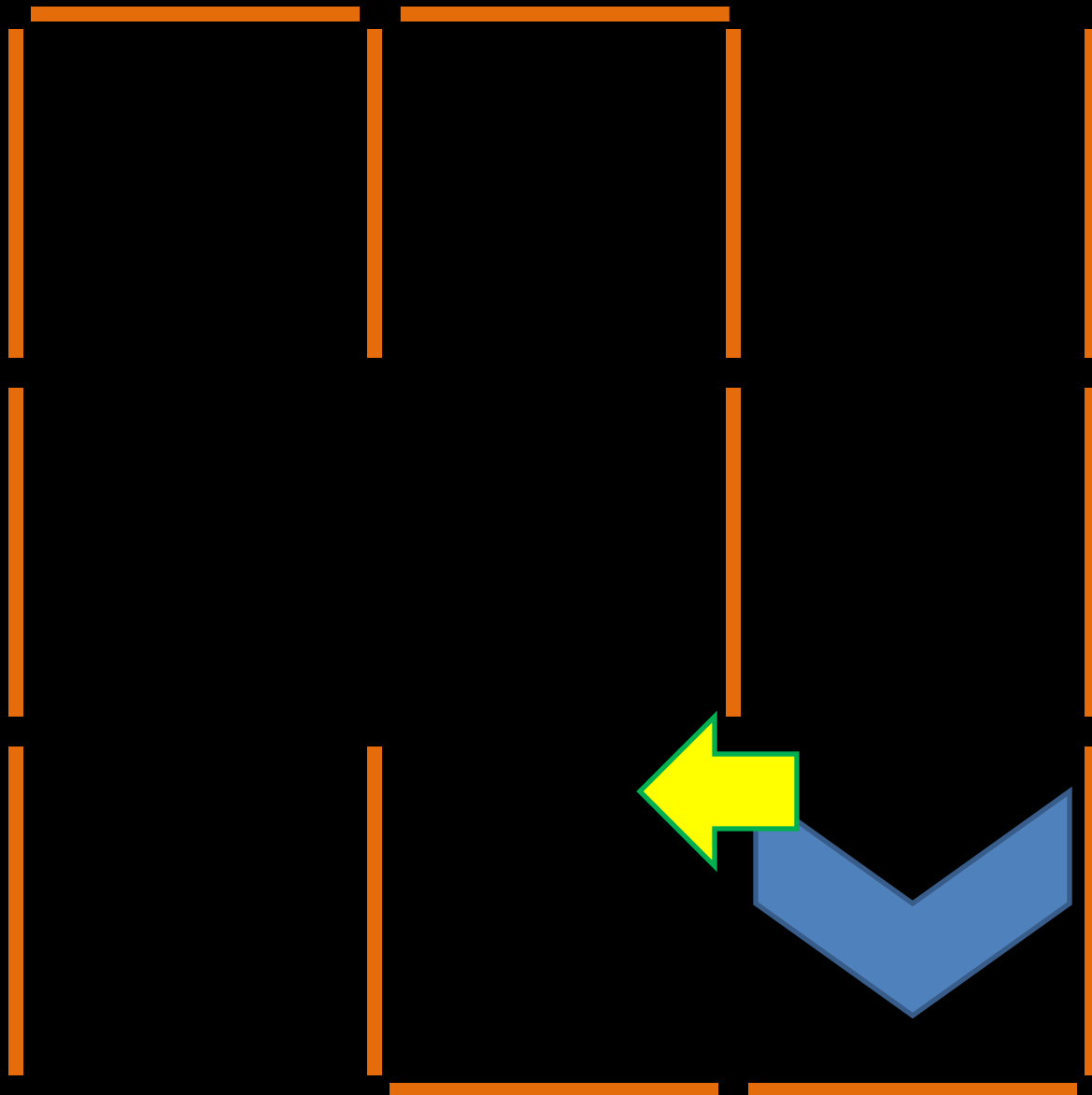




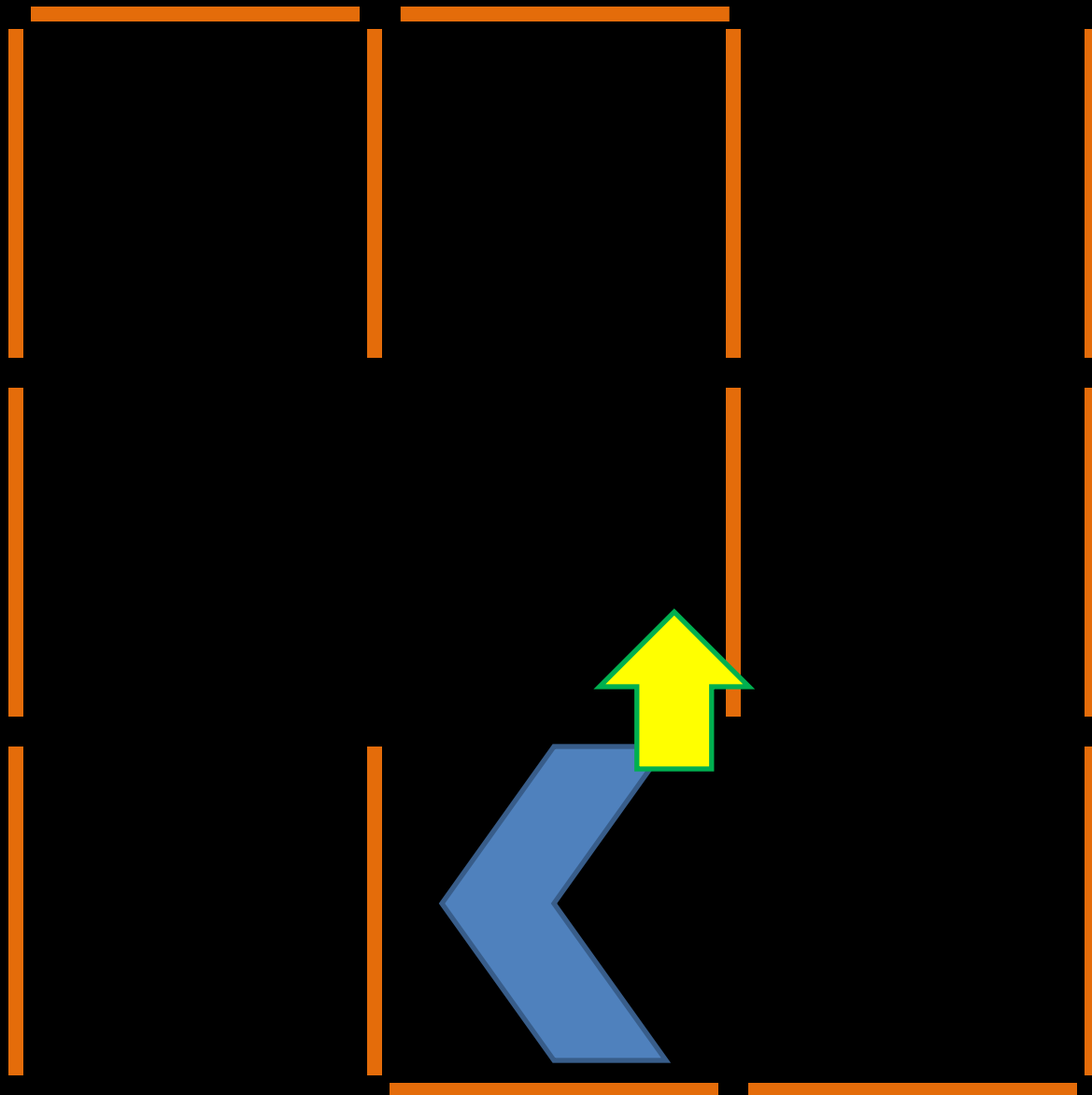


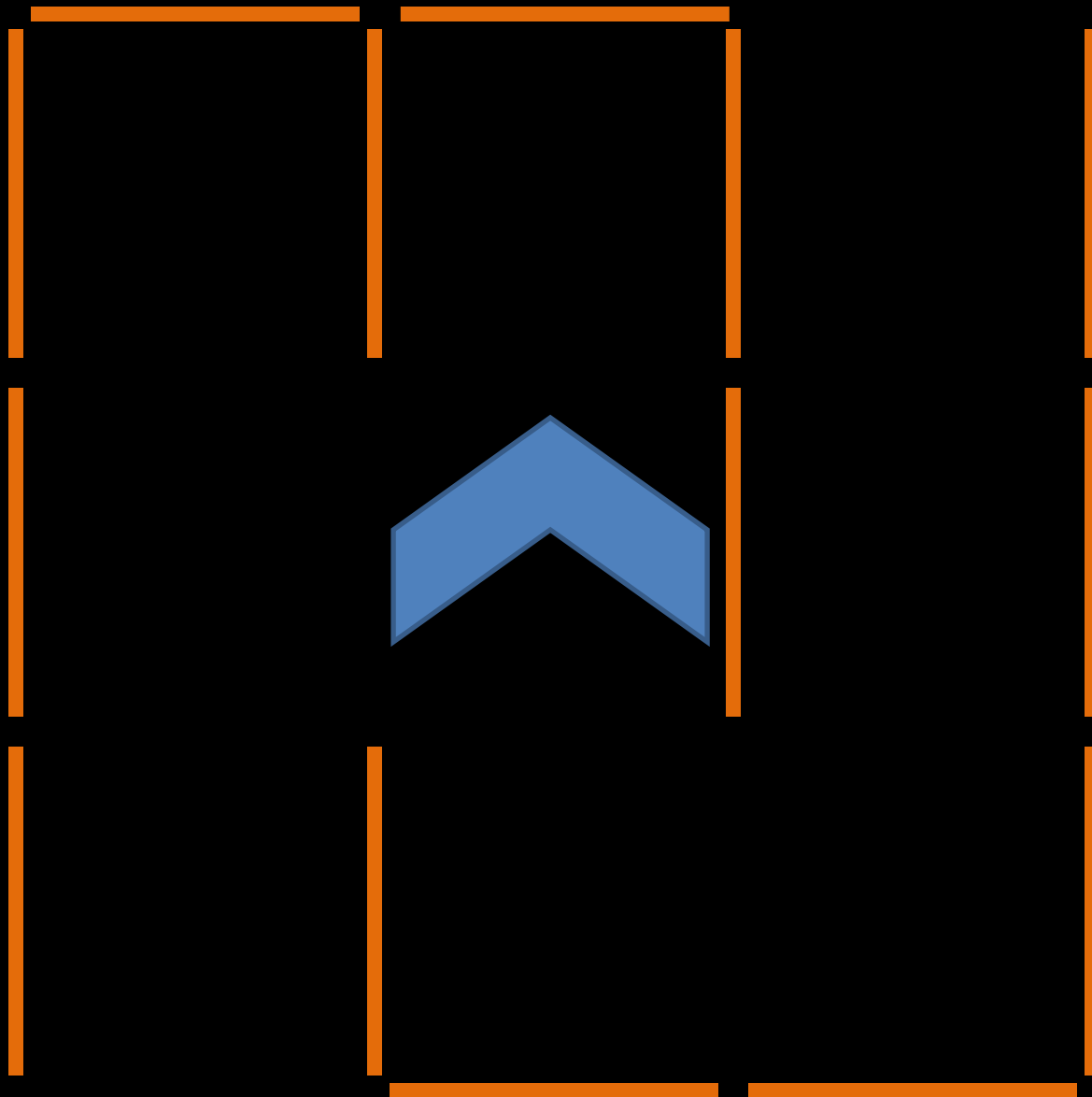


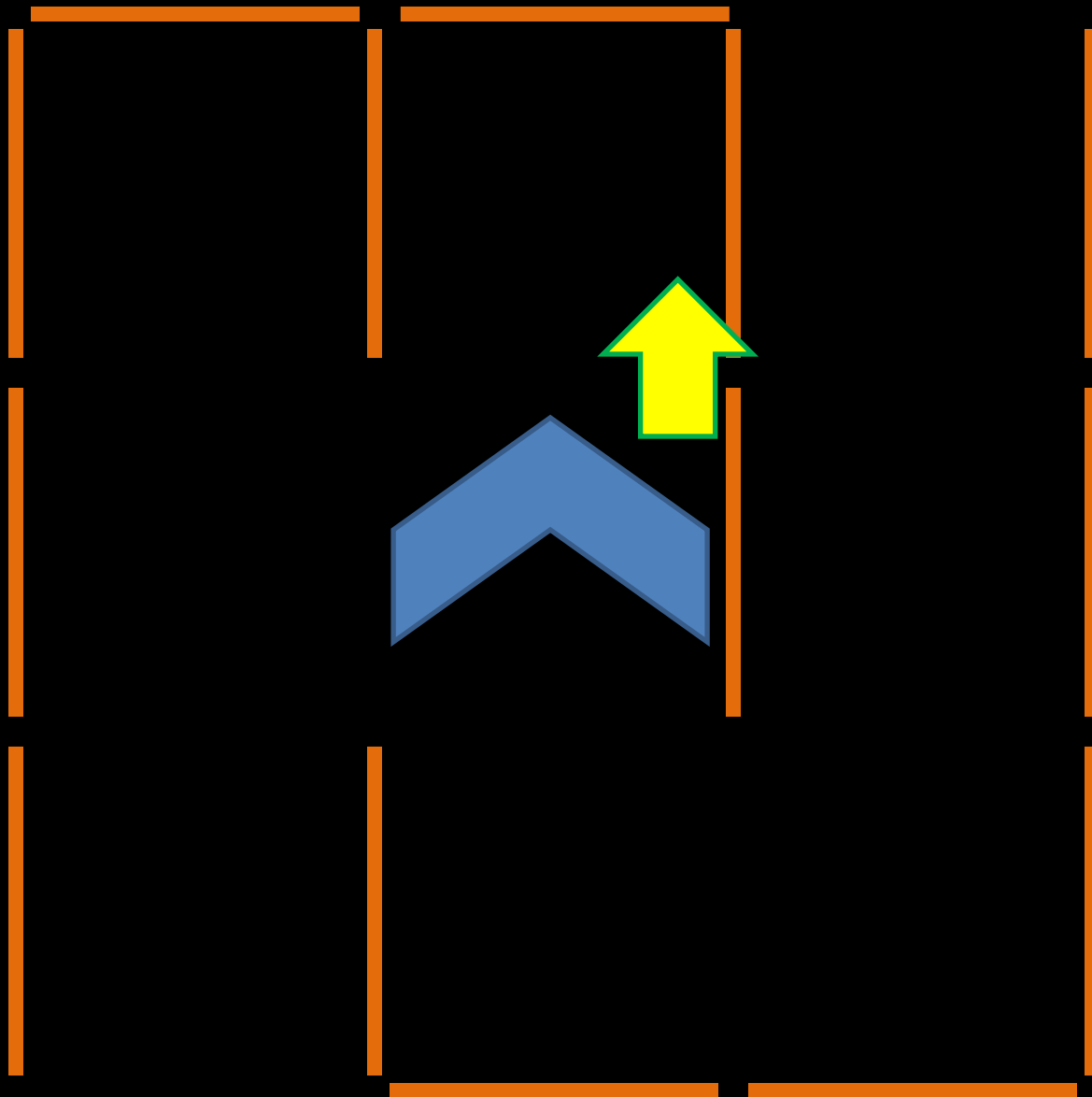


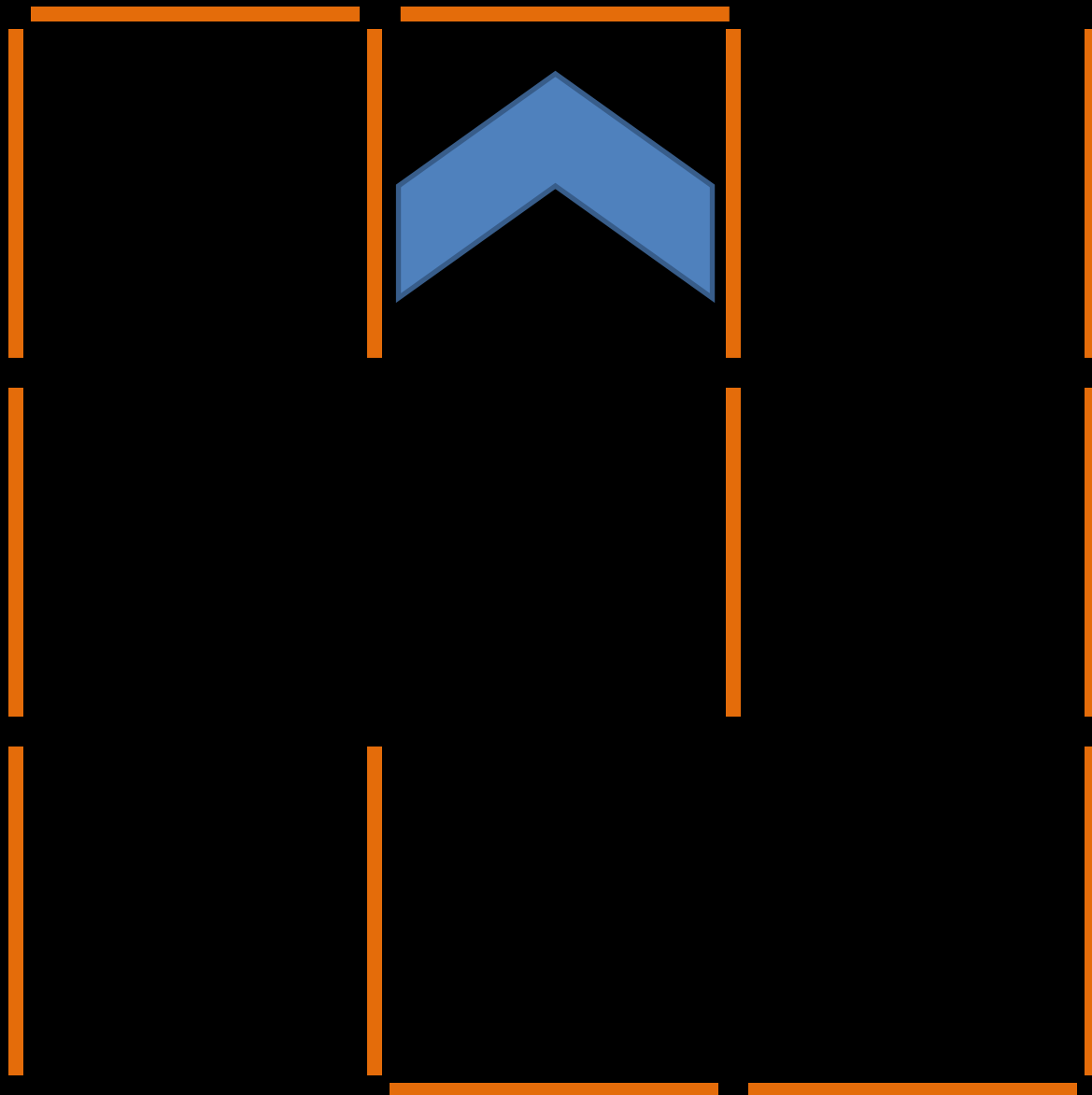


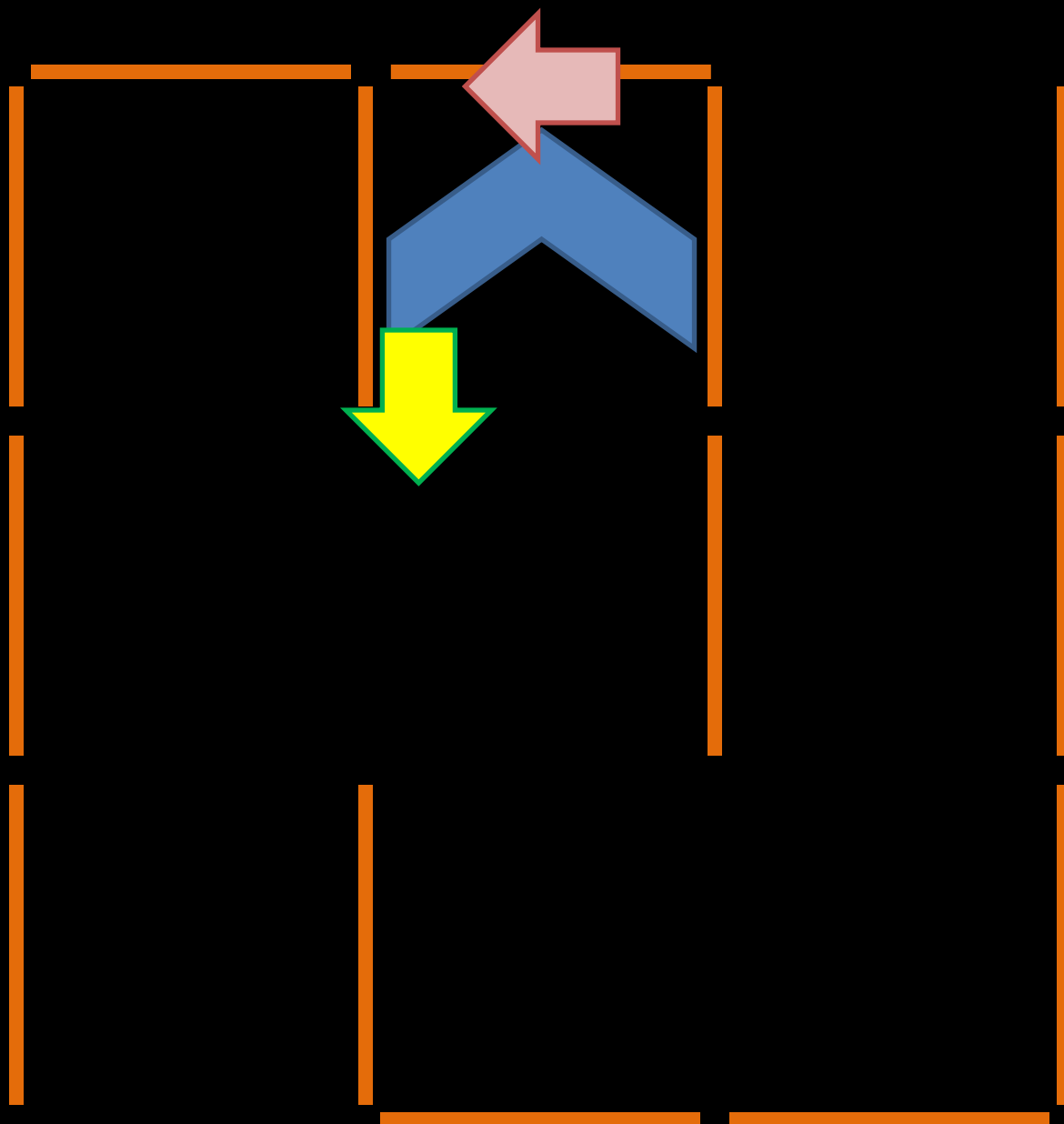




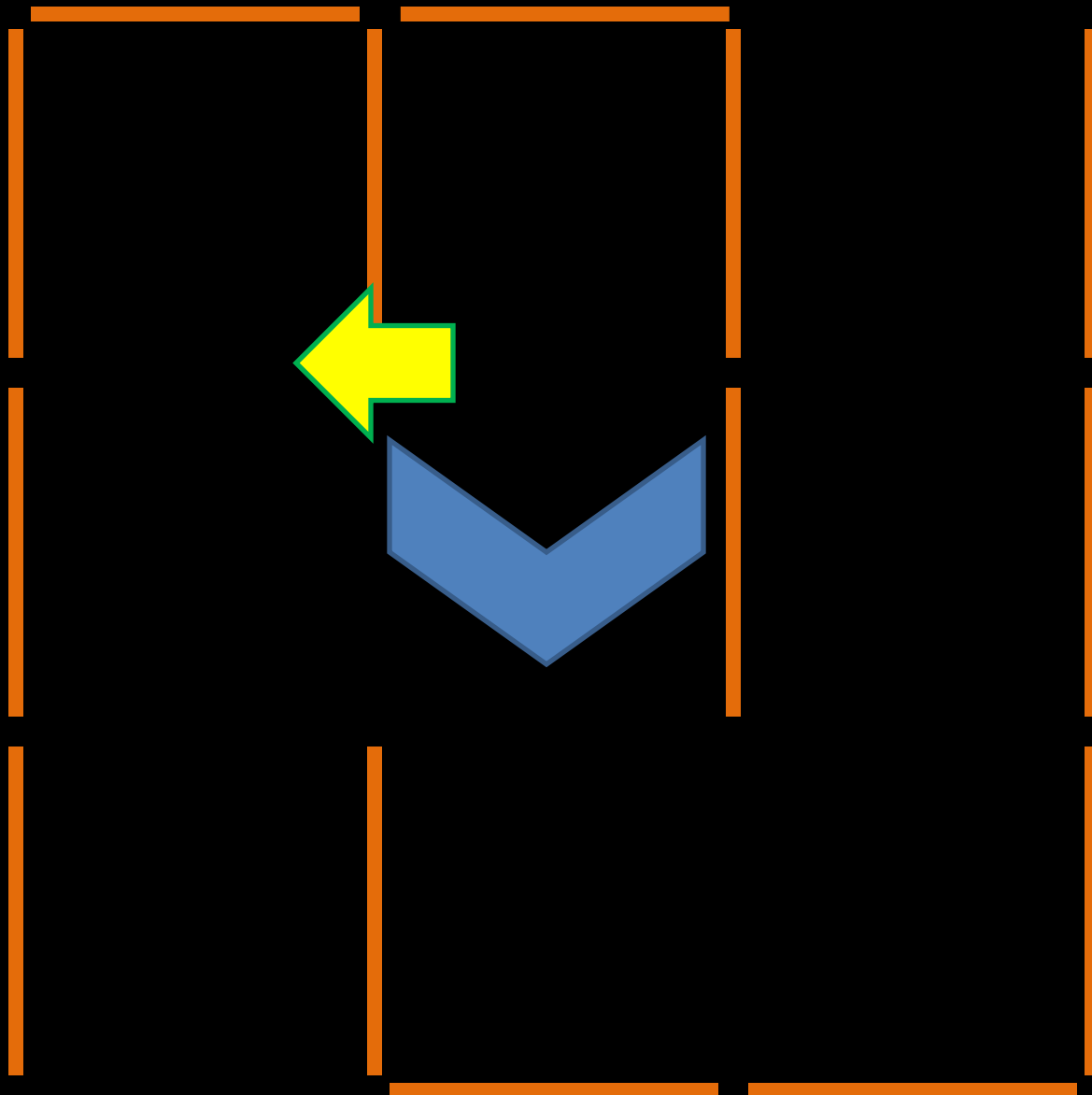


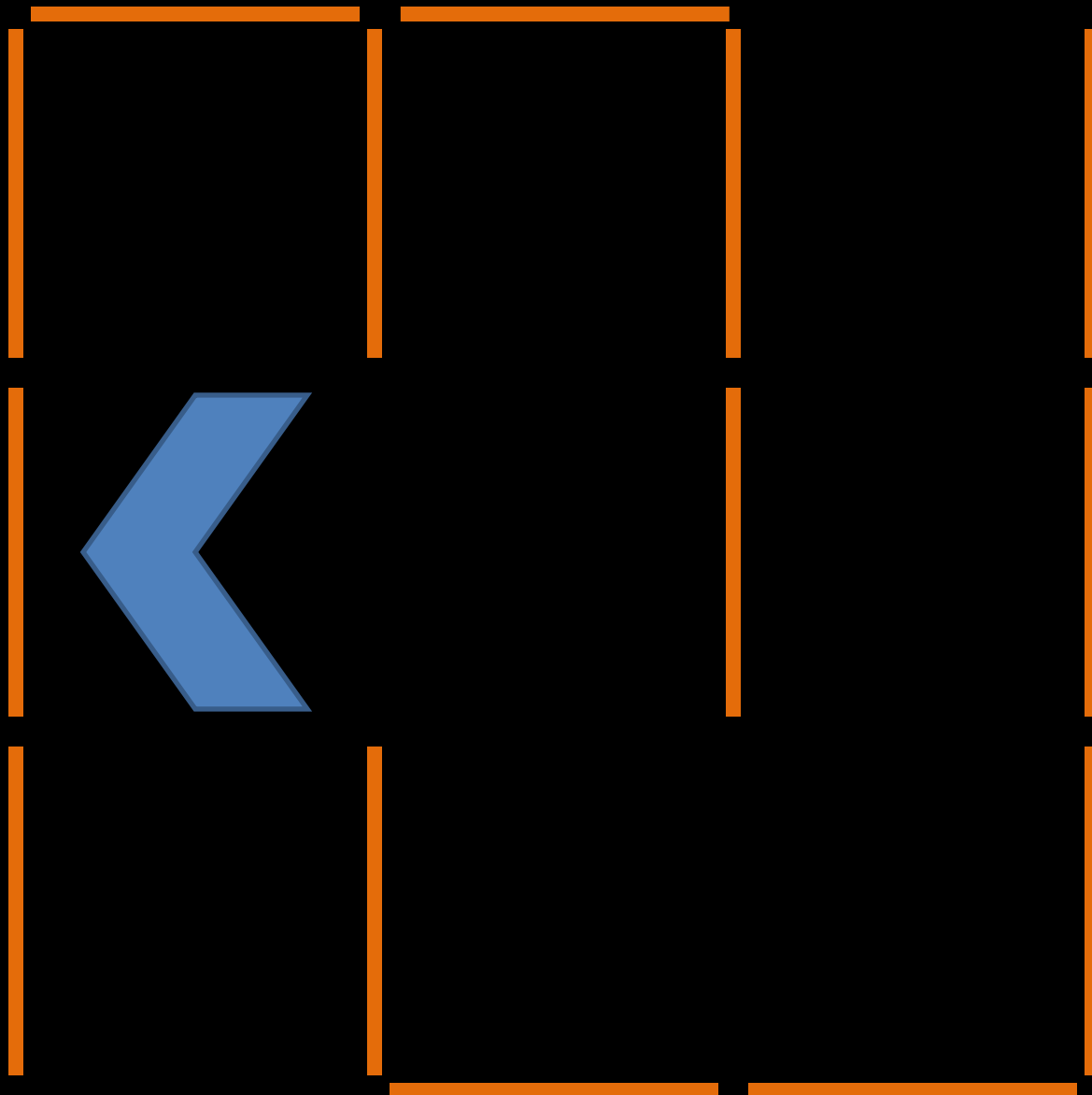


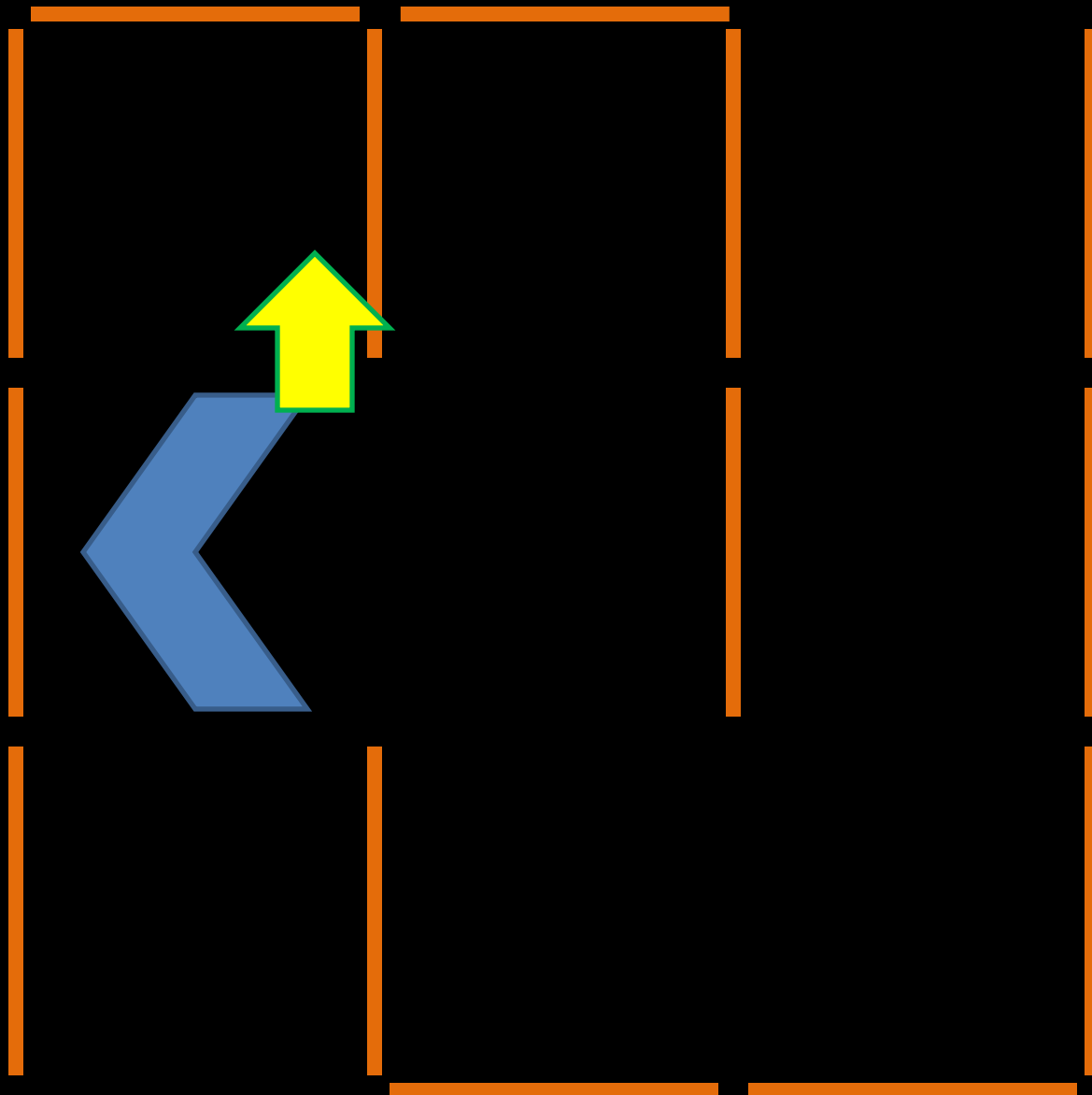


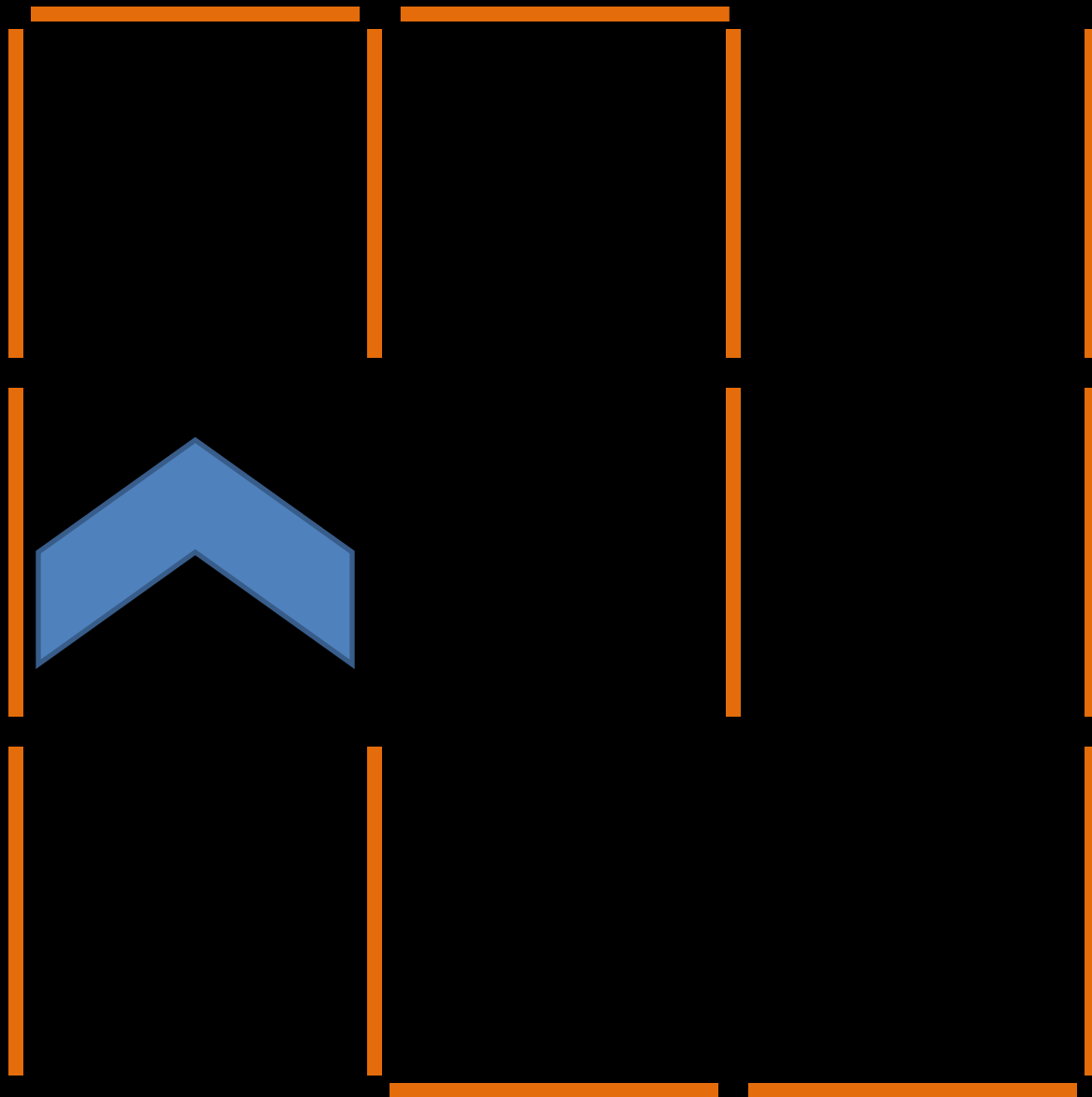


















```
if ( isWall("Right") == false )
{
    move("Right");
}
else if ( isWall("Forward") == false )
{
    move("Forward");
}
else if ( isWall("Left") == false )
{
    move("Left");
}
else
{
    move("Backward");
}
```

Strings

"Hello"

```
var s = "Hello";
```

```
var s = "Hello";  
var c = s.charAt(1);
```

	H	e	l	l	o
Index:	[0]	[1]	[2]	[3]	[4]

Strings

- **Strings** in JavaScript:
 - are words surrounded by “quotes”
 - can be accessed character by character via their **index**

```
c = s.charAt( index );
```

```
var s = "Hello";  
var len = s.length;
```

```
var s = "Hello";  
var len = s.length;
```

String Length

- The length of a string can be found using `s.length`.
 - `s.length` is unusual: it does not contain any parentheses... no `(` or `)`.

```
var s = "Hello";  
if (s.length == 5)  
{  
    ...  
}
```

Loop #2

Motivation

- While programming, we often want to loop through a range of numbers.
- Example:
 - 0, 1, 2, ..., 9
 - 0, 1, 2, ..., s.length – 1
 - etc

- Looping through a range is awkward with only a while loop.

- Looping through a range is awkward with only a while loop.

```
var counter = 0;  
while (counter < 10)  
{  
    ...  
    counter++;  
}
```

- Easy to forget the counter++, resulting in an **infinite loop**:

```
var counter = 0;  
while (counter < 10)  
{  
  
}
```

for loop

```
for (var i = 0; i < 10; i++)  
{  
    ...  
}
```

Initializes the variable



```
for (var i = 0; i < 10; i++)  
{  
    ...  
}
```

while condition



```
for (var i = 0; i < 10; i++)  
{  
    ...  
}
```

increment after each iteration of
the loop

```
for (var i = 0; i < 10; i++)  
{  
    ...  
}
```

Pseudo Code

- Having a for-loop available to us, we can add to our dictionary of **pseudo-code**:
 - for each _____ in _____
 - for each **character** in **our string**

```
for (var i = 0;  
    i < s.length;  
    i++)  
{  
    ...  
}
```

Overview

- For loops allow us to loop over a range of numbers, such as 0...10.
- For loops have a special syntax and requires curly braces.

Example: How many times do we
see “e” in a given string?

```
set counter to 0
for each characters in our string:
    if the character is an "e":
        add one to counter
```

```
// set counter to 0
// for each characters in our string:
//   if the character is an "e":
//     add one to counter
```

```
// set counter to 0
var counter = 0;
// for each character in our string:
//   if the character is an "e":
//     add one to counter
```

```
// set counter to 0
var counter = 0;
// for each character in our string:
for (var i = 0; i < s.length; i++)
{
    // if the character is an "e":
    //     add one to counter
}
```

```
// set counter to 0
var counter = 0;
// for each character in our string:
for (var i = 0; i < s.length; i++)
{
    var c = s.charAt(i);
    // if the character is an "e":
    // add one to counter
}
```

```
// set counter to 0
var counter = 0;
// for each character in our string:
for (var i = 0; i < s.length; i++)
{
    var c = s.charAt(i);
    // if the character is an "e":
    if (c == "e")
    {
        //      add one to counter
    }
}
```

```
// set counter to 0
var counter = 0;
// for each character in our string:
for (var i = 0; i < s.length; i++)
{
    var c = s.charAt(i);
    // if the character is an "e":
    if (c == "e")
    {
        // add one to counter
        counter++;
    }
}
```

```
function counte(s)
{
    // set counter to 0
    var counter = 0;
    // for each character in our string:
    for (var i = 0; i < s.length; i++)
    {
        var c = s.charAt(i);
        // if the character is an "e":
        if (c == "e")
        {
            // add one to counter
            counter++;
        }
    }
}
```

```
function counte(s)
{
    // set counter to 0
    var counter = 0;
    // for each character in our string:
    for (var i = 0; i < s.length; i++)
    {
        var c = s.charAt(i);
        // if the character is an "e":
        if (s.charAt(i) == "e")
        {
            // add one to counter
            counter++;
        }
    }
    return counter;
}
```

```
function counte(s)
{
    var counter = 0;
    for (var i = 0; i < s.length; i++)
    {
        var c = s.charAt(i);
        if (s.charAt(i) == "e")
        {
            counter++;
        }
    }
    return counter;
}
```

MP2