

CST 366 - Internet Programming

Spring 2020 - Week 4.1

AJAX

Due Date

- Lab 4 due on Sunday 2/23 @ 11:59 PM PST
- Assignment 3 due on Sunday 03/08 @ 11:59PM PST

What is AJAX ?

- AJAX stands for **A**synchronous **J**avaScript **A**nd **X**ML

What is AJAX ?

- AJAX stands for **A**synchronous **J**avaScript **A**nd **X**ML
- So, what is XML ?
 - stands for eXtensible Markup Language, a markup language much like HTML and was *designed to store and transport* data

What is AJAX ?

- AJAX stands for **A**synchronous **J**avaScript **A**nd **X**ML
- So, what is XML ?
 - stands for eXtensible Markup Language, a markup language much like HTML and was *designed to store and transport* data

```
<note>
  <to>Tove</to>
  <from>Jani</from>
  <heading>Reminder</heading>
  <body>Don't forget me this weekend!</body>
</note>
```

XML

What is AJAX ?

- AJAX stands for **A**synchronous **J**avaScript **A**nd **X**ML
- So, what is XML ?
 - stands for eXtensible Markup Language, a markup language much like HTML and was *designed to store and transport* data

```
<note>
  <to>Tove</to>
  <from>Jani</from>
  <heading>Reminder</heading>
  <body>Don't forget me this weekend!</body>
</note>
```

XML



Note

To: Tove

From: Jani

Reminder

Don't forget me this weekend!

HTML

What is AJAX ?

- AJAX describes a methodology of *loading data dynamically* on a page without loading a new page.

What is AJAX ?

- AJAX describes a methodology of *loading data dynamically* on a page without loading a new page.
 - The browser makes a request that's in the background

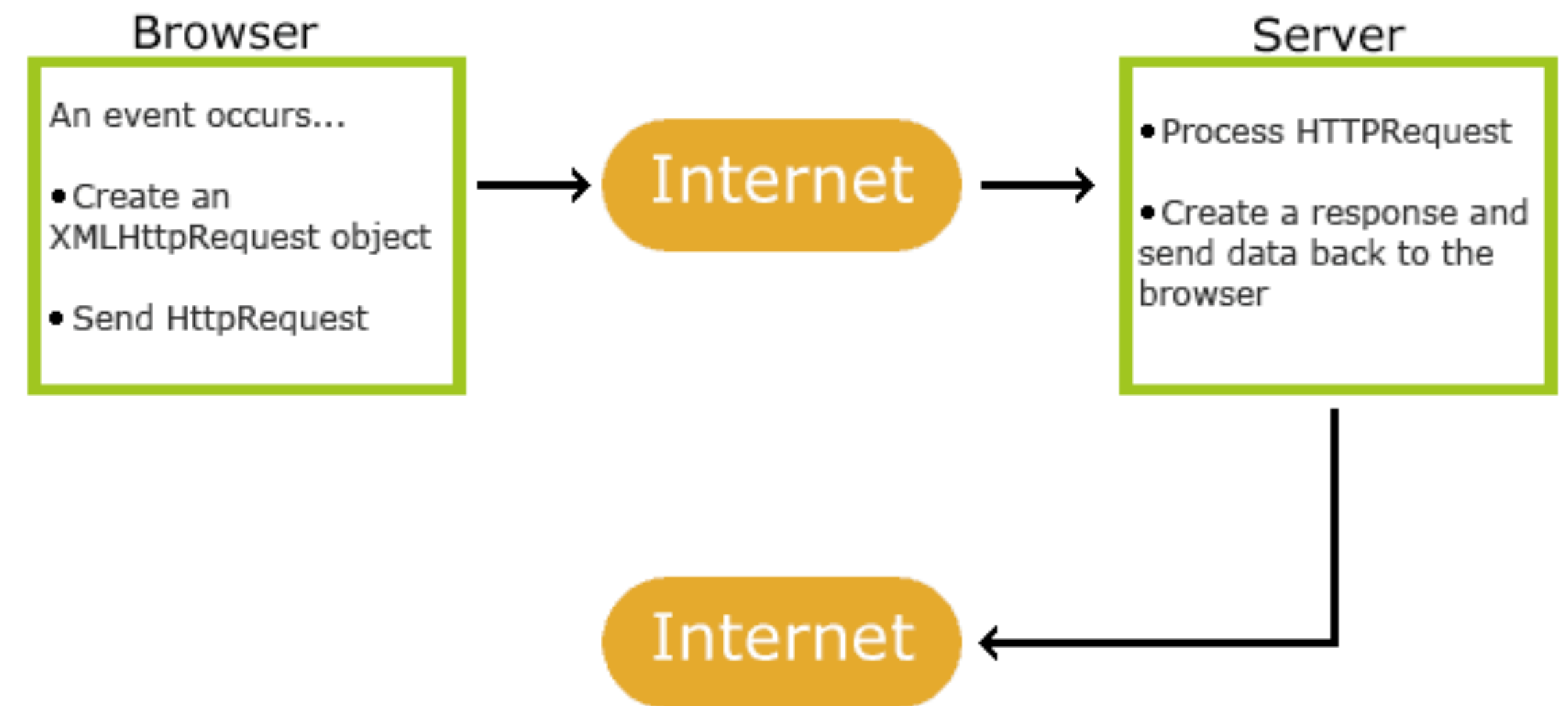
How AJAX Works



What is AJAX ?

- AJAX describes a methodology of *loading data dynamically* on a page without loading a new page.
 - The browser makes a request that's in the background
 - A success or error callback is triggered when the request completes.

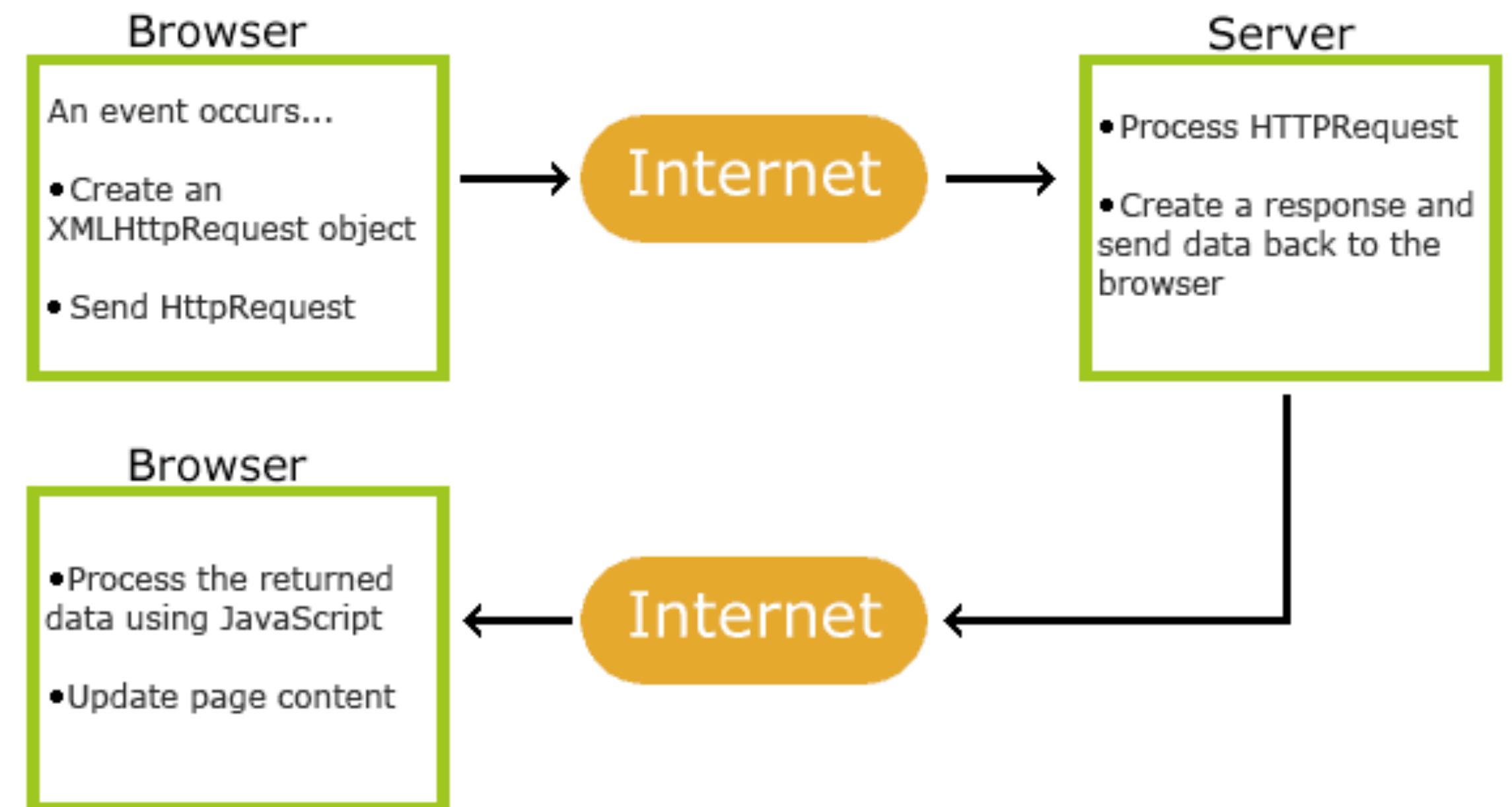
How AJAX Works



What is AJAX ?

- AJAX describes a methodology of *loading data dynamically* on a page without loading a new page.
 - The browser makes a request that's in the background
 - A success or error callback is triggered when the request completes.
 - The data from the request is passed in to the callbacks to be used or displayed

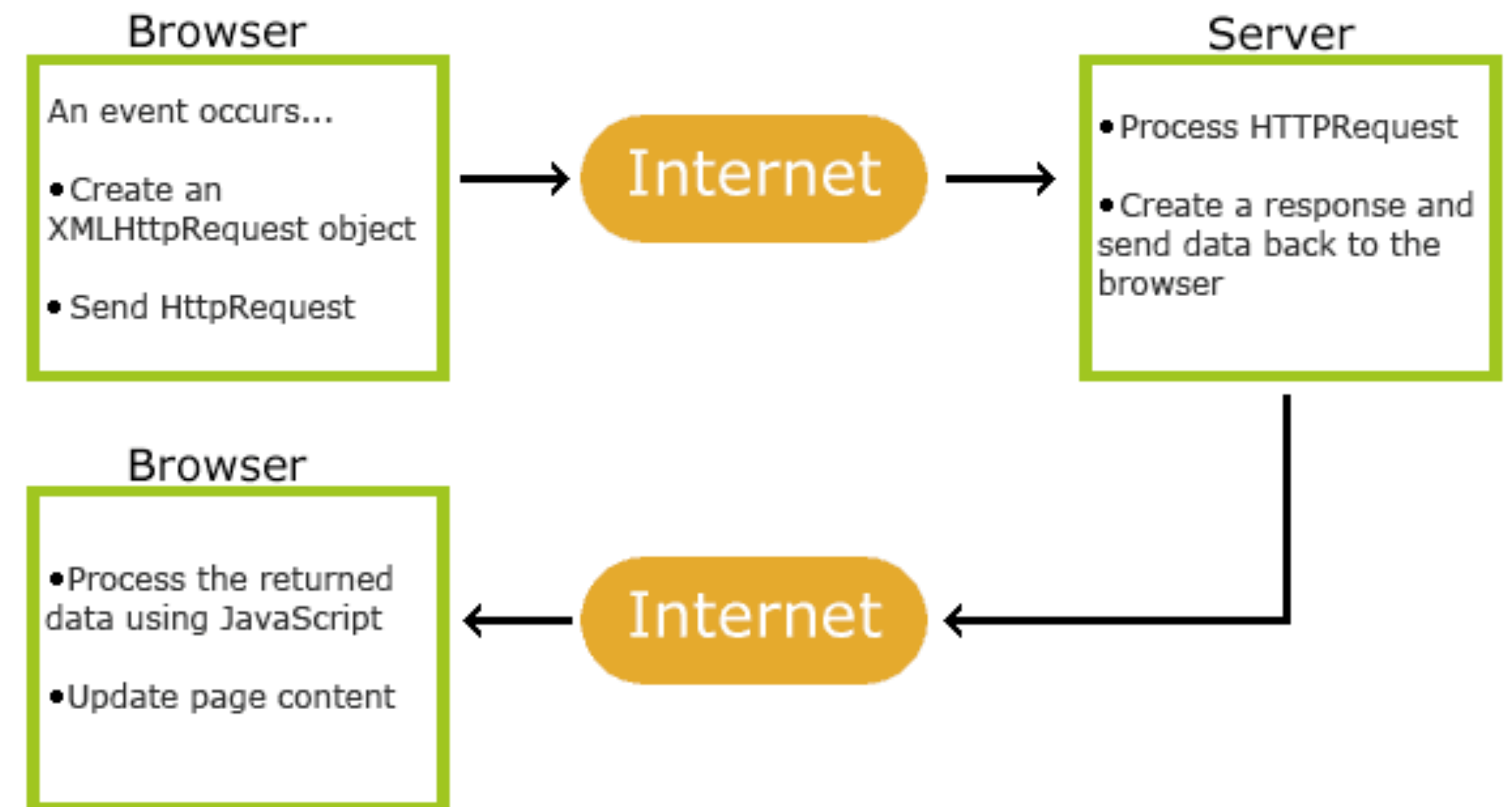
How AJAX Works



What is AJAX ?

- AJAX describes a methodology of *loading data dynamically* on a page without loading a new page.
 - The browser makes a request that's in the background
 - A success or error callback is triggered when the request completes.
 - The data from the request is passed in to the callbacks to be used or displayed

How AJAX Works

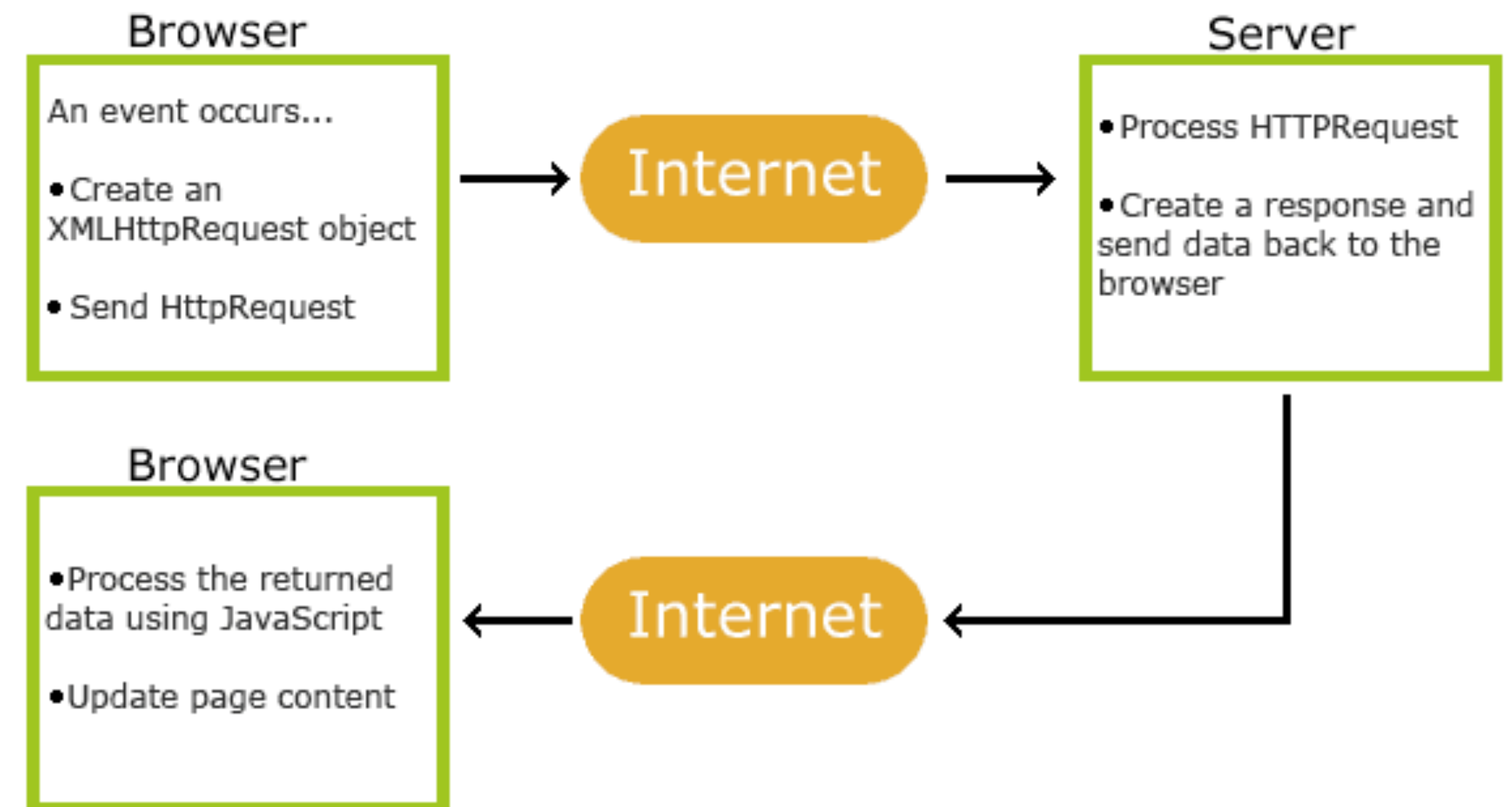


AJAX now broadly covers loading XML, HTML, JSON and JavaScript dynamically

AJAX Rules

- You can't load data from external domains directly via AJAX.

How AJAX Works

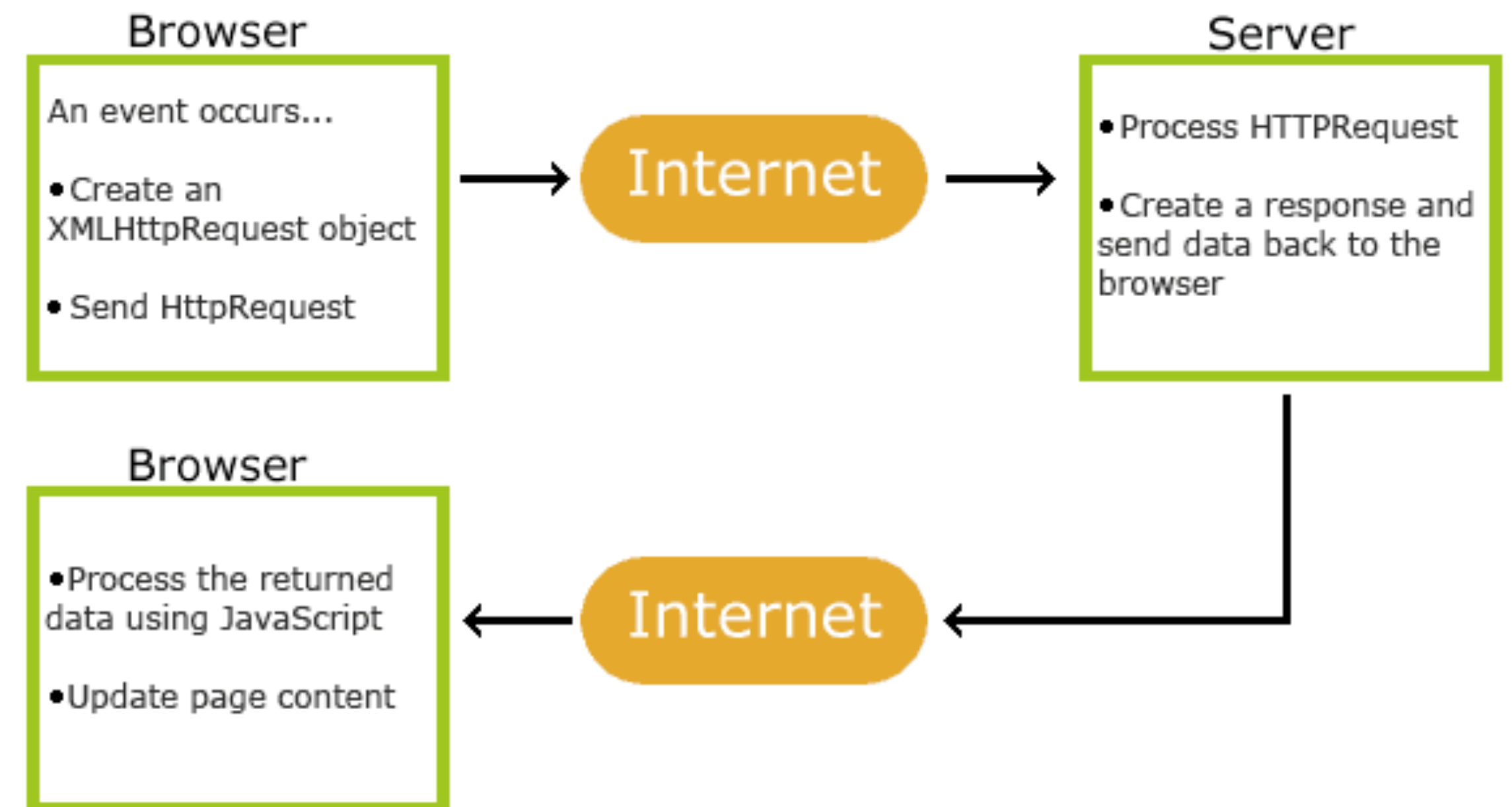


AJAX now broadly covers loading XML, HTML, JSON and JavaScript dynamically

AJAX Rules

- You can't load data from external domains directly via AJAX.
- If you do need to load data from another domain, you'll need to create a server-side proxy script to trick the browser into thinking the data is from the local domain.

How AJAX Works

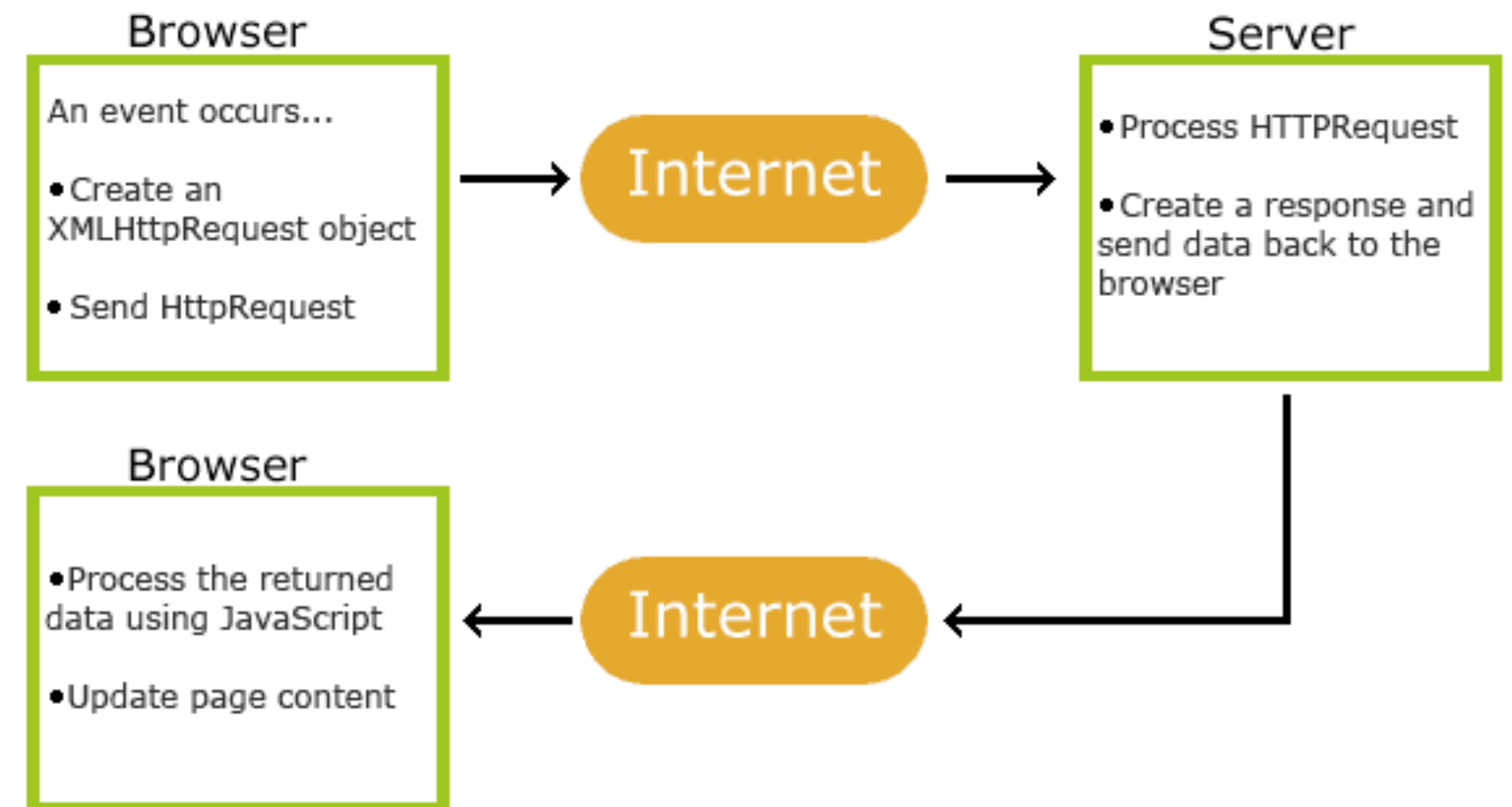


AJAX now broadly covers loading XML, HTML, JSON and JavaScript dynamically

AJAX Rules

- You can't load data from external domains directly via AJAX.
- If you do need to load data from another domain, you'll need to create a server-side proxy script to trick the browser into thinking the data is from the local domain.
- There is an exception to this: You can load JSON from an external domain, and the resulting JSON is passed in to the callback.

How AJAX Works



AJAX now broadly covers loading XML, HTML, JSON and JavaScript dynamically

AJAX in Vanilla JavaScript

You'll need the XMLHttpRequest Object

1. Instantiate XMLHttpRequest object
2. Open the connection
3. Send the request
4. Set the function for the event that responds to the resulting data

AJAX in Vanilla JavaScript

You'll need the XMLHttpRequest Object

1. Instantiate XMLHttpRequest object
2. Open the connection
3. Send the request
4. Set the function for the event that responds to the resulting data

```
var xhttp = new XMLHttpRequest();

xhttp.onreadystatechange = function() {
    if (xhttp.readyState == 4 && xhttp.status == 200) {
        document.getElementById("demo").innerHTML = xhttp.responseText;
    }
}
xhttp.open("GET", "ajax_info.txt", true);
xhttp.send();
```


AJAX in Vanilla JavaScript

Type of Request - HTTP Methods

GET

- Send data to the server through the URL
- Get data back that conforms to content type

AJAX in Vanilla JavaScript

Type of Request - HTTP Methods

GET

- Send data to the server through the URL
- Get data back that conforms to content type

POST

- Send data to the server through the URL
- Send data to the server in the body of the HTTP request, in multiple parts
- Get data back that conforms to content type

AJAX in Vanilla JavaScript

Type of Request - HTTP Methods

GET

- Send data to the server through the URL
- Get data back that conforms to content type

POST

- Send data to the server through the URL
- Send data to the server in the body of the HTTP request, in multiple parts
- Get data back that conforms to content type

HEAD

- Same as GET but no data is sent back

OPTIONS

- Use to determine what methods are allowed for a given domain

AJAX in Vanilla JavaScript

Type of Request - HTTP Methods

GET

- Send data to the server through the URL
- Get data back that conforms to content type

POST

- Send data to the server through the URL
- Send data to the server in the body of the HTTP request, in multiple parts
- Get data back that conforms to content type

HEAD

- Same as GET but no data is sent back

OPTIONS

- Use to determine what methods are allowed for a given domain

AJAX in jQuery

- jQuery wraps XMLHttpRequest, and you can run any HTTP method

```
$.ajax({
  type: "GET",
  url: "https://api.meetup.com/2/cities",
  dataType: 'json',
  success: function(data) {
    $('text').text(JSON.stringify(data));
  },
  error: function(error){
    console.log(error);
  }
});
```

Demo AJAX calls