

# Topic 18: Single Page Applications

CITS3403 Agile Web Development

---

Getting MEAN with Mongo,  
Express, Angular and Node,  
Chapter 8

---

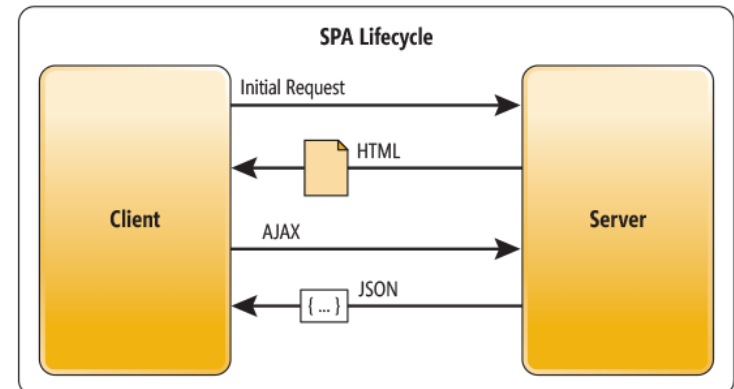
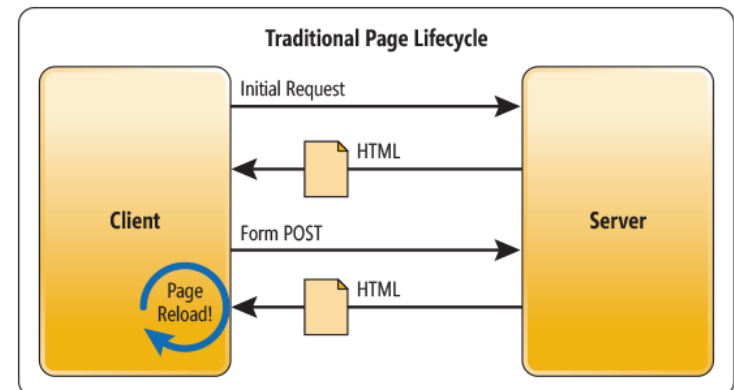
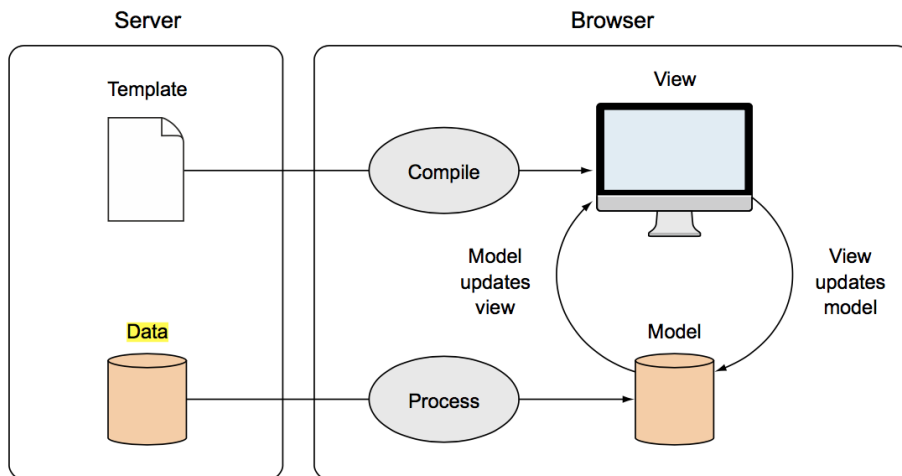
Material from: Michael  
McCarthy, CMU

---

Semester 1, 2018

# Single Page Applications

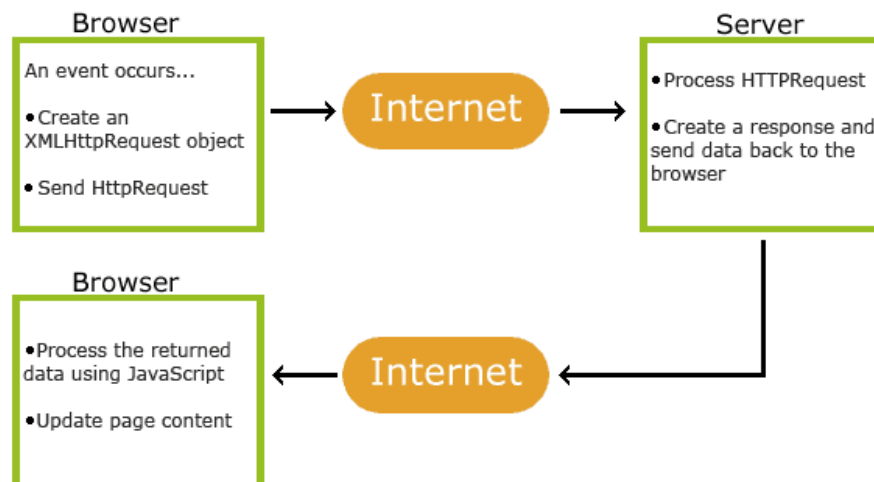
- Single Page Applications have the browser/client do the heavy lifting in a web application: The server just provides the data while the client does the logic and rendering



# AJAX

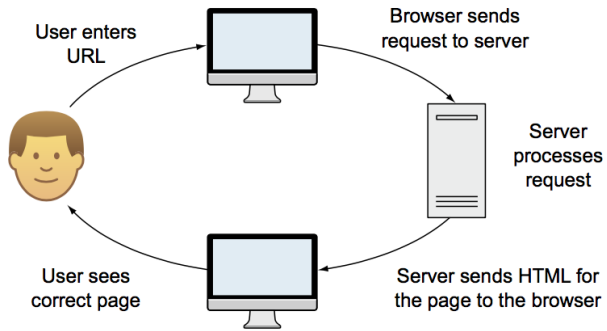
AJAX = **A**synchronous **J**avaScript **A**nd **X**ML.

- AJAX is not a programming language.
- AJAX just uses a combination of:
  - A browser built-in XMLHttpRequest object (to request data from a web server)
  - JavaScript and HTML DOM (to display or use the data)
- AJAX is a misleading name. AJAX applications might use XML to transport data, but it is equally common to transport data as plain text or JSON text.
- AJAX allows web pages to be updated asynchronously by exchanging data with a web server behind the scenes. This means that it is possible to **update parts of a web page**, without reloading the whole page.

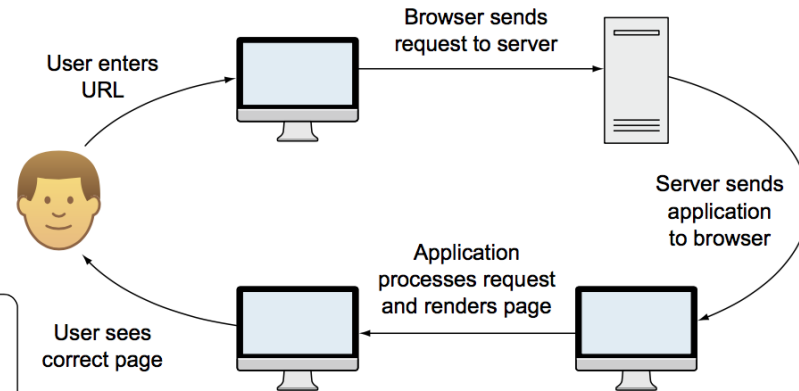


# Application Architectures

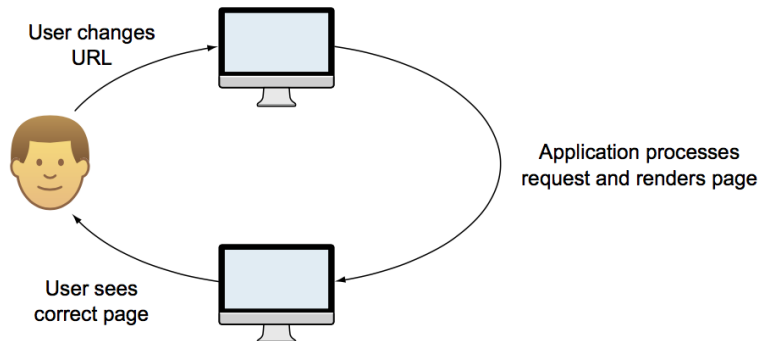
## 1. Server application request loop



## 2. SPA initial request loop



## 3. SPA subsequent request loop



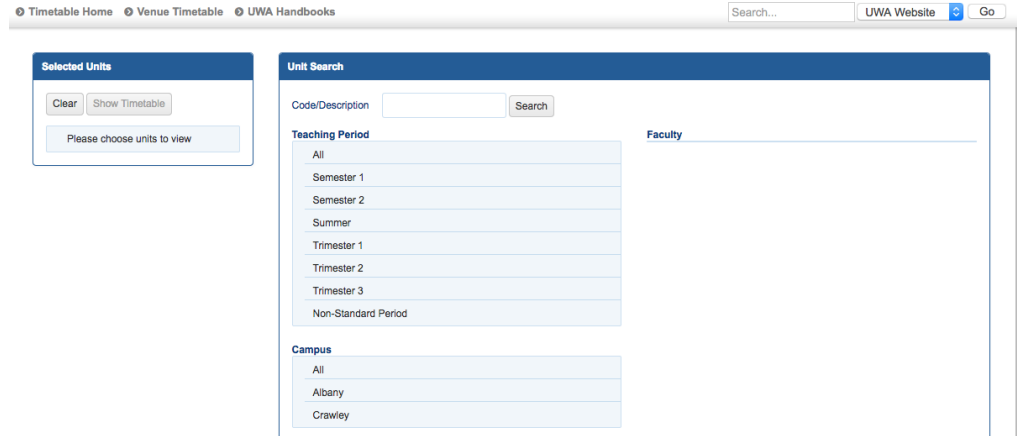
# Pros and Cons

## Pros

- Less load on the server, able to respond to more clients.
- A more responsive client. No need to wait for server responses.
- Genuine separation between content and presentation.

## Cons

- Longer load time, first up. A lot of JS has to be transferred.
- SEO can be a problem. Robots won't crawl js.
- Navigation can be an issue.



The screenshot shows a web browser window with the URL "Timetable Home" and "UWA Handbooks". The page has a search bar and a "Go" button. Below the search bar, there are two main sections: "Selected Units" and "Unit Search".

**Selected Units**

Clear Show Timetable

Please choose units to view

**Unit Search**

Code/Description  Search

Teaching Period

All  
Semester 1  
Semester 2  
Summer  
Trimester 1  
Trimester 2  
Trimester 3  
Non-Standard Period

Campus

All  
Albany  
Crawley

Faculty

# MVC vs MVVM

