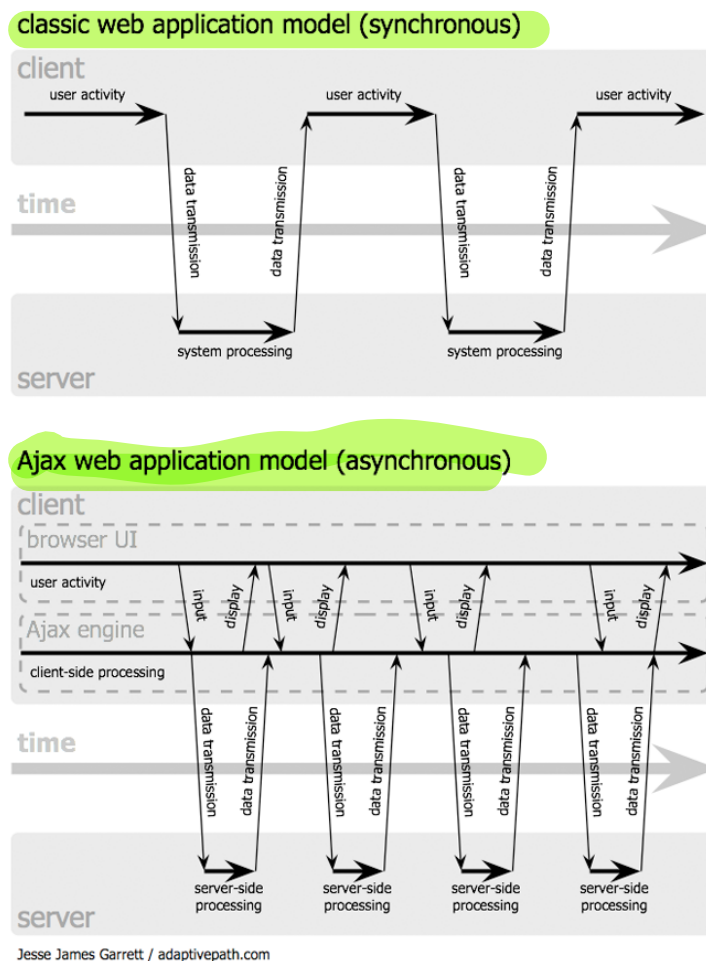


## CS144: AJAX Introduction

- Examples of interactive Web application
  - Yahoo Mail: <https://mail.yahoo.com>
  - Google suggest: <http://www.google.com/webhp?complete=1>
- Two modes of Web interaction (traditional vs AJAX)



**Figure 1:** Traditional vs AJAX

- Traditional vs AJAX
  - Traditional
    - \* Form-based input
    - \* Press “submit” button and wait until the entire page reloads

- \* Frequent interruptions and significant delay
- AJAX
  - \* Immediate, “in-place” update of page content
  - \* More “desktop-application”-like feel
- Q: What does AJAX mean?
  - AJAX: Asynchronous JavaScript and XML
    - \* The term was coined by Jesse James Garrett in Feb 2005
    - \* <http://www.adaptivepath.org/ideas/ajax-new-approach-web-applications/>
- Q: What is needed to support this interaction?
- **Background-color change example:** <http://oak.cs.ucla.edu/classes/cs144/examples/javascript.html>
  - Q: What should the browser do for this demo page?
    - \* Monitor “clicks” on the page
    - \* When clicked, change the background color
  - Q: How is the sequence of execution determined?
    - \* *Event-driven programming*:
      - Control flow is driven by events not by the programmer
      - Examples of events: user presses a button, server sends a response, ...
    - \* Programmer specifies mapping from events to actions
      - “If this event happens, then take these actions”: *callback functions*
  - Q: What mechanisms are needed to support this app?
    - \* Dynamic in-place page update mechanism
- Two key building blocks of AJAX applications
  1. JavaScript: *The* programming language for the Web
    - Allows running complex code inside a browser to make the page “dynamic”
  2. Document Object Model (DOM)
    - Tree-based representation of HTML document
    - JavaScript program can manipulate different parts of the DOM to make changes on the page

- JavaScript program can monitor “events” on the DOM, like clicking on certain part of the page
- Topics of our next study