

A Comparative Look at Four Web Application Frameworks



CSCI6370 TOOL TALK

MARILYN COLE

PHANI ROHIT

KARTHEEK ATLURI

What is a Web Application?

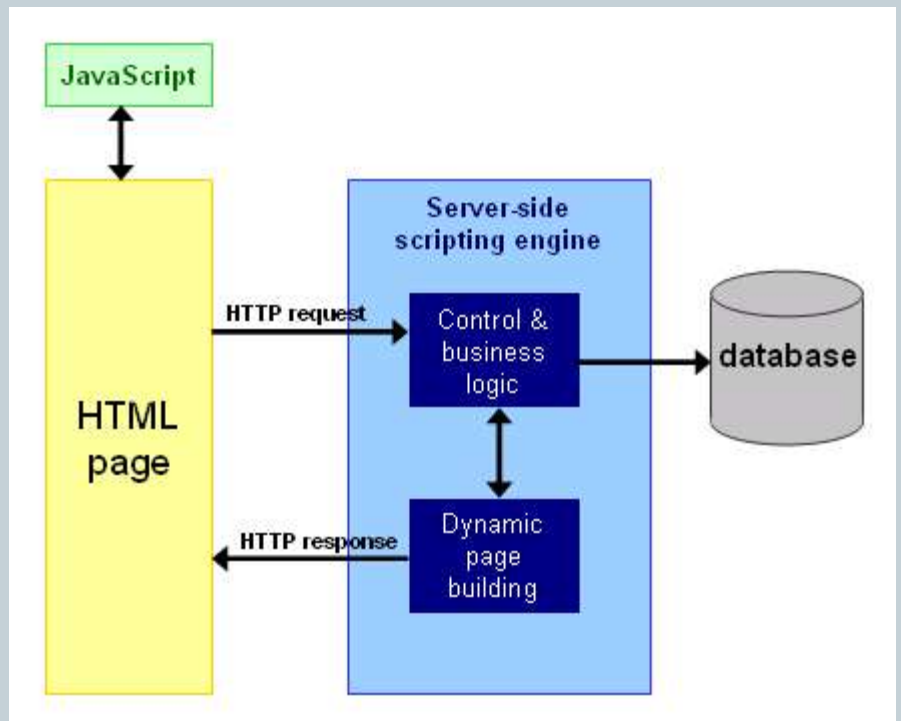
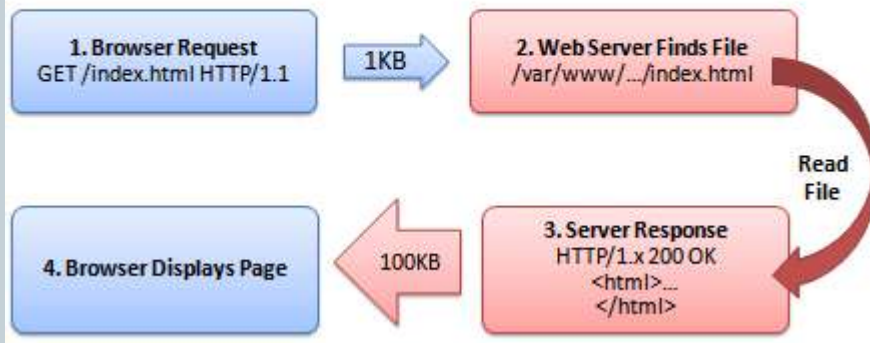


- Considerations
 - Performance
 - Security
- Thick client vs. thin client
- Static web pages vs. dynamic web pages

HTTP Flow: Static vs. Dynamic



HTTP Request and Response



Design Patterns



- Active Record Pattern
- Content Management Systems
- Model View Controller (MVC)
 - Both a design pattern and architectural pattern
 - Popular method for *encapsulation*
 - **Model:** Data and business rules
 - **View:** User interface and appearance details
 - **Controller:** Communication of changes

What is a Web Framework?



- **Many** frameworks exist
- Make dynamic web development easier
- Most provide libraries for:
 - Database access
 - Multiple database types
 - In different applications or concurrently within one
 - Design/visual templates for user interfaces
 - Session management

Four Frameworks



- Struts or Struts 2 (<http://struts.apache.org>)
- Spring (<http://www.springframework.org>)
- Ruby on Rails (<http://www.rubyonrails.org>)
- Grails (<http://grails.org>)

Complexity: How Steep is the Learning Curve?



- Spring: 82MB .zip download
- Struts: 91MB .zip download
- Rails:
 - Already installed on Mac OS X, InstantRails on Windows is 69MB zip download
- Grails: 27 MB .zip download

Ajax Support



- Struts

- Many options built-in:

- Dojo

- Plugin for GWT

- JSON

- Spring

- Not directly built-in:

- Use AJAX library like DWR or JSON-RPC & AJAX Spring Extras

- Ruby On Rails

- Built-in: Uses JavaScript library Prototype, script.aculo.us

- Grails

- Built-in: Ajax Tag Library

Post and Redirect



- Protection against re-posting data
- Especially important in credit card transactions
- Supported by all four frameworks

Object-relational mapping (ORM)



- Struts

- Java Persistence API (JPA)
- Hibernate

- Spring

- Hibernate, ibatis

- Grails

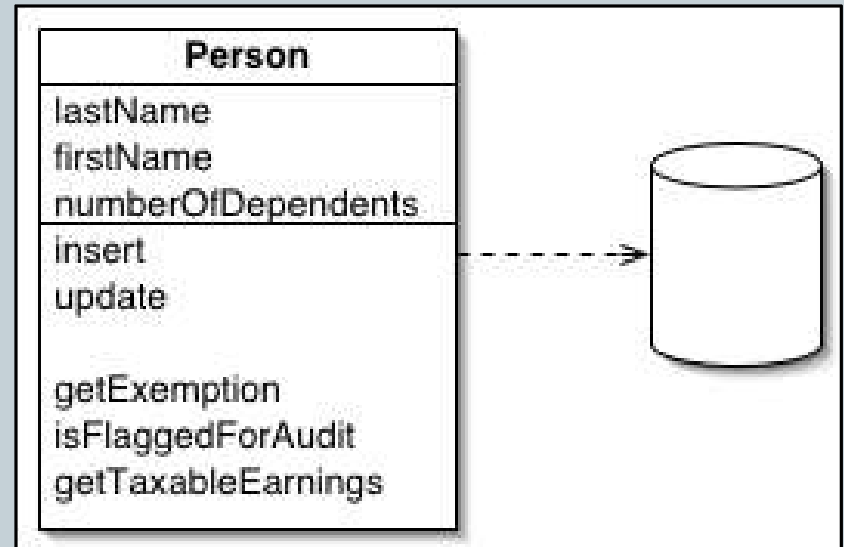
- Hibernate

- Ruby on Rails

- ActiveRecord

A stand-alone ORM package built for Ruby

The **model** component of MVC



IDE Support



- **Struts & Spring:**

- **Create Eclipse project**

Open Eclipse.

Click File -> New -> Project. Under the "Web" folder, select "Dynamic Web Project" and click "Next".

Enter the project name, "quickstart" from here on. The project will be running inside Tomcat, so we need to create a server configuration for it.

- Under "Target Runtime", click "New", select "Apache Tomcat 5.5" and click next.
- Enter Tomcat's installation directory and select an installed JRE (1.5 is required)

Now you should be back to the project creation wizard, with Tomcat as your Target Runtime. Click "Next". Select "Dynamic Web Module" and "Java" facets, and click "Finish".

IDE Support



- Grails
 - Eclipse plug-in
- Rails:
 - RadRails: cross-platform Rails editor built on top of the Eclipse IDE
 - Well-suited for command line work with vi, emacs, or the text editor of your choice