Database Integration In Website

UPLB January 2016

Noe Fernandez-Pozo

Sol Genomics Network

Class Content

- Frameworks
- Catalyst demo
  - Web elements and programming languages

Frameworks

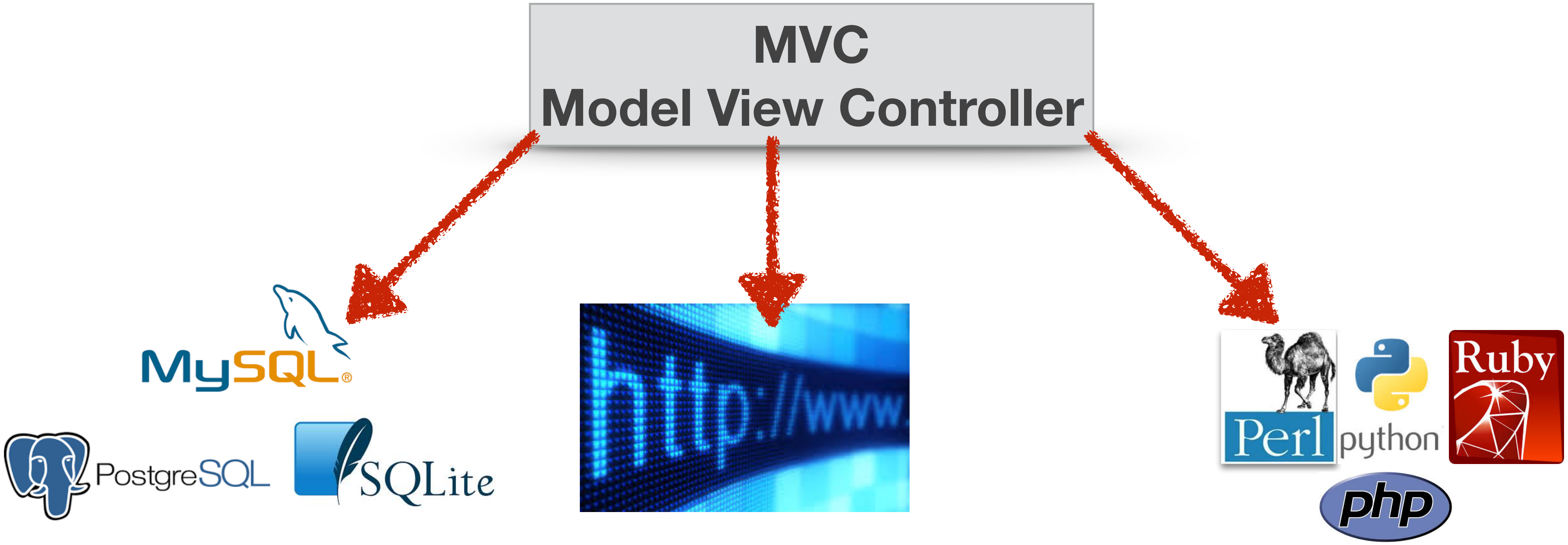
catalyst
Web Framework

RAILS
Ruby On Rails

django

Drupal

Tripal



MVC
Model View Controller

Frameworks

Framework	catalyst Web Framework	RAILS	django	Drupal	Tripal
Model	**DB**	**DB**	**DB**	**DB**	**DB**
View*	Perl	Ruby	python		
Controller	Perl	Ruby	python	php	php

*HTML + CSS + JS + Other

Frameworks

https://www.drupal.com

Drupal is a free and open-source content-management framework written in PHP and distributed under the GNU General Public License. It is used as a back-end framework for at least 2.1% of all Web sites worldwide

http://tripal.info

Tripal is a suite of Drupal modules for construction of biological, research-oriented, scientific websites. In particular, it supports genomic, genetic and breeding data.

Major Features

- Incorporates the GMOD Chado database schema which serves as the data warehouse.
- Integrates with Drupal for user management, and non-biological content.
- Data loaders for commonly used file formats (FASTA, GFF3, GAF, OBO, tab-delimited, etc.).
- Sites can be customized as desired.
- Site developers can create new extension modules to share with other Tripal sites.

Frameworks

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catalyst
Web Framework

Catalyst is the most popular
Perl MVC framework

http://www.catalystframework.org

Model
CHADO
DBIx Class

\+

View
Mason

\+

Controller
Perl

GMOD

http://gmod.org/wiki/Main_Page

The **Generic Model Organism Database** project, a collection of open source software tools for managing, visualizing, storing, and disseminating genetic and genomic data.

GMOD in the Cloud toolset

GBrowse: Genome annotation viewer

Galaxy: Data analysis & integration

Chado: Biological database schema

JBrowse: Super-fast genome annotation viewer

BioMart: Data mining system

WebApollo: browser-based annotation editor

MAKER: Genome annotation pipeline

GBrowse_syn: Synteny viewer

Tripal: Chado web interface

InterMine: Data warehousing

CMap: Comparative map viewer

Pathway Tools: Metabolic, regulatory pathways

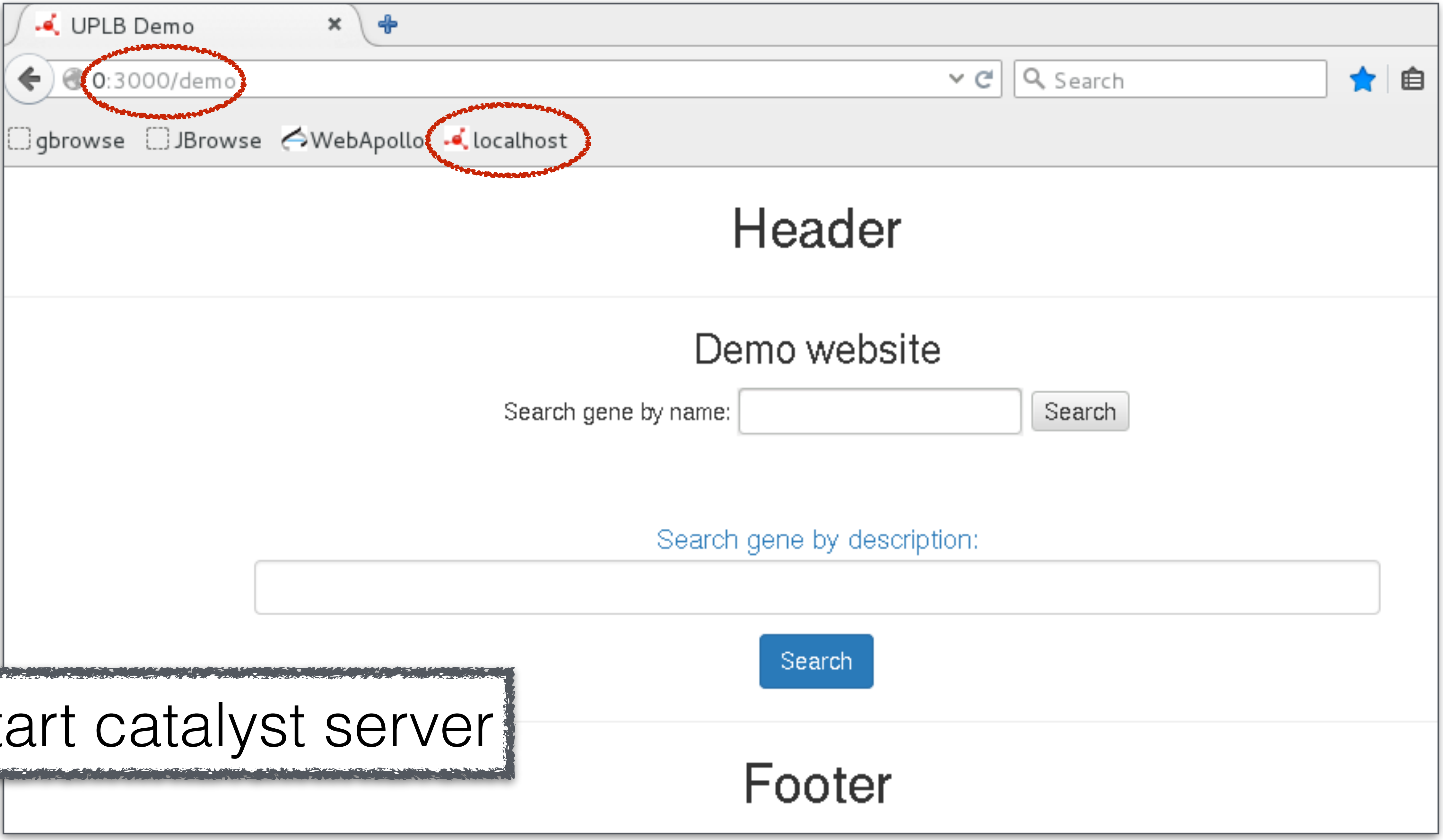
Canto: literature annotation tool

Chado Schema

CHADO

http://gmod.org/wiki/Chado_Tables#Table:_organism

Catalyst Demo



Header

Demo website

Search gene by name: Search

Search gene by description:

Search

Footer

Start catalyst server

```
bioinfo@biodebian:~/catalyst/demo$ perl script/demo_server.pl -r -d
```

Mason

- Demo website
  - Input and output
  - Header and footer
- HTML, JS, jQuery and CSS

http://www.w3schools.com

Controller

- Demo catalyst controllers

Form and AJAX

- Two types of search in demo website

Bootstrap

- SGN example: responsive, style
- Demo output Modal and table

HTML5 Canvas

- Canvas - TEA and VIGS example

HTML Exercises

- Create a new html file and write basic elements:
  - Title h1, h2, h3, h4
  - Paragraph
  - Table
  - Links
  - Image

Demo Exercises

1. Add links to gBrowse, JBrowse and WebApollo
2. Create a html table like this one:

a	b	c	d
1	2	3	4

3. Add the bootstrap class ‘table’ to the table