Accelerating Information Technology Innovation

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Lecture 11 – Web Application Frameworks
The Big Picture

Google App Engine

Your Django app

Mobile Web Browser/
Mobile Web App
Mobile App Development Course Roadmap

Mobile Applications

- Front End
  - Android
    - Python with SL4A

- Back-End
  - Django
  - Google App Engine
  - SMS/USSD
  - Mobile Web
    - HTML
    - CSS
    - Javascript/JQuery

- Google Datastore
Development Tools

• Operating system
  – Linux (Ubuntu)

• Integrated Development Environment
  – Eclipse (Pydev)

• Version Control
  – git (GitHub)
  – mercurial (Bitbucket or Google project hosting)
  – subversion (Google project hosting)
Web Application Framework

• A framework (a.k.a. code libraries) that provides functionality for common components in a website, web app, or web service.
• Eases coding for
  – Working with forms
  – Handling HTTP requests
  – Templates for common HTML layouts
  – URL mapping
  – Database communication
  – Session management
  – Site security
• Allows you to focus on design and functionality rather than small details.
Model-View-Controller (MVC)

- A paradigm for organizing code often seen in web app frameworks
- Main idea is:
  - Separate the storage and manipulation of data (the model) and the presentation of data (view)
  - Use the Controller to communicate between the model and view
- Advantages
  - Easier to develop and test model and view independently
  - Easier for others to understand
- Exact roles of model, view, and controller depend on who you ask!
Model-View-Controller (MVC)
(news site example)

- **Controller**
  - Send request for a story
  - Asks the model for the story and its user comments

- **View**
  - Layout of stories on mobile phone or desktop browser
  - Serves requested story

- **Model**
  - News stories and images in a database
  - User comments
Python Web Application Frameworks for Backend

- Django
- Zope
- TurboGears
- web2py
- Pylons
Django

• Web application framework, written in Python
• Released 2005
• Began with World Online, that needed to rapidly develop applications for news sites.
• Named after gypsie jazz guitarist Django Reinhardt (1910-53)
• Follows the Model-View-Controller paradigm
Why Django?

• Fast and easy development of web applications
  – Modular and re-useable. Don’t Repeat Yourself (DRY) principle
  – Hides database details

• Active development and wide community support

• Successful Django sites [http://djangosites.org/](http://djangosites.org/)

• Supported by Google App Engine
Google App Engine

• Google’s cloud computing platform to develop and host web applications
• Distributed data storage service (The Datastore)
• Free up to 500 MB of storage and 5 million page views
• Saves the hassle and initial costs of setting up your own server equipment and software
• Supports Java and Python
Questions?