

Welcome to CSC309!

Programming on the Web

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Office hours: M 3:45-5:45 BA4222

today

- ❖ **course outline (bird's-eye view)**
 - survey 1
 - what this course is about
- ❖ **logistics**
 - course organization, information sheet
 - project, assignments, grading scheme, etc.
- ❖ **introduction to**
 - web application design

Introduction 1-2

survey 1

- ❖ **in survey 1, you provide us with:**
 - your UTM ID,
 - your GitHub username, and
 - your familiarity with technologies related to this course
- ❖ **before completing the survey**
 - make sure you have a GitHub username,
 - if you don't, sign up here: <https://github.com/join>
 - and, get a student developer pack here: <https://education.github.com/pack>
- ❖ **if you have the GitHub username and UTM ID**
 - complete the survey here: <https://goo.gl/forms/1sovPcFA1dLEo1k42>
(deadline: Jan 09)

Introduction 1-3



what is this course about?

- ❖ developing a **fully-fledged** web application
 - from *definition* to *implementation* to *demonstration*
jan 20 ... feb ... march... march 31

Introduction 1-5

what is this course about?

- ❖ developing a **fully-fledged** web application
 - from *definition* to *implementation* to **demonstration**
- APRIL 05**

Introduction 1-6

what is this course about?

- ❖ in this journey, you work
 - in team of 4 members on the **project** **35%**
 - individually on **2 assignments** **20%**
 - individually on **10 quizzes** **15%**
 - individually on **final exam** **30%**
- ❖ to learn about
 - **web development process**
 - from frontend to backend (**full stack**)
- ❖ via tools/technologies, such as
 - html, css, javascript, jquery, node, json, rest, etc.

Introduction 1-7

what would you need to do well?

- ❖ official prerequisite: CSC209
 - technically, **good programming skills**
- ❖ database knowledge and skills
 - make sure at least one member in your team has the **database** expertise
- ❖ **passion, passion, passion**
 - pick a project that you think is really **cool**
 - be ready to **solve problems**, individually
 - be ready to **learn details**, individually
 - perform a great **team working** and **time management**

Introduction 1-8

what would you need to do well?

- ❖ pay attention to concepts (in **lectures**)
- ❖ practice the concepts and skills (in **labs**)
- ❖ master your skills by **assignments**
- ❖ put all your learning together in the **project**
- ❖ **start early** the assignments and project phases
- ❖ lectures and labs are limited
 - but for your deep learning, **sky's is the limit**
- ❖ **final exam**: deep concepts

Introduction 1-9

is this course for you?

Introduction 1-10

is this course for you?

- ❖ have you developed a web application?
- ❖ interested in
 - developing a mobile app?
 - learning specific technologies?
 - e.g., php? jsp? .net?
 - learning advanced web development?
 - with comprehensive security?
 - or high performance and scalability?
- ❖ ?

Introduction 1-11

is this course for you?

- ❖ this is a **basic** web development course
- ❖ assuming **no prior web development skills**
- ❖ to develop a **fully-fledged** web application
 - from **definition** to **implementation** to **demonstration**

Introduction 1-12

student complaints in the past

- ❖ “I didn’t learn the technology I wanted to learn”
- ❖ “It was too basic”
- ❖ “It was too advanced”
- ❖ “I had to learn everything myself on stackoverflow”
- ❖ “Lectures were useless”

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course web page

- ❖ **for important information on**
 - lecture and lab time/location/material
 - contact information of course staff
 - office hours
 - project/assignments/more readings
 - deadlines and evaluation
 - communication and announcements
 - ...
- ❖ **follow the course web page, regularly**
<https://csc309-spring2017.github.io/>

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discussion board

- ❖ **we use discourse**
 - <https://bb-2017-01.teach.cs.toronto.edu/c/csc309>

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let’s start with
web application design

Introduction 1-16

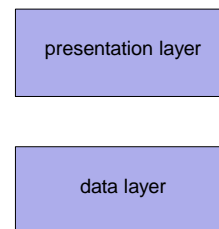
principle of layering

- ❖ dividing the application to two+ groups of classes
 - that are functionally or logically related
- ❖ such that each layer demonstrates cohesion
- ❖ and the dependency among classes is minimized
- ❖ **advantages:**
 - modularity, maintainability, reusability
- ❖ **disadvantages:**
 - reduced performance

Introduction 1-17

2-layer architecture

- ❖ simple application functionality



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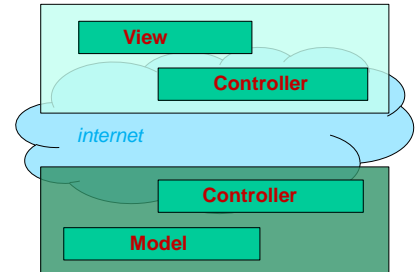
mvc

- ❖ The **model** tier
 - represents the **data and logic**
- ❖ The **view** tier
 - represents the **user interface**
- ❖ The **controller** tier
 - connects and coordinates—**controls**—activities between the view and model

Introduction 1-19

model-view-controller

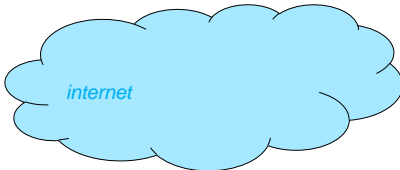
- ❖ MVC is a 3-layer pattern



Introduction 1-20

internet & services

- ❖ Is Internet = WWW ?



Introduction 1-21

www = web

- ❖ it's an information space system—based on request & response—with the following features:

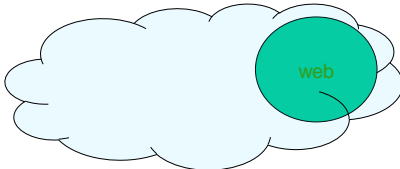
- **HTML**: to describe (hypertext) documents/pages
- **URL**: to uniquely locate a resource
- **HTTP**: to describe how requests & responses operate.
- **web server**: to respond to HTTP requests
- **web browser**: to make HTTP requests from URLs and render/display the HTML document received



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WWW

- ❖ in CSC309, we develop applications on top of this system.
- ❖ That's why they are called web application



Introduction 1-23

we start with
HTML

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html

❖ **HyperText MarkUp Language**

it's used to describe the **content and structure** of information in a document (web page)

❖ **general syntax:**

```
<element>content</element>
```

❖ **example:**

```
<h2>CS is COOOOL</h2>
```

❖ **html5** supports multimedia, semantic formatting, cross-mobile applications, and JS APIs.

Introduction 1-25

CSS

❖ **Cascading Style Sheets**

- it's used to describe the appearance of information
- it can be embedded in HTML document
 - using the `<style>` element, or
 - placed in separate .css file

❖ **example:**

```
h2 {  
  color: blue;  
  text-align: center;  
}
```

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