EECS1012
Net-Centric Introduction to Computing

SU2025

Introduction

Today

Course Outline (bird's-eye view)
- what this course is about

Logistics
- course organization
- tests, SMQs, and mini quizzes
- optional assignments, grading scheme, etc.

Introduction to web application design
- layering principle, internet/web, HTML/CSS/JS

What is this course about?

Introduction to computing and programming

Tools and **Technologies**

- HTML & CSS
- JavaScript
  - Event-handling, test-driven, & client-server concepts

Computational Thinking

Basic or Advanced?

EECS 1012 is an introduction to computer science via JavaScript and web development

EECS10**15** is an introduction to computer science via Python

Assuming **no prior web development skills**

If you have prior programming experience,
you may find the course **too basic**
but it does not necessarily mean an automatic A/A+ in the course

If you have no prior experience, and do not work hard,
you may find the course **too advanced/challenging**

Why JavaScript?

number one in top 8 most demanded PLs of 2024

https://www.devjobsscanner.com/blog/top-8-most-demanded-programming-languages/

Other lists

https://www.tiobe.com/tiobe-index/

https://www.simplilearn.com/best-programming-languages-start-learning-today-article

https://pwskills.com/blog/future-programming-languages/#4_JavaScript

Course Organization

Lectures

Tue, 14:30–16:20 by Andriy Pavlovych

Labs

location: WSC 106

Thu, 10:30–13:20

Office hours

After class or by appointment

Course Resources

eClass page: primary means for all communication

course lectures & lab instructions; announcements & discussion forum
online quizzes & lab/assignments submission; deadlines & evaluation, etc.

Web resources

we will use various web resources (no specific textbook)

Recommended (but not required)

Computer Science: A First Course

(for computational thinking)

JavaScript for Kids, by Nick Morgan

for beginners

Eloquent JavaScript, 3rd Edition, by Marijn Haverbeken

for those who want to explore more advanced topics of JS

Web Design with HTML, CSS, JS and jQuery Set, by Jon Duckett

for those who are interested in front-end development

Email Rules
(see the Course Outline as well)

"EECS 1012: regarding XXXXX in YYYYY" in **Subject** instead of "Question"

Your professors teach, and your TAs assist in, more than one course

York email, real name in **From**

instead of 涼冰 <*meegoat2099@correocaliente.xxx*>

Non-English scripts (not everyone can read them)
Or not your real name (or name in the York records)

unprofessional

may get blocked by spam filters

More clues: https://careers.yorku.ca/student_topic/practice-good-email-etiquette

Evaluation

8 labs & mini-prelab-quizzes	14 %
4 subject-matter quizzes	6 %
3 tests or lab tests	45 %
final exam	35 %

- *the dates and further details available in the course outline*

letter grade computed using York U grading scheme

Regular Tests

Closed-book

Multiple-choice, short-answer, and design (algorithms)

- The exact procedure to be determined (e.g., draw flowcharts on paper, multiple choice on eClass, etc.)

During your official class or lab time

- the dates can be found online in the course outline and syllabus

Deadlines and schedule are firm

- check course outline/syllabus for policies on missing a test

Lab Tests

During your official lab time
- the dates can be found in the course outline and syllabus

Will require you to write code, **on your own**
- up to 50 % of each lab test is to design algorithms to reflect your computational thinking

Access to internet or other resources is disallowed
- only access to *w3schools* is permitted

Deadlines and schedule are firm
- check course outline/syllabus for policies on missing a lab test

Subject-Matter Quizzes (SMQs)

5 multiple-choice quizzes on subject material relevant to the course

Open book/self-supervised

You will have up to 15 minutes to complete each SMQ in eClass at **specific dates/times** (see the course outline and syllabus)

You are required to to have arranged **for a dependable internet connection and a reliable computer suitable for completing the test tasks**

Labs

Weekly lab instructions will be available in eClass

A mini-quiz (on eClass) is required for each lab

- You write a mini-quiz to demonstrate
  - you have downloaded the instructions prior to the lab,
  - you have read and understood the description of the lab tasks
  - you reviewed the relevant course topics and completed the pre-lab tasks

Your lab work is graded by TAs

You are required to submit your resulting lab files to eClass by the specified deadlines

- we do not accept submissions after the deadline or by email
- **Plan ahead!**

How to Do Well in This Course (1)

Enthusiasm, **dedication**, **passion**

- be interested in solving problems, individually
- be willing to learn details, individually
- Participate in a productive discussions during lectures, in the course **forum**, with your peers, TAs, instructors…

How to Do Well in This Course (2)

Attend classes (and be awake), pay attention, ask questions if something is not clear

Practice the concepts and skills (before and during labs)

Studying existing solutions does NOT help as much as engaging and creating your own

Start working on the labs early (1–2 days before your lab session)

Lectures and labs may not be sufficient

- Plan to spend at least 10 hours on this course every week

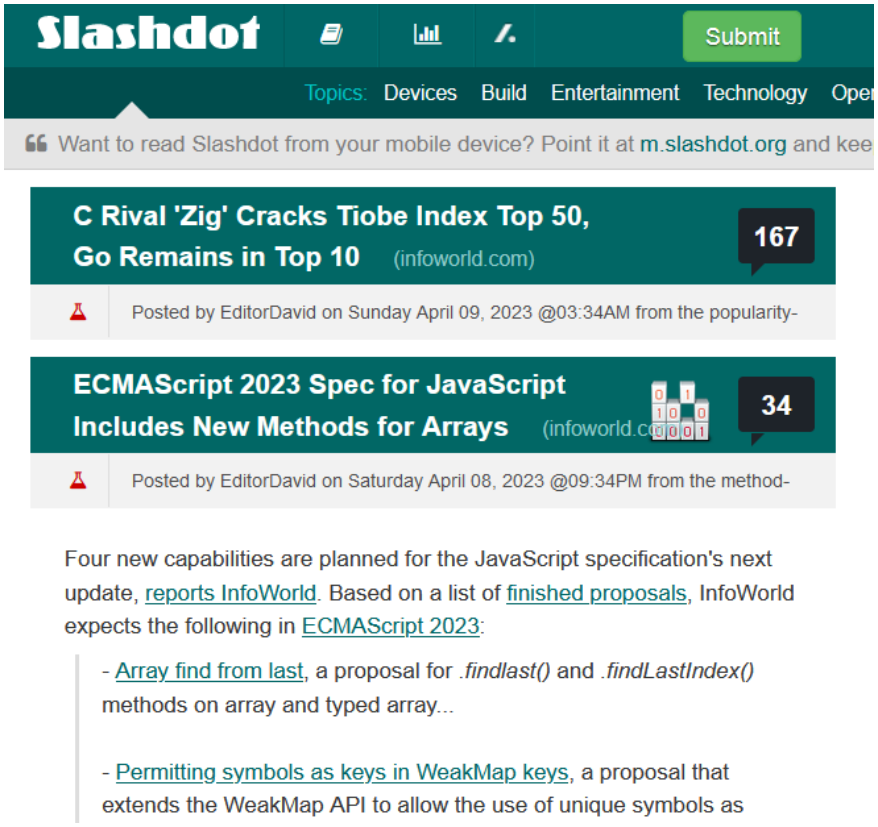
How to Do Well in This Course (3)

Advance your skills through optional assignments, or through a hobby

Have a pencil/paper handy all the time to draw diagrams or flowcharts and discuss them with your peers

There is life beyond just lectures, labs (and homework)

- Be curious, read news, try new things, experiment
- Also, *look it up* (see next slide)



Google

css align text

All Images Videos News Shopping More Settings Tools

About 61,700,000 results (0.55 seconds)

Text-Align Method

1. Enclose the div that you want to **center** with a parent element (commonly known as a wrapper or container)
2. Set "**text-align**: **center**" to parent element.
3. Then set the inside div to "display: inline-block"

Jun 16, 2018

www.freecodecamp.org › news › how-to-center-things-...

How to center things with style in CSS - freeCodeCamp.org

About Featured Snippets Feedback

www.w3schools.com › cssref › pr_text_text-align

CSS text-align property - W3Schools

Well organized and easy to understand Web building tutorials with lots of examples of how to use HTML, **CSS**, JavaScript, SQL, PHP, Python, Bootstrap, Java ...

Default value: left if direction is ltr, and right if d... **JavaScript syntax**: object.style.textAlign="right" ...

The text-align Property · Text-align-last · Try it Yourself · textAlign

web application design

an overview of the concepts

Principle of Layering

Dividing the application to 2+ groups/tiers/classes

- that are functionally or logically related

Such that

- each layer demonstrates cohesion
- dependency between classes is minimized

advantages:

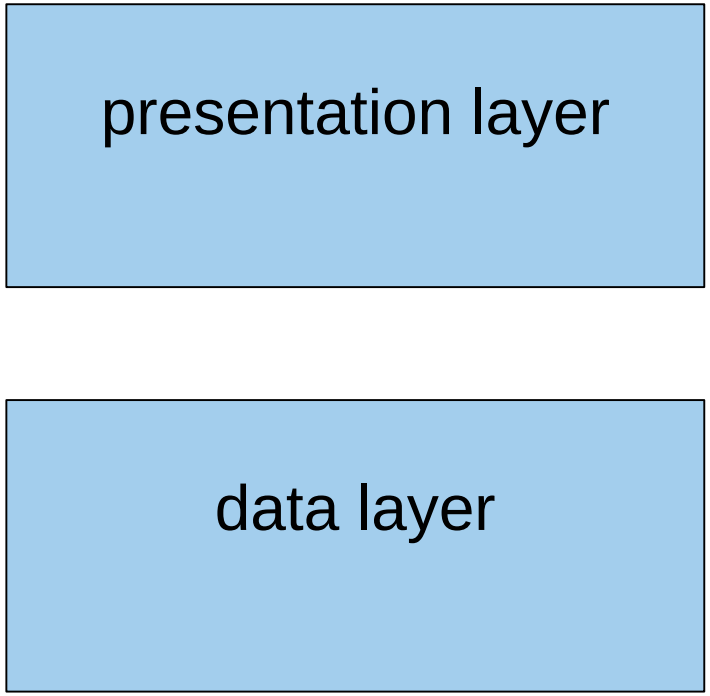
modularity, maintainability, reusability

disadvantages:

reduced performance (some aspects)

2-layer architecture

simple application functionality



MVC

Model tier

represents the **data and logic**

View tier

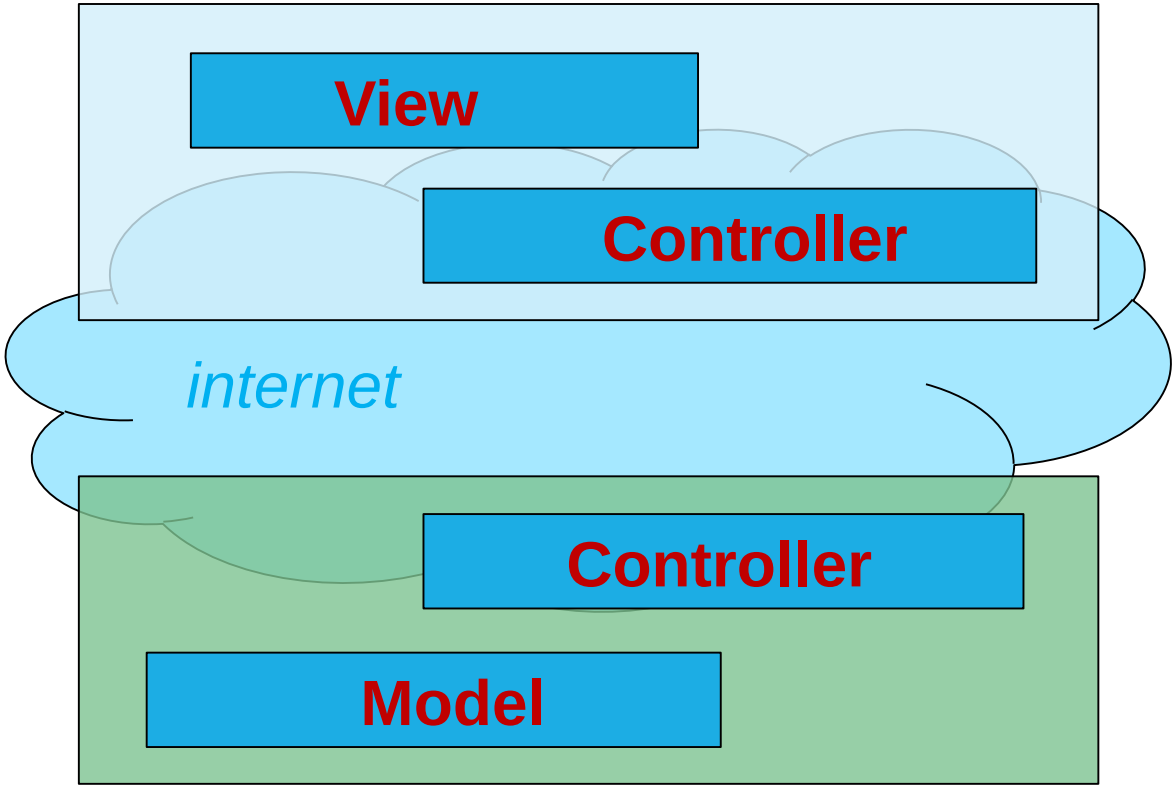
represents the **user interface**

Controller tier

connects and coordinates—**controls**—activities between the view and the model

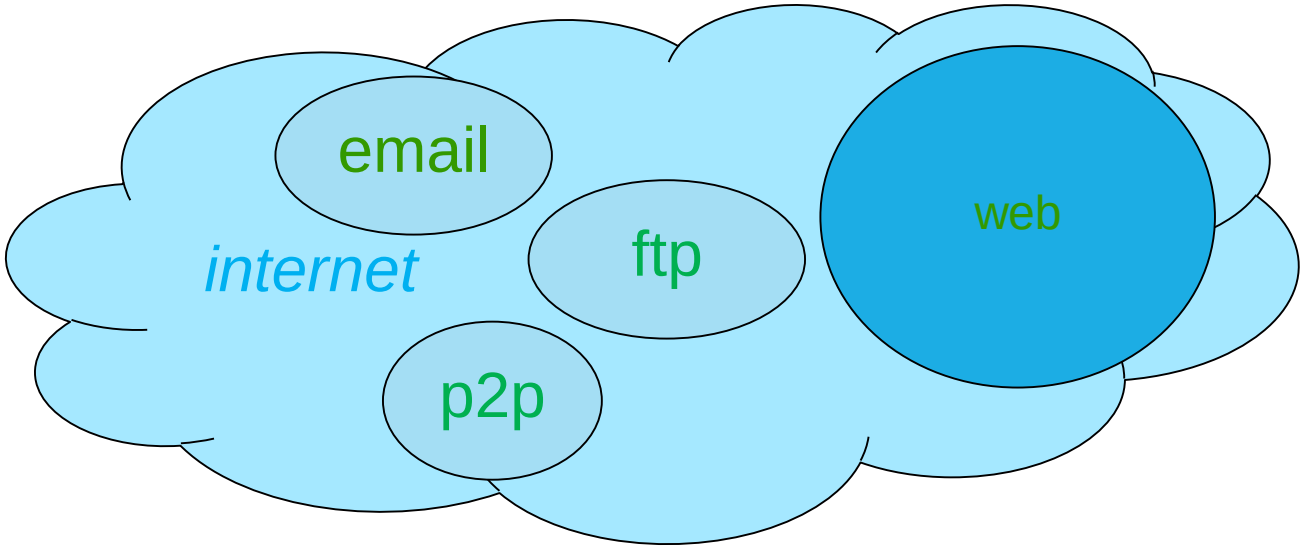
Model-**V**iew-**C**ontroller

MVC is a 3-layer pattern



Internet & Services

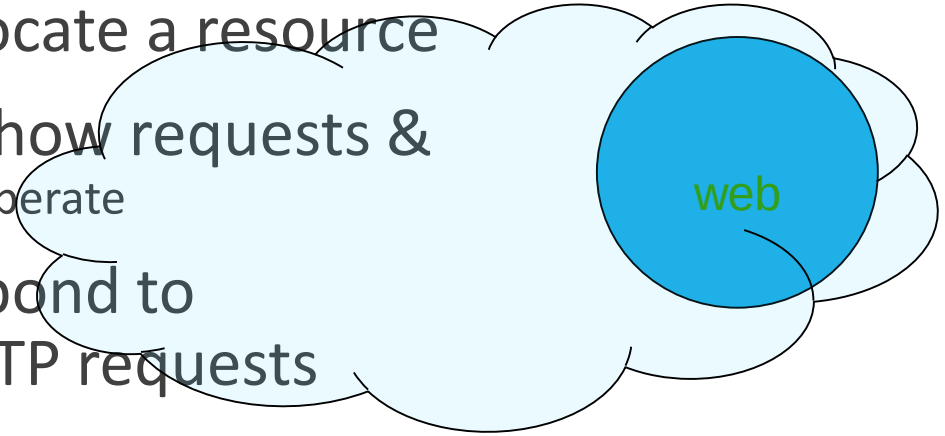
Internet = WWW?



WWW = *web*

WWW: an information space system – based on request & response – with these 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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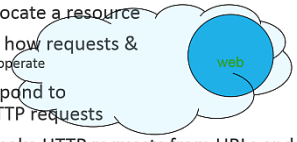
HTTP: to describe how requests & responses operate

web server: to respond to HTTP requests



web browser: to make HTTP requests from URLs and render/display the HTML document received

We start with HTML

HTML

HyperText MarkUp Language

describes the **content and structure** of information in a document (web page)

general syntax

<elementType>contents</elementType>

example

<h2>Web Programming is Great</h2>

(*heading of second level* element, with 4 words of text inside)

HTML5 also supports multimedia, semantic formatting, cross-mobile (cross-platform) applications, and JS APIs

More of HTML in the next lecture

CSS

Cascading Style Sheets

- to describe the **appearance** of information
- can be embedded in an HTML document
  - using the <style> element, or
- can placed in separate .css file

example

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

Note US English spelling (cf. colour, centre)

We will see more of HTML/CSS this/next week

JavaScript

Programs the **behaviour** of web pages

A lightweight programming language
(scripting language)

Responds to events, such as user actions, clicks and key presses
(event-driven)

Can be embedded inside an HTML file/document
using the <script> element, or

Can be placed in separate *.js* files

We will get back to JavaScript on Week 3

References & More Reading

1. How browsers work
   https://www.freecodecamp.org/news/web-application-security-understanding-the-browser-5305ed2f1dac/
2. Internet protocol suite
   https://en.wikipedia.org/wiki/Internet_protocol_suite
3. Understanding MVC
   https://blog.codinghorror.com/understanding-model-view-controller/
4. w3schools Intro to HTML https://www.w3schools.com/html/default.asp
5. w3schools Intro to CSS https://www.w3schools.com/css/default.asp
6. w3schools Intro to JavaScript https://www.w3schools.com/js/default.asp
7. Learn web development https://developer.mozilla.org/en-US/docs/Learn
8. Visual Studio Code https://code.visualstudio.com/

Some Tech Sites to Explore

1. Stack Overflow
   https://stackoverflow.com/
2. Slashdot
3. https://www.infoworld.com/
4. Daily JS
   https://medium.com/dailyjs
5. Habr: Development
   https://habr.com/en/flows/develop/
   (switch to English if needed; warning: there might be some very Russia-centric content)

Important notes about Labs

- labs are expected to start from **May 15**
- if you have not yet enrolled in the course officially, but plan to do so, **you are still responsible** for completing all the labs within the set deadlines