CSE 104 - Web Programming

General Organization

Personal presentation

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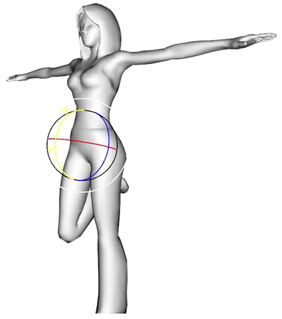

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Research area

Develop new algorithms & method to ease and control 3D content

Interactive creation of 3D shapes

Designing 3D animated shapes & phenomenom.

Main applications:

- Entertainment: Animation Cinema, Video Games, AR/VR
- Fabrication: Design & Prototyping
- Natural Sciences: Medical application

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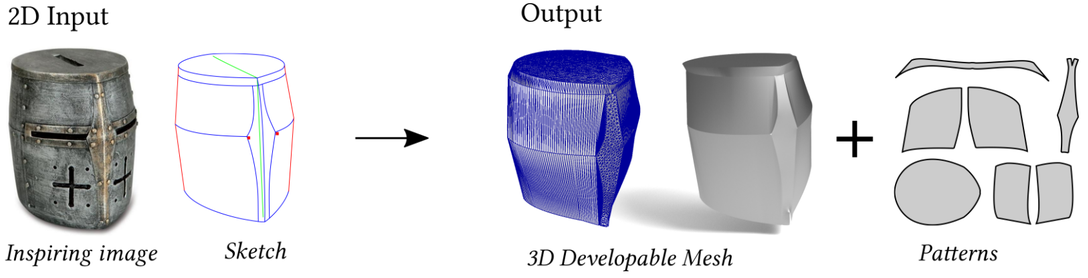

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Contacts

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General objective of CSE104

- Be able to **create webpages from scratch** which are
  - Valid, standard compliant, responsive using **HTML and CSS**
  - Coding dynamic behavior of webpages using **JavaScript**

- Basic notions on server developement (PHP, nodeJS)

- Improve general computer development skills
  General CS skills: Files handling
  Good practices: Validity checking
  Autonomy: Documentation research, Debug

What this class is not

- Not a network class

  Focus on the use of language, not communication protocols

- Not a theoretical/conceptual class

  Focus on practical development (few classes, lots of practice)

- Not a framework class (no React, Vue.js, Angular.js, etc)

  Focus on current language standard

- Not an advanced server side class (no login, security/hack, DB, etc)

  Most time spent on client-side development, server development will be only an introductory level

Methodology

- Mostly **practical** computer lab class
  - Set of online tutorials and exercises
  - You code, develop, try, at your speed
  - You develop a small-project

$\Rightarrow$ Get your hands in the code !

- Some sparse general presentation before each new concepts
  - HTML/CSS
  - JavaScript
  - Server programming

Provisional schedule

- HTML/CSS , JavaScript , Server start with ~1h lecture.
- Schedule may be adapted

16/02 HTML/CSS 1
Lecture + Lab

23/02 (No Class)

01/03 HTML/CSS 2

08/03 HTML/CSS 3
Test 1/HTML-CSS

15/03 Javascript 1
Lecture + Lab

22/03 JavaScript 2

29/03 JavaScript 3

05/04 JavaScript 4

12/04 JavaScript 5

19/05 (No Class)

26/04 Project
Test 2/JS *+ Project*

03/05 Project

17/05 Project

24/05 Server
Lecture + Lab

31/05 Server

07/06 Server
Lab + ***Test 3/Server***

Evaluation

- 3 graded tests in class (50%)
  - HTML/CSS (20%) [webpage to reproduce and/or quiz]
  - JavaScript (30%) [dynamic webpage to reproduce and/or quiz]
  - Server (bonus/malus) [quiz]

- 1 project (50%)
  - Develop a dynamic website with HTML/CSS, JavaScript (client-side).
  - Work in pairs (or alone if you prefer)

- No final exam

Note: Tutorials and exercises are not aimed to be graded
  - *Don't hesitate to ask questions*
  - *Work on them seriously*
  - *Make sure you understand it before going to the next one*

Example of last year projects

2020

2021

Cheating attempt during a Test

HTML/CSS and Javascript tests are individual tests

Should follow exam conditions

No communication, No chat, No code sharing, Not looking your neighbors screen, etc.

Any cheating attempt results in

- 0/20 and grade F to CSE104 final course grade in first session
- Report to bachelor administration

May results in additional penalties

Note: In case of code share, the copier and the code provider have the same penalties.

Beware of plagiarism in your project

- Web code is easy to share and reuse
- It is ok normal to share ideas and get inspiration on internet!
- It is **not ok** to use other's ideas and code **without citing it!**

Rule: If you inspire from
  - Some internet website
  - a book
  - your collegues, previous students
  - ... (non exaustive list)

$\Rightarrow$ **Cite them !** $\Leftarrow$

Better to cite "too much" than not enough

Web languages

You can fin *everything* on web development on the web !

- *everything* can be good - comprehensive, advanced notion.
- *everything* can be bad - outdated, non standard, overkill, dangerous practices.

$\Rightarrow$ Use internet ressources, but wisely !

- Do not follow blindly every website that seems to have *a solution*
- Keep analyzing the code
- Double check comments and suggestions

Common issues: Out-date practices, Over-use of heavy library/frameworks

- HTML has evolved a lot through years
- Many *non developer* users (as long as it works)
- Old clever tricks may be replaced by simpler/cleaner standard code

  CSS animation, flexbox, grid-layout, new JS standard, etc.

Programming rules (even in non web development)

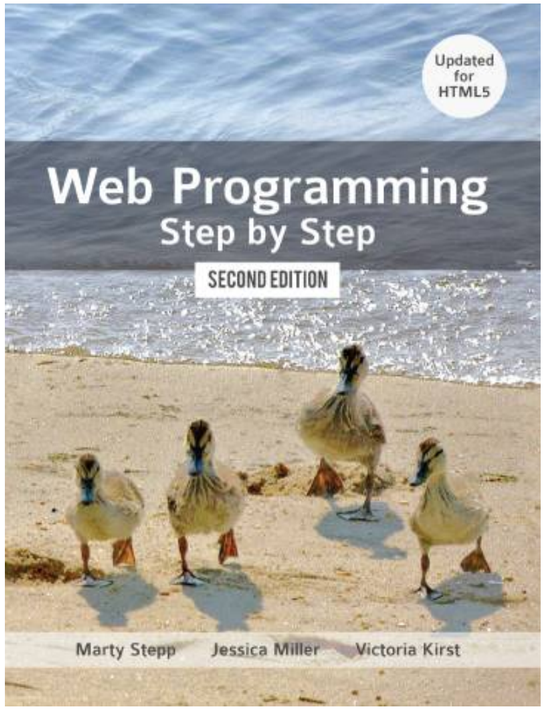
1- Aim at **most simple readable** solution
   - No tricky code (even if it works): un-readable => un-maintainable => un-reliable
   - KISS principle (Keep It Simple, Stupid)
     (Writing simple and readable code may not be simple!)

2- Prefer simple **standard** code rather than using existing libraries
   Standard will be maintained through time, libraries may not
   Libraries add extra cost (bandwith, latency, maintainance, bugs, etc.)

3- But prefer existing libraries to complex home made tricks
   Do not re-invent the wheel for real projects (only to learn)

Main references

Victoria Kirst, CS193X, Web programming Fundamentals, Stanford.



Marty Stepp, Jessica Miller, Victoria Kirst

Ressources

- In general: working on your own laptop should be fine on all system
  - You need a text editor (ex. Visual Studio Code)
  - A modern Browser:
    - *Prefer Firefox or Chrome (better: try on both).*
    - *Some issues with Safari (late/incorrect standard implementation)*
- No need of specific softwares.
  - You will need Python, PHP, and Node.js for Server class (in May)

Warning : Don't trust too much your browser

- Web browsers try to hide your errors as much as they can

  May looks ok on your browser/OS, but not with others
- Always check (in particular your project) on different browsers and different screen resolutions.
- Check, if possible, with Chrome and Firefox

  It is ok if IE/Safari doesn't work (didn't implement latest standard)