香港中文大學
The Chinese University of Hong Kong

CSCI2720 2023-24 Term 1: Building Web Applications

Lab 1: Basic static page

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Outline

- Text editor
- No-frill HTML5 file
- Bootstrap
  - Basic components
  - Special nav, table, lists
  - Float and flex
  - Responsive columns
- Responsive web design

Text editor

- Some possible features:
  - Syntax highlighting
  - Tooltips
  - Version control

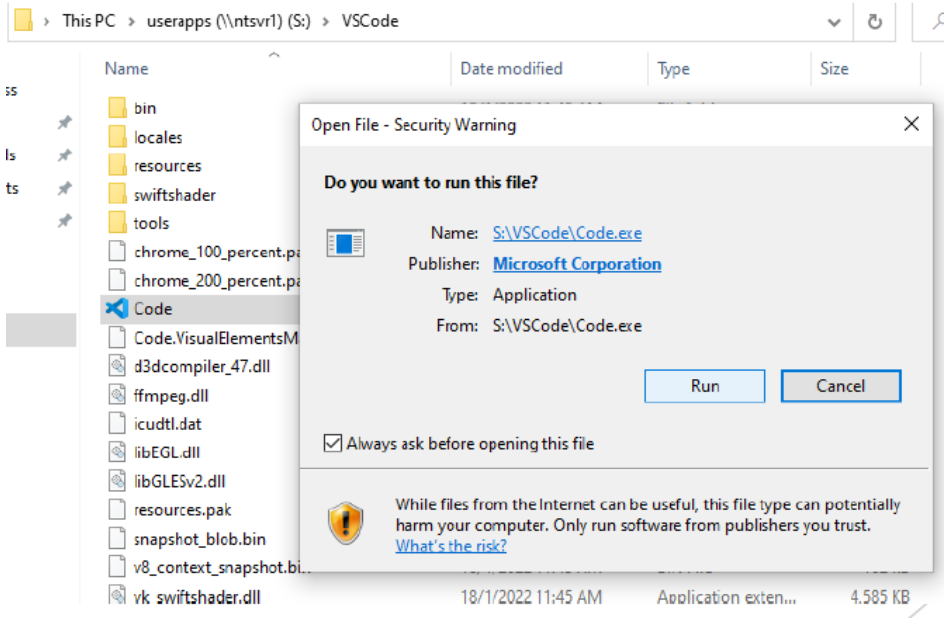
- *Visual Studio Code*
  - Recommended in this course
  - Popular in the web development community

- Other good choices:
  - Vim, NotePad++, Atom, …

Running VSCode on CSE Computers

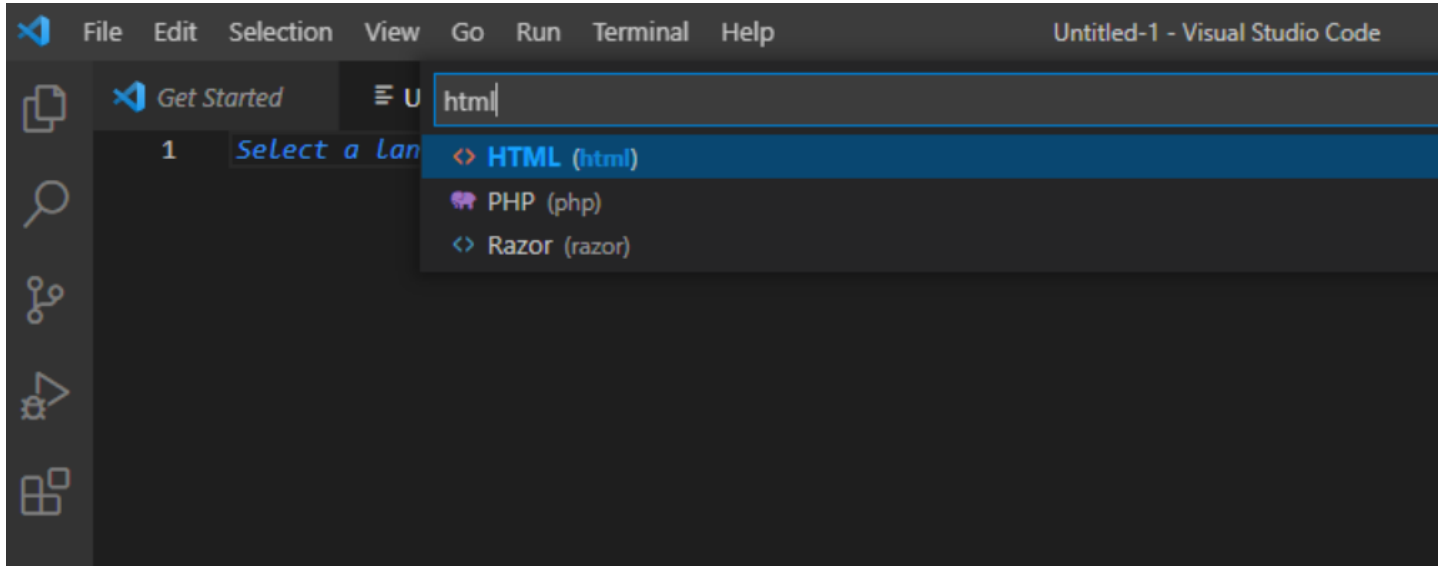
- For your own computer, download and install at *https://code.visualstudio.com*

- For CSE lab computer, you can find it at S:\VSCode\Code
  - Tips: you can create a shortcut on desktop



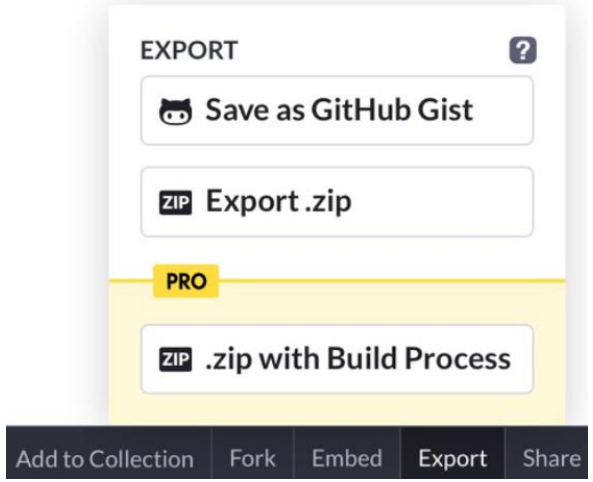
Using VSCode

- It works similarly to usual editors, where you can find the *File* and *Edit* menu most useful for now
- Pick the language so that it show syntax highlighting.



Codepen

- *codepen.io* is a useful platform for testing code.
- It is good for learning purposes in this course, but obviously not good enough compared to a proper text editor.
- To get the HTML/CSS files, save your pen and you can see “Export” at the bottom to download as a zip file.



No-frill HTML5 file

- Create an HTML file to describe yourself, using
  - Heading
  - Paragraph
  - Table
  - Image

Viewing your HTML page

- Use *Google Chrome* to view your page rendered
  - Drag your HTML file in to open

- Right click on the page and choose *Inspect*
  - The HTML code is shown in the elements tab

- Every time you change the HTML/CSS contents, you need to *refresh* in the browser to see the outcome

A simple example

I am Dr Colin Tsang

I teach CSCI2720.

About me

I am a Lecturer in the Department of Computer Science and Engineering.

Click here to visit the department website

My interests

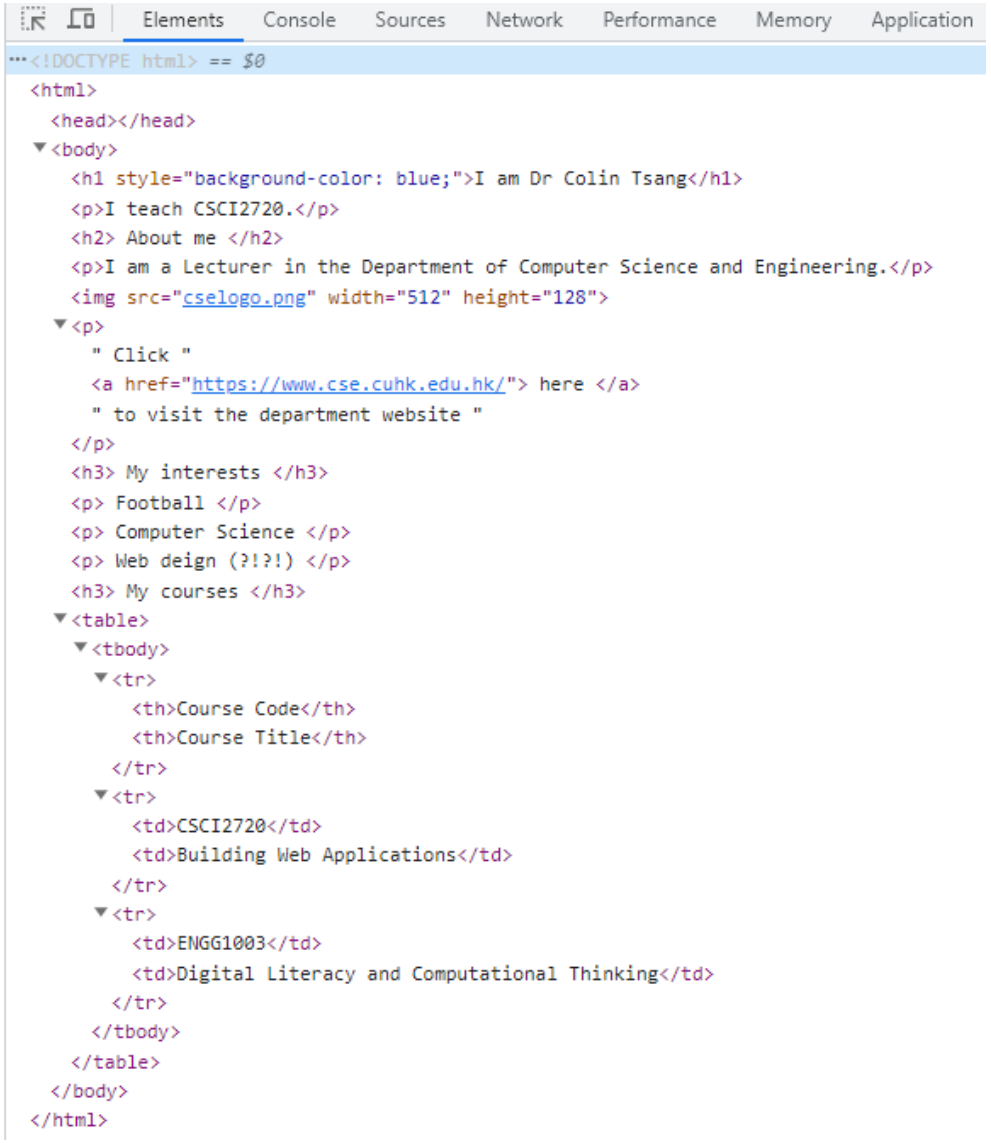
Football

Computer Science

Web deign (?!?!)

My courses

Course Code	Course Title
CSCI2720	Building Web Applications
ENGG1003	Digital Literacy and Computational Thinking



HTML5 semantics

- Use semantic elements:
  - <article>
  - <header>
  - <main>
  - <nav>
  - <section>
  - <footer>

More features for your web

- Try to include the followings into your website:
  - Header/sections/footer
  - Navbar
  - Lists
  - Image/picture
  - Paragraph
  - Table

Adding bootstrap for CSS

- Now add this to the <head> section of the HTML file.

```
<link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.1/dist/css/bootstrap.min.css"
rel="stylesheet" integrity="sha384-
iYQeCzEYFbKjA/T2uDLTpkwGzCiq6soy8tYaI1GyVh/UjpbCx/TYkiZhlZB6+fzT“
crossorigin="anonymous"> </head>
```

- https://getbootstrap.com/docs/5.0/getting-started/introduction/

Basic components

- Bootstrap applies all styles using class
- Try and apply some of these classes to your header/nav/section/footer
  - Text/background color: `text-dark`/`text-secondary`/`bg-primary`/`bg-info`/...
  - Margin/padding: `m-5` /`ml-3` /`p-2` /`py-5` /...
  - Text alignment/decoration: `text-center` /`text-end` /`font-italic`/...

Special components

- Navbar
  - You can add more styling classes
  - https://getbootstrap.com/docs/5.2/components/navbar/
- Table
  - You can add more styles
  - https://getbootstrap.com/docs/5.0/content/tables/
- List
  - https://getbootstrap.com/docs/5.2/components/list-group/

Float and flex

- Your image may originally be floating using CSS
  - <img style =“float:right”>
- You can do the same using bootstrap classes
  - <img class = “float-end”>
  - https://getbootstrap.com/docs/5.2/utilities/float/
- The d-flex class is also useful
  - https://getbootstrap.com/docs/5.2/utilities/flex/
- For consistency and convenience, everything about styling is applied with classes.

Responsive columns

- In bootstrap, a container is always divided into *12 columns*
- This can be done by introducing a *container* div, and apply *col-** class to the contents.
- https://getbootstrap.com/docs/5.0/layout/grid/

```
<div class="container">
        <div class="row">
                <section ... class="col-3"></section>
                <section ... class="col-6"></section>
                <section ... class="col-3"></section>
        </div>
</div>
```

Responsive columns

- You can adjust the proportion for the columns depending on the screen width, e.g.,
  - Phone in portrait: stacked up (no columns, auto!)
  - Phone in landscape: 4+4+4
  - Tablet: 3+6+3
  - Large screen: 2+8+2
- https://getbootstrap.com/docs/5.0/layout/breakpoints/

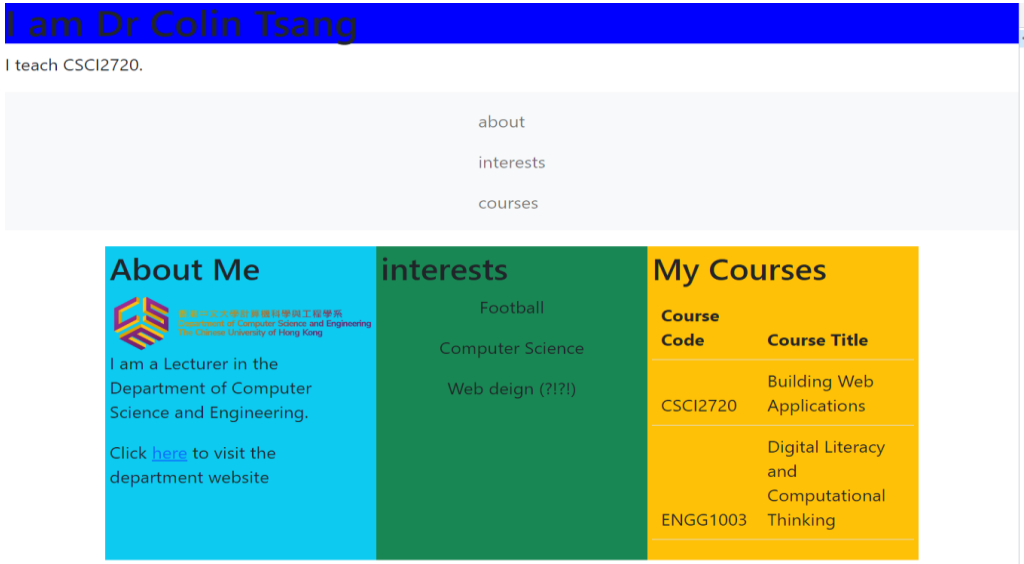
```
<div class="row">
        <section ... class="col-sm-4 col-md-3 col-xl-2"></section>
        <section ... class="col-sm-4 col-md-6 col-xl-8"></section>
        <section ... class="col-sm-4 col-md-3 col-xl-2"></section>
</div>
```

Responsive Web Design

- Try and implement a few of these RWD elements:
  - Choose image based on screen width
  - Different CSS rules with media queries for screen size
  - Auto-fit background image

- Testing RWD:
  - For consistency, use *Google Chrome* for this course.
  - Utilize the *Chrome DevTools* for details of the source code and various diagnostics.
  - Preview rendering results on smaller screens.

A simple example



Publishing your page

- To publish, you need to host it on a web server, e.g.,
  - CSE server
  - Outside services:
    - GitHub
    - AWS: Amazon S3
    - Netlify
    - And many others …….

- Check the Appendix slides to publish your page.

Submission

- No submission is needed for labs
- What you have done for this lab will be useful in assignments and project

- Keep your own file.

Appendix: Netlify

- Open an account for free at www.netlify.com
- Read this if you know GitHub: https://www.netlify.com/blog/2016/10/27/a-step-by-step-guide-deploying-a-static-site-or-single-page-app/
- If you are not sure about GitHub, simply upload your files to https://app.netlify.com/drop
- You can now access your site using http://(sitename).netlify.app

- *Note: Our course have no affiliation with the company, and this step of publishing is optional for your reference only.*

Appendix: Personal accounts

- You may try the CSE account if you are a CS/CE student.
- SSH/SFTP to CSE server
  - SSH client in lab (S:\SSH3.2.9\SshClient.exe)
  - Connect to *linux2.cse.cuhk.edu.hk*
  - If outside CUHK network, connect to *gw.cse.cuhk.edu.hk*, then type *ssh linux2.*
  - New file transfer window
- SSH clients for your own computer:
  - MobaXterm, WinSCP, FileZilla, CyberDuck, …
- *These steps are optional and only for your reference*

Appendix: uploading for CSE account

- You can put your page onto the CSE web server:
  - Save your own work as *index.html*
  - On server, create a folder *www* under your home.
  - Check properties of *www* to set mode as *711* or *755*
  - Upload your html file into the www folder
  - Check properties of *index.html* to set mode as *644*
  - Access it at: http://www.cse.cuhk.edu.hk/~username/index.html

- Detailed instruction in: https://i.cse.cuhk.edu.hk/home-page-authoring/

- *These steps are optional and only for your reference*