# Lab 3
# Web Form and Fetch

*CSCI2720 Building Web Applications*

## Agenda

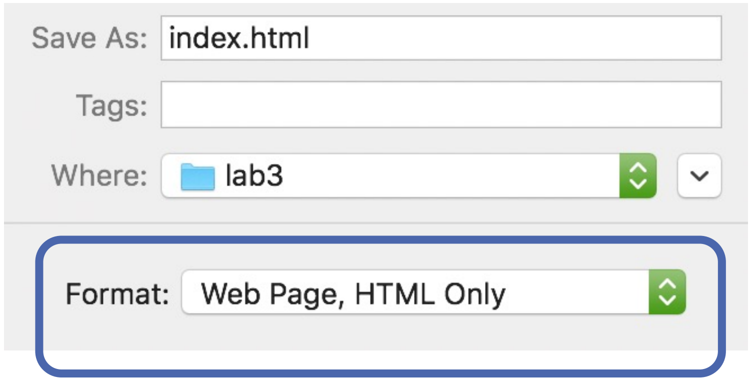
- Get and understand a sample
  - Bootstrap components with form
- Improve a web form
  - Basic input and textarea
  - Radio buttons
  - Button and event
- JavaScript fetch
  - Get a file
  - Save to a file
  - Save and load the comments

## Sample

- Get this file and read the code

  [http://www.cse.cuhk.edu.hk/~chuckjee/2720lab3/index.html](http://www.cse.cuhk.edu.hk/~chuckjee/2720lab3/index.html)

  - In Google Chrome, you can save the file by right clicking on the page and choose "Save as…", keeping the name `index.html`
    - *That's always the default file to be served*
  - *Read the code comments too!*



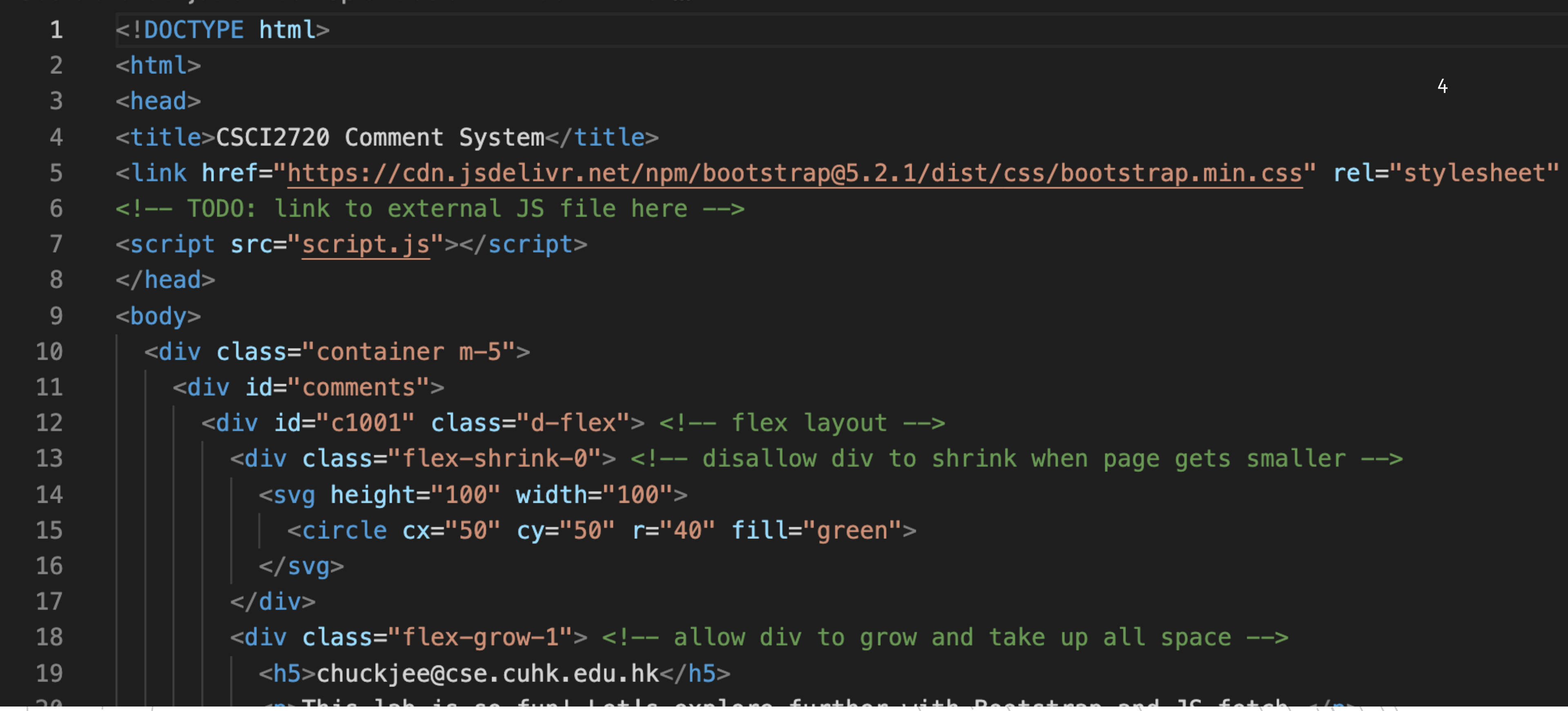
Save As: index.html

Tags:

Where: lab3

Format: Web Page, HTML Only

- Just a set of div's with two boxes in a flex layout
  - An SVG circle
  - A paragraph with a heading
  - And also the beginning of a form



```html
<!DOCTYPE html>
<html>
<head>
<title>CSCI2720 Comment System</title>
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.1/dist/css/bootstrap.min.css" rel="stylesheet"
<!-- TODO: link to external JS file here -->
<script src="script.js"></script>
</head>
<body>
  <div class="container m-5">
    <div id="comments">
      <div id="c1001" class="d-flex"> <!-- flex layout -->
        <div class="flex-shrink-0"> <!-- disallow div to shrink when page gets smaller -->
          <svg height="100" width="100">
            <circle cx="50" cy="50" r="40" fill="green">
          </svg>
        </div>
        <div class="flex-grow-1"> <!-- allow div to grow and take up all space -->
          <h5>chuckjee@cse.cuhk.edu.hk</h5>
```

## Read and understand the source code…
## Relate it with the structure seen in DevTools

## Web form

- You will work on this file with your favourite *text editor*, and view the results in *Google Chrome*
- You can find an HTML form `<form>` below the list of comment(s) with:
  - Email
  - Comment
    - Paragraph text using `<textarea>`
  - Color (to be used by SVG)
    - Red, green, yellow, blue
    - Or you can try other colors later

## Web form

- The *Email* and *Comment* boxes came from “Example” from this page: [https://getbootstrap.com/docs/5.2/forms/form-control/](https://getbootstrap.com/docs/5.2/forms/form-control/)
  - Look at the classes **`form-label`** and **`form-control`**
  - Observe the correspondence between **`for`** of **`<label>`** and **`id`** of **`<input>`**

## Web form

- A color choice is available below the comment box
  - Only the radio button for "red" is built for you
  - Repeat div/input/label for more choices, with different **`id`** but same **`name=new-color`**
- *Feel free to style the buttons in your own way!*
  - *See: [https://getbootstrap.com/docs/5.2/forms/checks-radios/#radios](https://getbootstrap.com/docs/5.2/forms/checks-radios/#radios)*

## Web form event

- A button is built for submitting the comment

  `<button ...>Add comment</button>`

- It is linked to an **`onclick`** event (as an attribute) for this button

  `onclick="processform()"`

  - Which means that, when this button is clicked on, the JS engine will run the **`processform()`** function
  - This is an alternative way from setting the **`onclick`** property of the DOM element in JS

## Setup JavaScript

- Create a new external JS file to be used, e.g. script.js

```
<script src="script.js"></script>
```

- In the JS file, create your event handler **`processform()`**

```
function processform() {
  console.log("Testing");
}
```

  - Test the button, does it work?
- So, what should you do in the handler function body?

## Event handler

## a. Prepare comment element

1. Set up a new element

```
let newComment = document.createElement("div");
let element = '<div><svg height="100"
width="100"><circle cx="50" cy="50"
r="40"></svg></div><div><h5></h5><p></p></div>';
newComment.innerHTML = element;
```

2. Set the classes of the div and its children div's

   Note: instead of `class`, **`className`** is used

```
newComment.className = "d-flex";
newComment.querySelectorAll("div")[0].className
= "flex-shrink-0"; // 1st div
newComment.querySelectorAll("div")[1].className
= "flex-grow-1"; // 2nd div
```

3. Increment the comment id

```
let lastComment =
document.querySelector("#comments").lastElementC
hild; // instead of lastChild for div element
newComment.id = 'c' +
(Number(lastComment.id.substr(1)) + 1);
```

## Event handler

## b. Apply contents from form

4. Change contents of **`<h5>`** and **`<p>`** according to form input with **`id`**

```
newComment.querySelector("h5").innerHTML =
document.querySelector("#new-email").value;
newComment.querySelector("p").innerHTML =
document.querySelector("#new-
comment").value;
```

## Event handler

## c. Draw the circle!

- You haven't learnt SVG in this course yet, but it's simple and easy!
  - More shapes: https://developer.mozilla.org/en-US/docs/Web/SVG/Tutorial/Basic_Shapes

5. Get the color choice from the radio buttons

```
let color =
document.querySelectorAll("input[name=
new-color]:checked")[0].value;
// look for checked radio buttons
```

6. Change the fill color of the SVG circle

```
newComment.querySelector("circle").set
Attribute("fill", color);
```

## Almost there!

- Now the **`newComment`** element is ready

7. Append it to the div **`#comments`** using

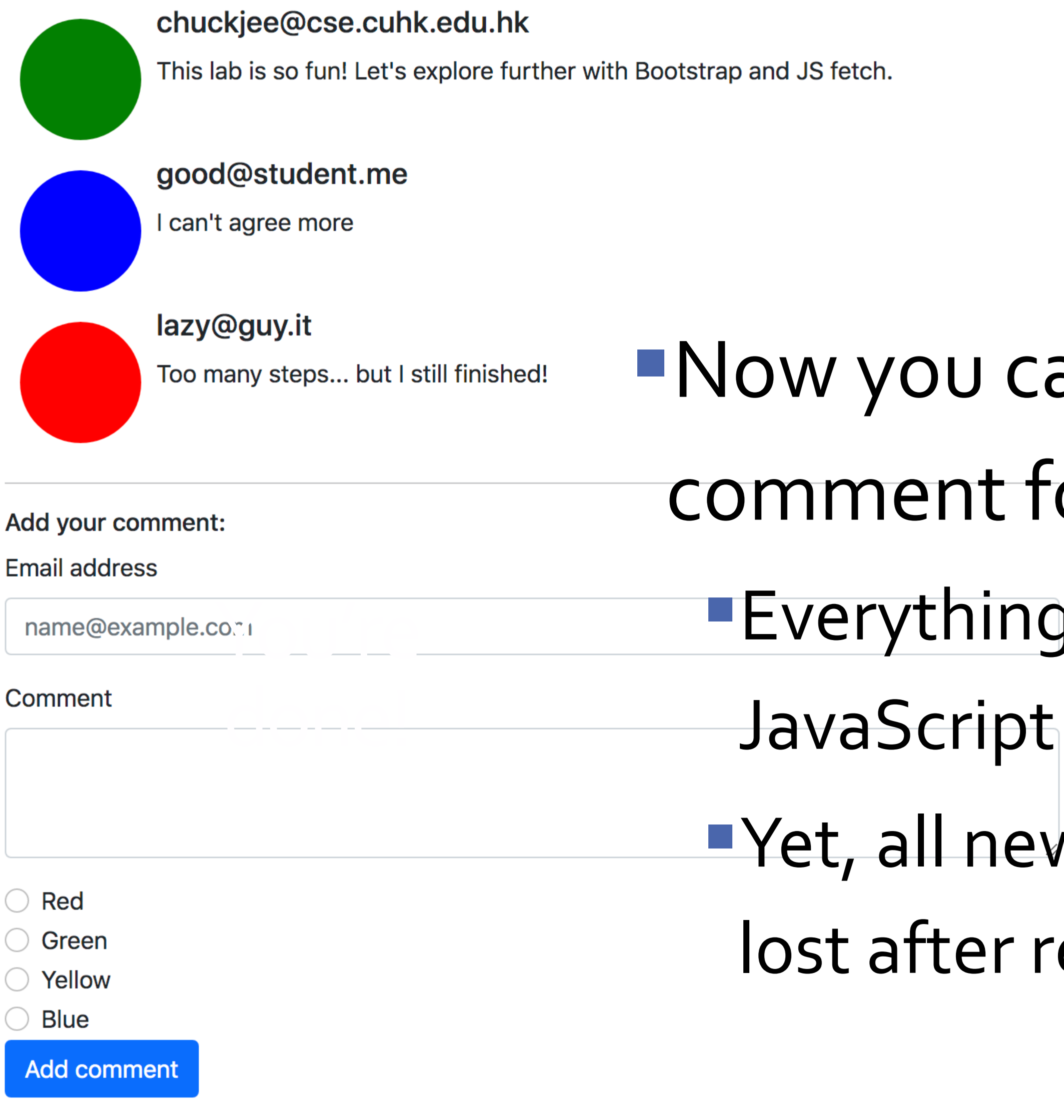
```
document.querySelector("#comments").append
Child(newComment);
```

8. After this, *reset* the form to clear the contents

```
document.querySelector("form").reset();
```

## Recapping the steps

- You need to finish these
  1. Read and understand the given file
  2. Complete the web form
  3. Point to the event handler
  4. Create a JS event handler
     - Prepare a new element
     - Get contents from user form
     - Set up the circle SVG
     - Append to the HTML content
     - Reset web form



chuckjee@cse.cuhk.edu.hk

This lab is so fun! Let's explore further with Bootstrap and JS fetch.

good@student.me

I can't agree more

lazy@guy.it

Too many steps... but I still finished!

Add your comment:

Email address

name@example.com

Comment

- Now you can try your comment form!
  - Everything is generated with JavaScript
  - Yet, all new comments will be lost after refresh

## JS Fetch

- Before we add save and load features, let's try to *fetch* contents from server
- Get this file using your browser

  *http://www.cse.cuhk.edu.hk/~chuckjee/2720lab3/file.txt*

  - Place it in the same folder as your **`index.html`** file from Lab 3

## Fetching a file

- In the HTML file, create a new button for ***Load file***
  - It can be next to the ***Add comment*** button
  - Create an onclick event for it, *e.g.*,

```
… onclick="loadfile()" …
```

  - And set up the event handler

```
function loadfile() {
    alert("testing");
};
```

  - Check that your event fires successfully

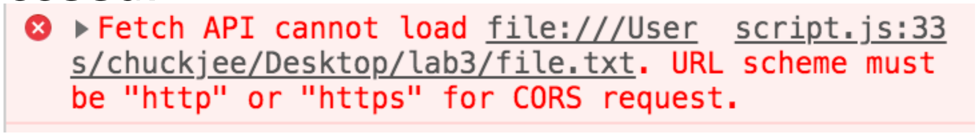
## Fetching a file

- If the event works well, it's time to start the loading work
- Using JS fetch, obtain the contents of file.txt given to you earlier, *e.g.*,

```
fetch('file.txt')
.then(res => res.text())
.then(txt => console.log(txt))
```

## Working on a web server

- No matter how hard you try, you won't succeed:

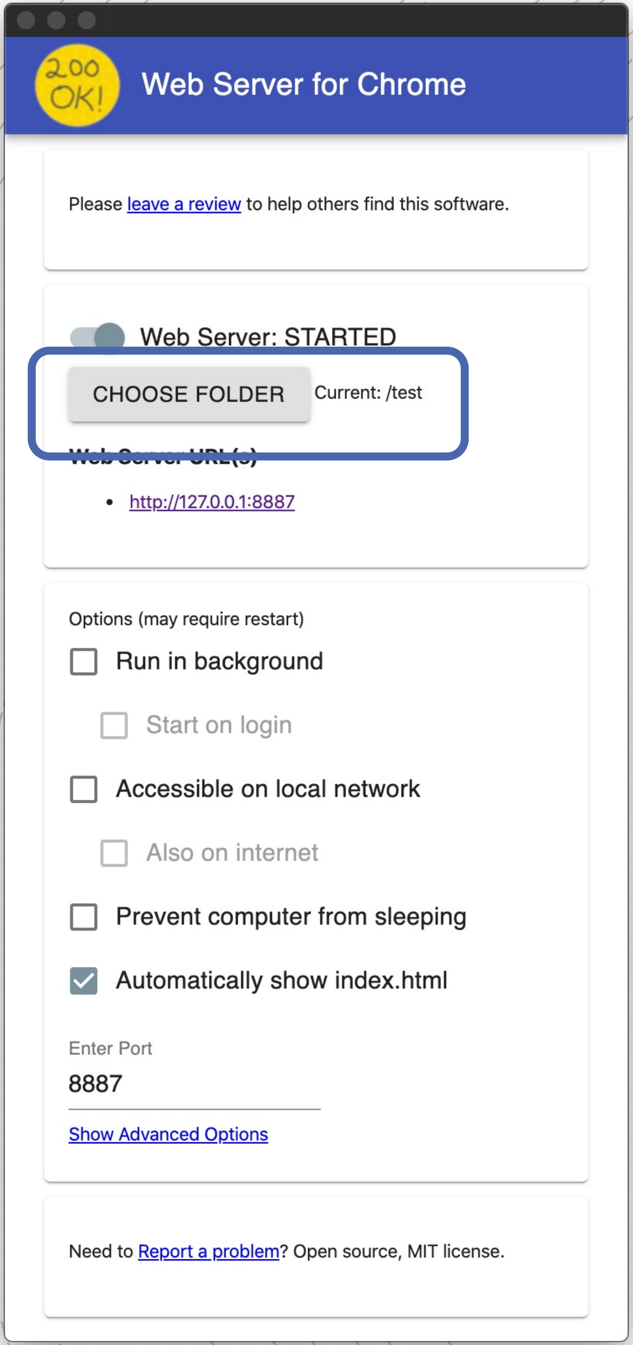


```
✖ ▸Fetch API cannot load file:///Users/chuckjee/Desktop/lab3/file.txt. URL scheme must be "http" or "https" for CORS request.   script.js:33
```

  - Chrome's security settings doesn't allow using `fetch()` on local (file://...) filesystem
  - In this case, you have to upload your page (html, js, txt, ...) onto a web server to try
- For local development, let's start a local web server within your Google Chrome!
  - *https://chrome.google.com/webstore/detail/web-server-for-chrome/ofhbbkphhbklhfoeikjpcbhemlocgigb/*

## A local web server

- A web server is a software which serves documents from a specific folder, when requested
  - E.g. [http://www.cse.cuhk.edu.hk](http://www.cse.cuhk.edu.hk) calls the CSE web server to serve some files at, for example, `/var/www` of the server storage
- Our local web server allows you to serve a folder, and then you can access documents via the browser
  - Whether others can access or not depends on firewall settings



Web Server for Chrome

Please leave a review to help others find this software.

Web Server: STARTED

CHOOSE FOLDER Current: /test

Web Server URL(s)

- http://127.0.0.1:8887

Options (may require restart)

- [ ] Run in background
  - [ ] Start on login
- [ ] Accessible on local network
  - [ ] Also on internet
- [ ] Prevent computer from sleeping
- [x] Automatically show index.html

Enter Port
8887

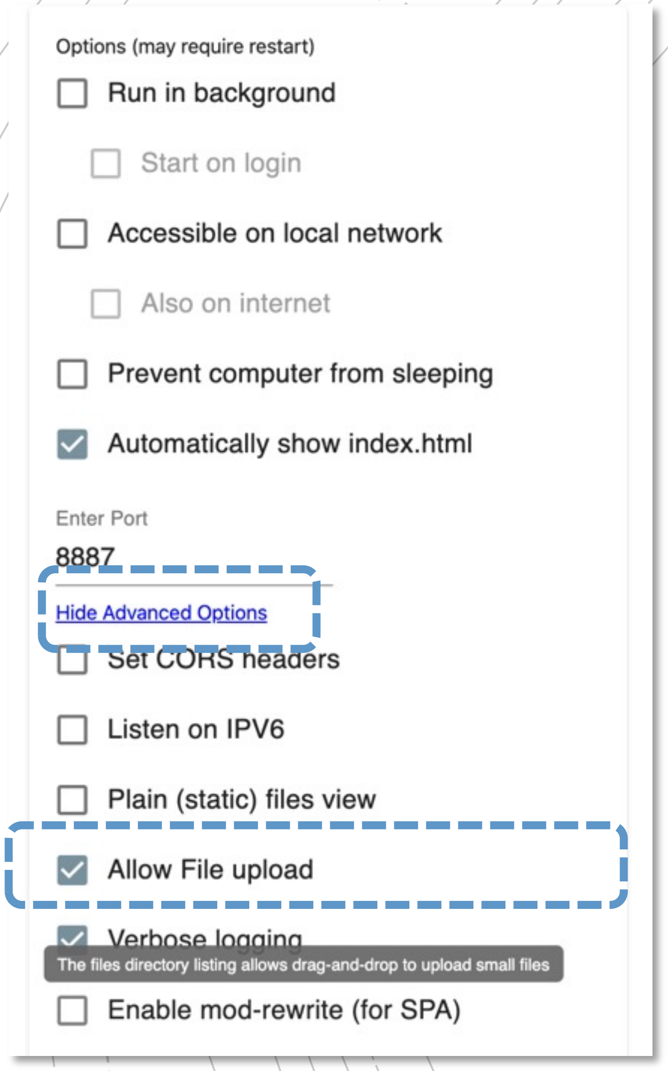
Show Advanced Options

Need to Report a problem? Open source, MIT license.

- Set up this new web server
  - Basically, you just need to choose a folder and start it!
  - Put your lab 3 exercise there
- Visit your lab 3 exercises at http://127.0.0.1:8887
  - 127.0.0.1 refers to localhost
  - Include your folder names if necessary
  - “Port” 8887 is a point of entry
- *If you try Googling, you will find other ways to **allow file access from local files**, but there are security concerns.*
  *So, a local web server may serve better!*

## Writing to the server

- A web server not only allows users to obtain documents
- Users can also upload data
  - A specific script is needed to handle the data, e.g., where to save it, what to do with it
- If you are successful with the previous step, you can carry on trying to save text into a file



Options (may require restart)

- [ ] Run in background
  - [ ] Start on login
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Enter Port

8887

Hide Advanced Options

- [ ] Set CORS headers
- [ ] Listen on IPV6
- [ ] Plain (static) files view
- [x] Allow File upload
- [x] Verbose logging
- [ ] Enable mod-rewrite (for SPA)

The files directory listing allows drag-and-drop to upload small files

- Uploading data can be done using `fetch()`, if the **web server supports** POST or PUT methods
- Let's enable **PUT** in Web Server for Chrome for uploading
  - PUT is easier, as no script is needed

  1. Options >> *Show Advanced Options*
  2. Enable *Allow File upload*
- The fetch operation looks like this:

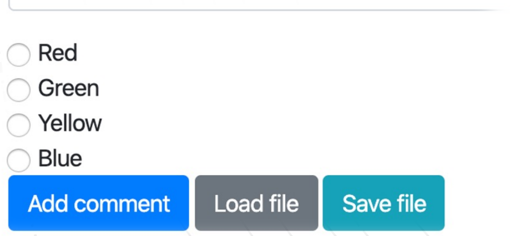
```
fetch('file2.txt', {
  method: 'PUT',
  body: "Hello world"
}); // a file called file2.txt
with such content: Hello world
```

## Save and load the comments

- If you are able to write a testing file, congratulations!
- Now it's time for some *real work*
- Think of a way to ***save all the comments into a file*** for loading later
  - Now this can be done manually using the load and save buttons

## Save and load the comments

- There are too many possibilities
  - XML? JSON? HTML? Plain text?
- For this lab, start with the simplest:
  - Get the HTML contents under the element `div#comments` into a string
  - **Save file**: Save this string into a file for storing on the web server
  - **Load file**: Load this string into `div#comments` to *replace* its HTML content



## Submission

- No submission is needed for labs
- What you have done for the comment system will be useful for your assignment
- **Please keep your own file safely**