

程序代写代做 CS编程辅导

COMP6080



Front-End Programming
Tutorial 3

WeChat: cstutorcs

Sidney Pham
Assignment Project Exam Help
sidney.pham@unsw.edu.au

Email: tutorcs@163.com

UNSW

QQ: 749389476

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Administrivia

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A friendly reminder that Assignment 1 is due **this Sunday at 8pm.**

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Additionally, make sure you know how to get your labs marked — submit by the deadline, then turn in the next lab and enter the lab marking queue. If you didn't do this for lab01, I'm happy to (as an exceptional one-off) mark you quickly if you email me.

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Differences

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1. What's the difference between Node.js and NPM?

Node.js is a JavaScript runtime environment. It lets developers use JavaScript to write command line tools and for server-side scripting. NPM is a package manager to help manage Node.js projects and their dependencies.

2. What's the difference between NPM and Yarn?

Generally very little to a novice user. You can do your research to learn the differences between them, but on small scale applications the differences are negligible.

CSS Imports

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Where do we generally put CSS imports in our HTML?

CSS imports usually go in the `<head>` tag, because we want to import styles prior to the page loading, to prevent HTML rendering without styles.

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What are some advantages to internal CSS (compared to external CSS)? It's easy, it only requires one network request, etc. What are some disadvantages? I don't think markup and styling are the

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same concern, so they should be separated. If I'm trying to change how my page looks, I should only have to primarily check one place — the CSS file.

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Aside: Separation of Concerns

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The Web used to work by separating HTML, CSS and JS into different files, under the name of **Separation of Concerns**. Every webpage would've had three source files. With the advent of technologies like React, we began to consider our concerns by *components* not *markup / styling / dynamic behaviour*.

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That is, you'll commonly find HTML and JS found together — I think this is a *good* thing because the DOM (a JS concept) is so closely tied with HTML. Additionally, structuring files by component enables easy reusability.

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However, some people have had particularly zealous opinions for and against: see this thread and this talk.

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JavaScript Imports

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Where do we generally put JS imports in our HTML?

JavaScript imports usually go at the bottom of our `<body>` tag. This is to ensure that the default elements in the DOM fully load before our JavaScript (which generally interacts with the DOM) is run.

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However, another solution is to use the `defer` attribute on the `<script>` tag (see: [this article](https://tutorcs.com)).

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Question

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Why do we use `className` in React, but `class` in vanilla JavaScript?

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className is the JSX component property that equates to class. It's transpiled to class.

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Really, it's because `class` is a reserved keyword in JavaScript, and JSX is an extension upon JavaScript.

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Exercise: Interactive Building Art

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The file `building.html` contains some HTML and CSS, which we are going to use to create some interactive art. However, we will not be editing `building.html` directly — instead we will use JavaScript and the DOM API in the script `building.js` to manipulate the DOM.

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Task 1: Looking at the Code

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Firstly, before rendering the HTML file, what can you tell about the page? What sorts of elements does the HTML body contain? What do you notice about the CSS?

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The body only contains two elements: one is a `div` tag with the `class` `building`, the other is a `script` tag. When the HTML renders it will execute whatever code is in `building.js`. The CSS not only contains the regular styling for `body`, elements with `ID` `building` and elements with `class` `window`, but it also seems to define styling for these elements in `'https://tuturn.com'`.

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CSS Selectors

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The night mode styling works using more advanced **CSS selectors** (specifically, *attribute selectors*).

They're pretty easy to understand: see MDN or a good cheatsheet.

BTW, the Emmet abbreviations are based on CSS selectors, so learning them will help you write your HTML more quickly!

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Task 2: Adding Windows

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Using only JavaScript and the DOM API, add 9 square windows (with class window) to the building. The windows should be 50 × 50px, with a margin of 25px.

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Task 3: Dynamic Windows

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Now, add a keyboard shortcut that will add a window when the up (ArrowUp) button is pressed, and remove a window when the down (ArrowDown) button is pressed.

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There are three KeyboardEvent events: keydown, keyup and keypress (deprecated!). I suggest defaulting to keydown.

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Task 4: Dynamic Building

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Add another keyboard shortcut that will move the building left/right by 50px when the left/right buttons are pressed.

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Task 5: Toggle-able Night Mode

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Add an event handler that will toggle on/off night mode when the user clicks anywhere on the screen.

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