



Cubstart Lecture 10

Comprehensive Review



[start recording]

• Administrivia

- Final project checkpoint was due yesterday - please do it today if you haven't! (Gradescope submission + google form)
- Today is the last required Cubstart lecture :(All other lecture/lab times will be optional final project OH
- HW 6 and HW 7 have been released - check feedback!



• Demo Day

Tuesday December 5th, 3 to 5 in the Wozniak Lounge
(during dead week).

We'll provide lunch and prizes :)

You **MUST** present at Demo Day with your team to pass.

(Email cubstart@calhacks.io for extenuating circumstances)






Today's Goal:

Characters


Extras

Harry Potter


Filter characters...




Harry Potter




Hermione Granger




Ron Weasley



Draco Malfoy



Molly Weasley



Cedric Diggory



Step 1: Set up frontend

Index.html (the homepage!):

To create a navigation bar:

- Use `<a>` tags to link to different HTML pages
 - The *aria-current* attribute indicates the current element/link (used in `styles.css`!)
- Wrap in `<nav>` tags

Project Structure:

FILES

- index.html
- page2.html
- script.js
- styles.css

index.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <title>Harry Potter</title>
5     <meta charset="UTF-8" />
6     <meta name="viewport" content="width=device-width" />
7
8     <link rel="stylesheet" href="styles.css" />
9   </head>
10  <body>
11    <nav>
12      <a href="/" aria-current="page">Characters</a>
13      <a href="/page2.html">Extras</a>
14    </nav>
15
16    <main>
17      <h1>Harry Potter</h1>
18      <input id="filter" placeholder="Filter characters..." />
19      <div id="character-list"></div>
20    </main>
21
22    <script src="script.js"></script>
23  </body>
24</html>
```

page2.html (a second page):

```
index.html • page2.html •
1  <!DOCTYPE html>
2  <html lang="en">
3    <head>
4      <title>Other page</title>
5      <meta charset="UTF-8" />
6      <meta name="viewport" content="width=device-width" />
7      <link rel="stylesheet" href="styles.css" />
8      <script type="module" src="script.js"></script>
9    </head>
10   <body>
11     <nav>
12       <a href="/">Home</a>
13       <a href="/page2.html" aria-current="page">Other page</a>
14     </nav>
15     <main>
16       <h1>My other page</h1>
17     </main>
18   </body>
19 </html>
20
```




Step 2: Fetch data from an API

- Use `fetch()`, `async`, `await`, and `.json()`

```
async function fetchCharacters() {  
  const res = await fetch('https://hp-api.onrender.com/api/  
  characters');  
  const data = await res.json();  
  
  return data;  
}
```



Step 3: Create a card component

```
function createCard(name, image) {  
  const cardEl = document.createElement('div');  
  cardEl.className = 'card';  
  
  const imageEl = document.createElement('img');  
  imageEl.src = image;  
  
  const nameEl = document.createElement('p');  
  nameEl.textContent = name;  
  
  cardEl.appendChild(imageEl);  
  cardEl.appendChild(nameEl);  
  
  return cardEl;  
}
```



Step 4: Style the card component

```
.card {
  /* flex: 1;
  min-width: 200px;
  max-width: 300px; */

  display: flex;
  flex-direction: column;

  border-radius: 8px;
  text-align: center;

  box-shadow: 0 8px 24px #dedede;
  transition: transform 0.2s, box-shadow 0.2s;
}

.card:hover {
  transform: translateY(-8px);
  box-shadow: 0 12px 36px #ccc;
}

.card p {
  padding: 1rem;
  margin: 0;
}

.card img {
  /* height: 300px;
  width: 200px; */
  /* height: 100%; */
  flex: 1;
  width: 100%;
  object-fit: cover;
  border-radius: 8px 8px 0 0;
}
```

transition property lets you change values smoothly over a given duration

translateY function repositions an element along the vertical axis. Positive argument moves elements up, negative argument moves elements down.

transform property lets you rotate, scale, skew, translate, etc an element

Targets all `<p>` tags that are children of the **card** class

Plus add styling for nav, body, and all other elements!



Step 5: Set up card list

• DOM targeting and defining variables

```
const charListEl = document.getElementById('character-list');  
const filterInputEl = document.getElementById('filter');  
  
let characters = [];  
let filteredCharacters = [];
```


Define update to put characters in list

```
function updateCharacterList() {  
  charListEl.innerHTML = '';  
  
  for (const { name, image } of filteredCharacters) {  
    if (!image) {  
      continue;  
    }  
  
    const itemEl = createCard(name, image);  
    charListEl.appendChild(itemEl);  
  }  
}
```

If **image** is falsy or empty (API could not find image for some reason), then skip the next two lines and continue with the rest of the for loop

Define function that executes when user types an input

```
function onChange(event) {  
  const filterVal = event.target.value;  
  
  if (filterVal === '') {  
    filteredCharacters = characters;  
    updateCharacterList();  
  } else {  
    filteredCharacters = characters.filter(({ name }) => {  
      return name.toLowerCase().includes(filterVal.toLowerCase());  
    });  
    updateCharacterList();  
  }  
}
```

Event represents the event

Event.target is the element that the event was called on

Event.target.value is the value of the target element

The **filter** function takes in a function. Iterates through every element in **characters** and keeps that element in the array if the function called on that element returns True

.includes() returns True if an array contains a specified value

Put it all together

```
async function init() {  
  filterInputEl.addEventListener('input', onInputChange);  
  
  characters = await fetchCharacters();  
  filteredCharacters = characters;  
  updateCharacterList();  
}  
  
init();
```

Add an event listener to the input element so that on input change (when a user types a key), the **onInputChange** function will execute



Success 🧐

Characters

Extras

Harry Potter

Filter characters...



Harry Potter



Hermione
Granger



Ron Weasley





[end recording]

Attendance: Lecture 10

<https://forms.gle/LAAZ28LAEzEcpfP59>

Secret word:

