

Towards Frontends and Finale!

CS 240 - The University of Illinois

Wade Fagen-Ulmschneider

November 30, 2021

A photograph of a crowd of people gathered around a statue of a man in a long robe, with the text "Frontend Technologies" overlaid in white. The background is a dense crowd of people, and the statue is the central focus. The text is in a large, bold, white font. The background image is a photograph of a crowd of people gathered around a statue of a man in a long robe, with the text "Frontend Technologies" overlaid in white. The background is a dense crowd of people, and the statue is the central focus. The text is in a large, bold, white font.

Frontend Technologies

Frontend Technologies

[Application Native Frontends]:

Frontend Technologies

[Frontend Abstraction Libraries]:

Native Frontend Technologies

[HTML]:

Native Frontend Technologies

+CSS:

Native Frontend Technologies

[Native Desktop]:

Native Frontend Technologies

[Native Mobile]:



HTML

```
<body>
[... ]
<main role="main"
      class="container">
<div class="row">
<div class="col-md-4"
      id="lec24">
```

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Upcoming Deadlines

Homework 10: Practice for Midterm 2

- Due: December 3, 2021

MIX Project Part III - Towards a Course-wide Service

- Due: December 5, 2021

Lecture: Every Tuesday/Thursday at 12:30pm in 2035 CIF



Lecture #24: Authentication with SAML2 (SSO Login)

- [Lecture Handout](#)
- [Lecture Slides](#)

Assignments:

- [Homework 10 \(Exam Review\)](#)

November 18, 2021



Lecture #23: Security and Authentication

- [Lecture Handout](#)
- [Lecture Slides](#)

November 16, 2021



Lecture #22: Content Delivery Networks (CDNs)

- [Lecture Handout](#)
- [Lecture Slides](#)



Lecture #21: Domain Name System (DNS)

- [Lecture Handout](#)
- [Lecture Slides](#)
- [Lecture Video](#)



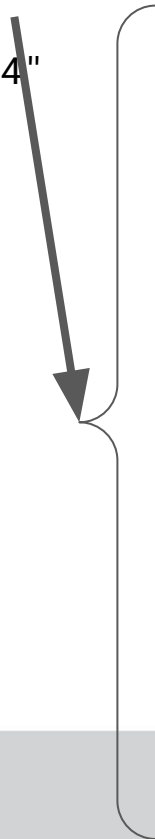
Lecture #20: Caching

- [Lecture Handout](#)
- [Lecture Slides](#)
- [Lecture Video](#)

Assignments:



```
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[... ]
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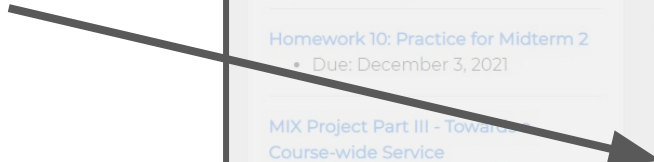
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Assignments:



```
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[... ]
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Assignments:



```
<div class="card mb-4 box-shadow">
  
  <div class="card-body">
    <h3>Lecture #24: Authentication with SAML2 (SSO
Login)</h3>
    <ul>
      <li><a href="[...]pdf">Lecture Handout</a></li>
      <li><a href="[...]pdf">Lecture Slides</a></li>
    </ul>
    <h6>Assignments:</h6>
    <ul>
      <li><a href="[...]/hw10/">Homework 10 (Exam
Review)</a></li>
    </ul>
  </div>
  <div class="d-flex justify-content-between
align-items-center">
    <small class="text-muted">November 18, 2021</small>
  </div>
</div>
```



Lecture #24: Authentication with SAML2 (SSO Login)

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November 18, 2021

HTML Data Structure

Internally, this HTML is maintained inside of a data structure in your web browser called the _____.

...every time we change the website, we update this data structure!

Changing the DOM

A photograph of a crowd gathered around a statue of a woman in academic regalia, overlaid with a semi-transparent orange filter. The text "Changing the DOM" is centered in white. The background shows a large group of people, some looking towards the statue, which is set against a backdrop of trees. The overall scene suggests a public event or ceremony.

Interacting with the DOM Directly

```
e = document.querySelector(selectors)
```


Using a Library to Change the DOM

```
e = $(selectors)
```

Using a Framework to Manipulate the DOM

```
class Timer extends React.Component {
  constructor(props) {
    super(props);
    this.state = { seconds: 0 };
  }

  tick() {
    this.setState(state => ({
      seconds: state.seconds + 1
    }));
  }

  componentDidMount() {
    this.interval = setInterval(() => this.tick(), 1000);
  }

  componentWillUnmount() {
    clearInterval(this.interval);
  }

  render() {
    return (
      <div>Seconds: {this.state.seconds}</div>
    );
  }
}
```

```
ReactDOM.render(
  <Timer />,
  document.getElementById('timer-example')
);
```

Fetching Data

```
fetch("http://cs240-adm.cs.illinois.edu:8000/time", {  
  method: "PUT",  
  body: JSON.stringify(data),  
  ...many other options...  
}).then( response => console.log(response) )
```