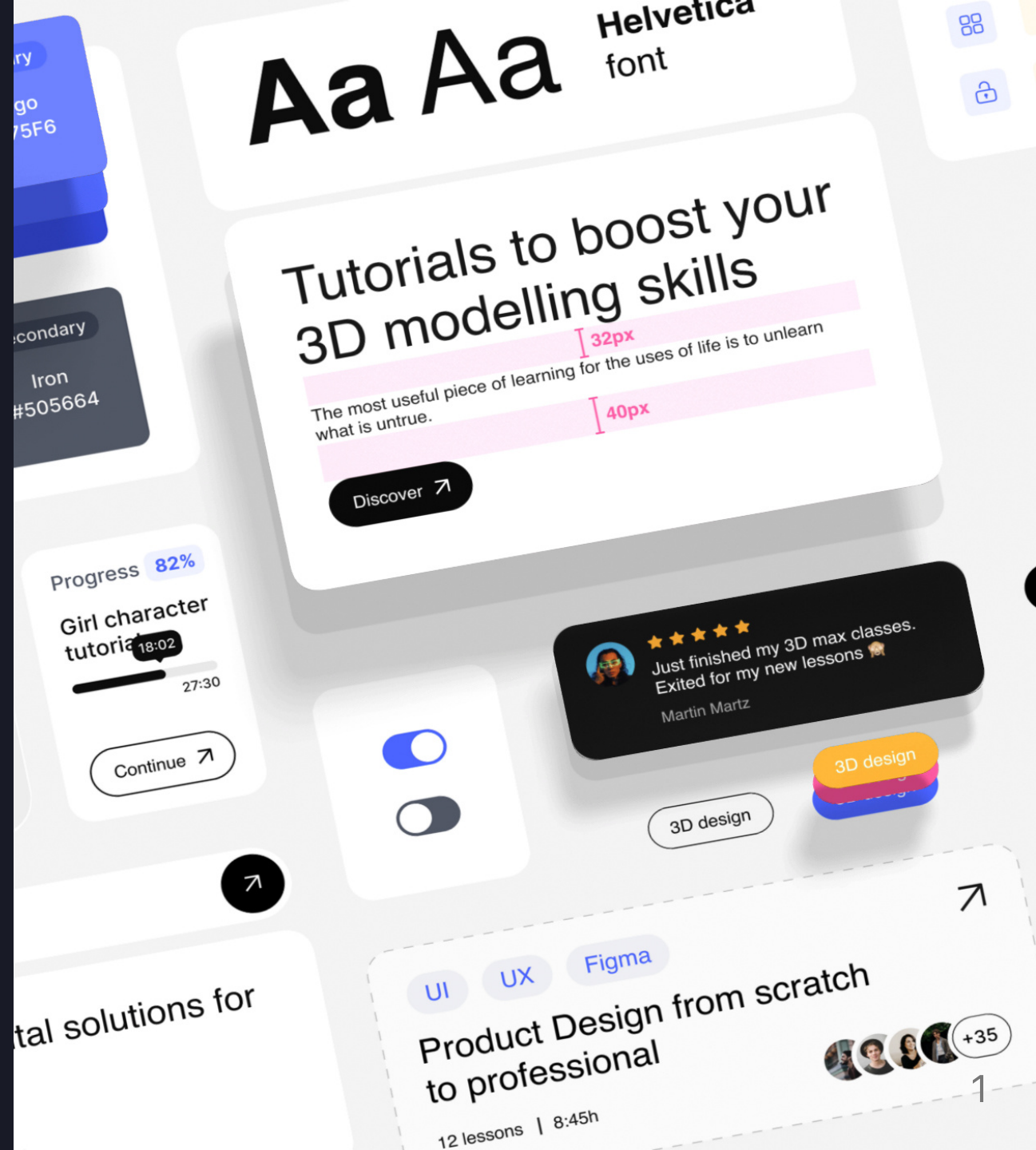


Going Framework Agnostic

Custom Webcomponents 101



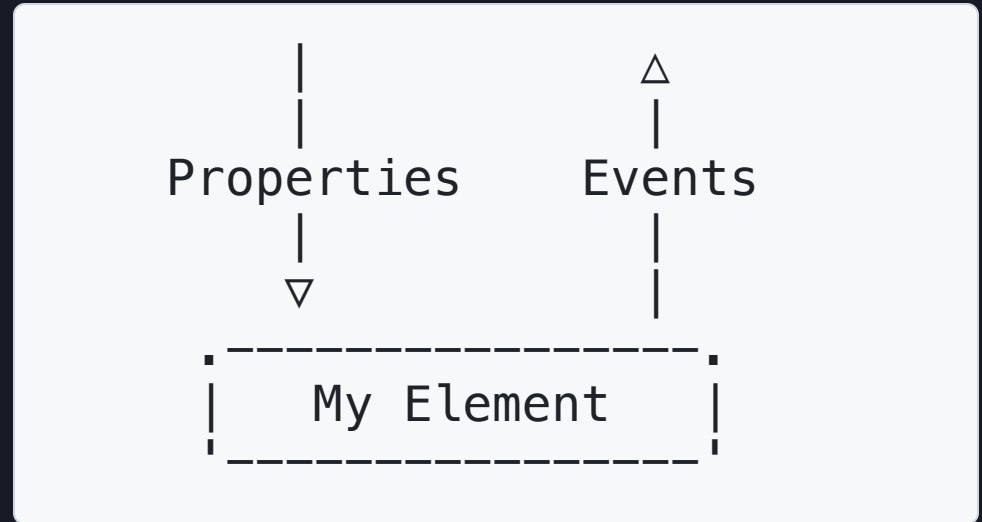
What are Web Components

- Div
- Section
- Header
- UI



What are Custom Web Components

- Custom Tags
- Must be prefixed and Hyphenated
- Encapsulated
- Extending HTMLElement



Reactive Custom Web Components



Going Framework Agnostic

Demo

Vanilla TypeScript

Definition

```
export class MySlider extends HTMLElement {  
  onConnectedCallback() {  
  }  
}  
  
customElements.define('my-slider', MySlider)
```

Usage

```
<my-slider></my-slider>
```



ShadowRoot

The ShadowRoot interface of the Shadow DOM API is the root node of a DOM subtree that is rendered separately from a document's main DOM tree.

```
<!-->
▼ <my-textfield>
  ▼ #shadow-root (open)
    <!-->
      ▼ <label>
        <!--?lit$7092766374$--> == $0
        "Firstname"
        <input type="text">
      </label>
    </my-textfield>
```

```
document.querySelector('my-textfield input');
```

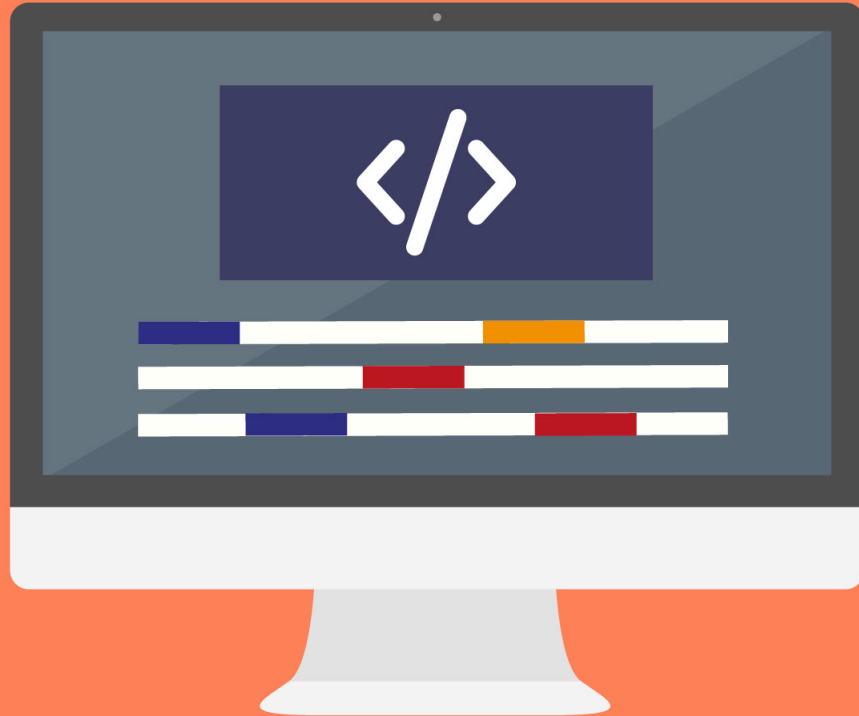
```
document.querySelector('my-textfield').shadowRoot.querySelector('input');
```



Lit

Introducing

Lit Framework



Definition

```
import { html, LitElement } from 'lit';
import { property, customElement } from 'lit/decorators.js';

@customElement('my-textfield')
export class MyTextfield extends LitElement {

  @property({ type: String }) label = 'Label';

  render() {
    return html`
      <label>
        ${this.label}
        <input type="text" />
      </label>`;
  }
}

declare global {
  interface HTMLElementTagNameMap {
    "my-textfield": MyTextfield;
  }
}
```

Usage

```
<my-textfield label="Firstname"></my-textfield>
```

Styling Web Components

```
import { html, css, LitElement } from 'lit';

@customElement('my-textfield')
export class MyTextfield extends LitElement {

  static styles = css`
    :host {
      padding: 16px;
      border-radius: 9px;
      box-shadow: 0 1px 3px rgba(0, 0, 0, .07),
        0 2px 5px rgba(0, 0, 0, .09),
        0 4px 7px rgba(0, 0, 0, .1);
    }
  `;

  render() {
    ...
  }
}
```



Styling Web Components

Css Variables

```
:host {  
  --black: 10, 10, 10;  
}
```

Styling Web Components



Css Variables

```
import { html, css, LitElement } from 'lit';

@customElement('my-textfield')
export class MyTextfield extends LitElement {

  static styles = css`
    :host {
      padding: 16px;
      border-radius: 9px;
      box-shadow: 0 1px 3px rgba(var(--black), .07),
        0 2px 5px rgba(var(--black), .09),
        0 4px 7px rgba(var(--black), .1);
    }
  `;

  render() {
    ...
  }
}
```



Design Tokens

```
{  
  "vt": {  
    "color": {  
      "brand": {  
        "primary": {  
          "_": {  
            "value": "#2B3499"  
          }  
        },  
        "secondary": {  
          "_": {  
            "value": "#FF6C22"  
          }  
        }  
      },  
      ...  
    }  
  }  
}
```

Pajamas Design System



GitLab

```
Tokens
├── Color
│   ├── Colors.Base.json
│   ├── Colors.Base.Dark.json
│   ├── Colors.Alias.json
│   └── Colors.Tokens.json
└── Border_Radius
    ├── Border_Radius.Base.json
    ├── Border_Radius.Compact.json
    ├── Border_Radius.Alias.json
    └── Border_Radius.Tokens.json
```



Example

Custom Elements Manifest



```
"declarations": [  
  {  
    "name": "MyTextfield",  
    "members": [  
      {  
        "name": "label",  
        "type": {  
          "text": "string"  
        }  
      }  
    ]  
  }  
],
```




Pitfalls

- Self registering Web Components
- Direct dependencies on Web Components
- Api Changes
- E2E Testing
- Versioning



Scoped Elements

```
import { ScopedElementsMixin } from '@open-wc/scoped-elements';  
  
class MyElement extends ScopedElementsMixin(LitElement) {  
  static get scopedElements() {  
    return {  
      'my-button': MyButton,  
      'my-panel': MyPanel,  
    };  
  }  
}
```

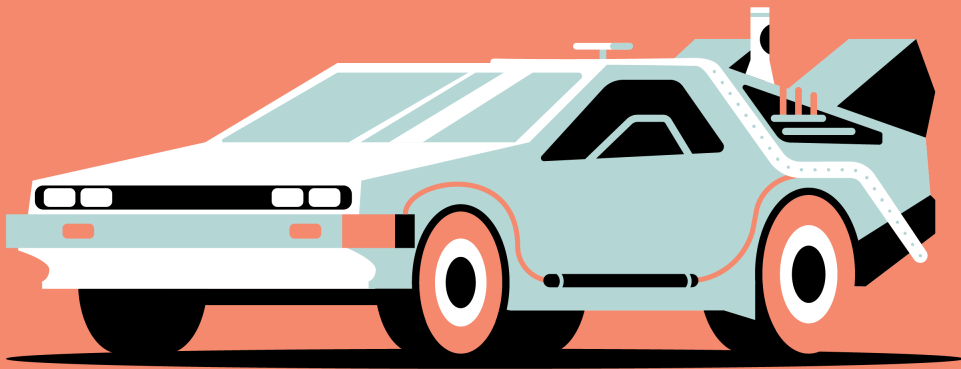


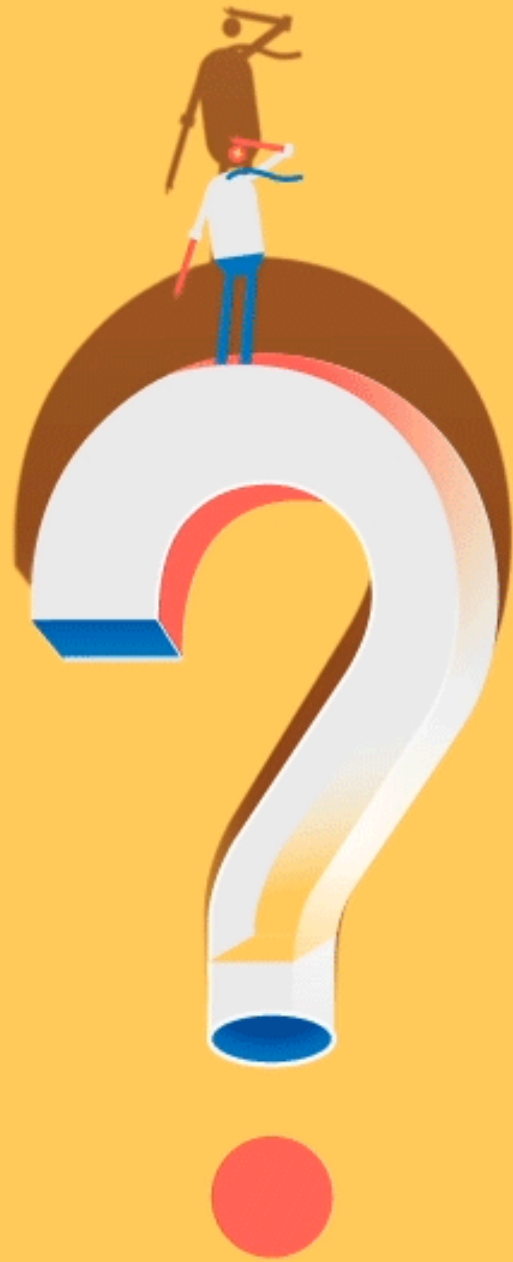
Scoped Registry

```
window.CustomElementRegistry = class {  
  constructor() {  
    this._definitionsByTag = new Map();  
    this._definitionsByClass = new Map();  
    this._whenDefinedPromises = new Map();  
    this._awaitingUpgrade = new Map();  
  }  
  ...  
}
```

Future

- [Scoped Registry](#)
- [CanIUse.com](#)
- [Mozilla MDN Web Docs](#)
- [Youtube Videos/Articles](#)





Questions?