Create a design system with
Lion web components

AGENDA

1. Why using web components

2. Create with Lit

3. Extend from Lion

4. Theming

5. Visual regression tests

6. Wrappers

7. API Documentation

01.

Why using web components

Why

- Future-proof web standards
- No Frameworks
- Full encapsulation
- Easy customization
- Libraries helping development

Examples

- Material Web Components (Google)
- Fast Design (Microsoft)
- Carbon Design System (IBM)
- Spectrum Web Components (Adobe)
- Lightning Web Components (SalesForce)
- And many more

02.

Create with Lit

Lit

Library on top of the Web Components standards

Polymer
2016

LitElement
2019

Lit
2021

SET PROPERTIES AND RENDER

```
export class EggButton extends LitElement {
  static get properties() {
    return {
      disabled: {
        type: Boolean,
        reflect: true
      }
    };
  }

  render() {
    return html`
      <button
        ?disabled="${this.disabled}">
        <slot></slot>
      </button>
    `;
  }
}
```

ADD STYLES

```
static get styles() {
  return [css`
    :host { display: inline-block; height: 40px; }
    :host button {
      cursor: pointer;
      box-sizing: border-box;
      border-radius: 3px;
      border: none;
      box-shadow:
        inset 0 0 0 1px rgba(0, 0, 0, 0.16);
      padding: 10px 24px;
      height: 100%;
      width: 100%;
      background-color: #1976d2;
      color: white;
      font-family: Roboto, sans-serif;
      font-size: 14px;
      font-weight: 500;
    }
    :host([disabled]) button { cursor: default; }
    :host([disabled]) { user-select: none; }
    :host([disabled]) button {
      background-color: #eee;
      color: rgba(0, 0, 0, 0.6));
    }
  `];
}
```

CHANGE BEHAVIOR

```
export class EggButton extends LitElement {
  render() {
    return html`
      <button
        ?disabled="${this.disabled}"
        @click="${this._handleClick}">
        <slot></slot>
      </button>
    `;
  }

  _handleClick(e) {
    if (this.disabled) {
      e.stopPropagation();
      e.preventDefault();
    }
  }
}
```

Button   Disabled

03.

Extend from Lion

Extend LionButton

```
export class EggButton extends LionButton {
  static get styles() {
    return [
      super.styles,
      css`
        :host {
          // styles for your button
        }
      `,
    ];
  }
}
```

Make overrides

```javascript
export class EggInput extends LionInput {
  // ...
  _groupOneTemplate() {
    return html`${this._labelTemplate()}`;
  }

  _groupTwoTemplate() {
    return html`
      ${this._inputGroupTemplate()}
      ${this._helpTextTemplate()}
      ${this._feedbackTemplate()}`;
  }

  _feedbackTemplate() {
    return html`
      <div class="form-field__feedback">
        <div class="form-field__feedback-inner-wrapper">
          ${this.hasFeedbackError
          ? html`
            <egg-icon
              icon-id="egg-global:alert:error">
            </egg-icon>`
          : ''}
          <slot name="feedback"></slot>
        </div>
      </div>`;
  }
}
```

MaxLength

    too long

⛔ Please enter a correct MaxLength (up to 7 characters).

Lion

First Name

Last Name

Date of application

Please enter a valid date (DD/MM/YYYY).
Biography
Please enter at least 10 characters

Money

Iban

Email

What do you like?
☐ I like foo
☐ I like bar
☐ I like baz
Favorite dinosaur
○ allosaurus
○ brontosaurus
○ diplodocus
Make a selection (rich select)
Fire up that loud
☐ I blindly accept all terms and conditions
Comments

Submit   Reset

ING - Web

First Name

Last Name

Date of application   12/12/2000

Biography
Please enter at least 10 characters

Money   0.00

Iban

Email

What do you like?   ☐ I like foo
                         ☐ I like bar
                         ☐ I like baz

Favorite dinosaur   ○ allosaurus
                         ○ brontosaurus
                         ○ diplodocus

Lyrics   Fire up that loud   ▼

                         ☐ I blindly accept all terms and
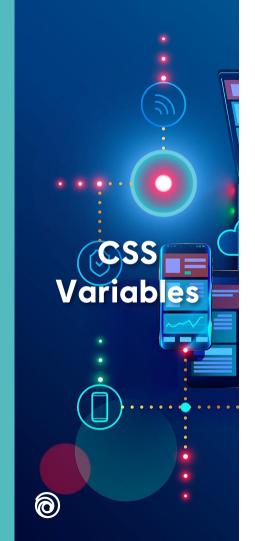   conditions

Comments

Submit   Reset

EGG Design System

First Name

Last Name

Date of application
12/12/2000

Biography

Please enter at least 10 characters

Money

iban

Email

What do you like?
☐ I like foo
☐ I like bar
☐ I like baz

Favorite dinosaur
○ allosaurus
○ brontosaurus
○ diplodocus

Lyrics
Fire up that loud ˅

☐ I blindly accept all terms and conditions
Comments

Submit   reset

03.

Theming

CSS Variables
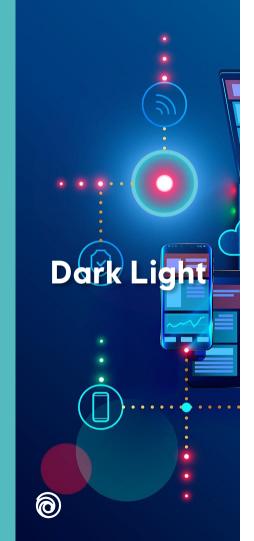
primary,
secondary,
tertiary,
error,
...

CSS
property

CSS
selector

--egg *-type* **-property** *-state*

optional

optional

Design tokens in Figma

Dark Light

	Dark		Light	
--egg-surface	#2e2e2e	Button	#ffffff	Button
--egg-surface-hover	#ffffff14	Button	#00000014	Button

04.
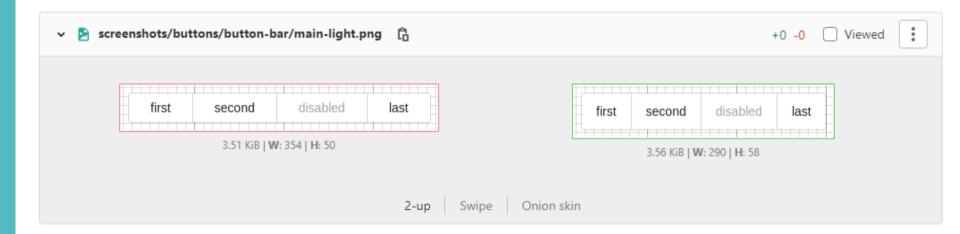
Visual regression tests

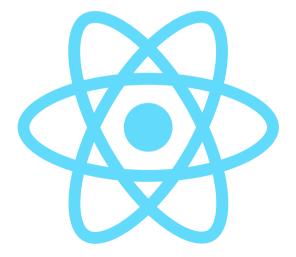# Visual regression tests

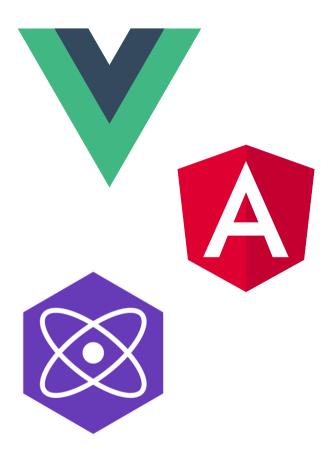@web/test-runner-visual-regression

05.

Wrappers

React

- wc-react
- @lit-labs/react
- reactify-wc

Other frameworks

Make it more friendly for

- Vue
- Angular
- Preact

Micro frontend

- Scoped Custom Elements registries
- Avoid name clash
- @open-wc/scoped-elements

06.

API Documentation

JSDOC

```
/**
 * @attr {Boolean} disabled - Disabled
attribute
 *
 * @cssprop {color} [--egg-surface]
Background when disabled
 * @cssprop {color} [--egg-surface-hover]
Hover surface color
 * @cssprop {color} [--egg-button-
background=transparent] Customizable
background color
 * @cssprop {color} [--egg-button-color=--
egg-on-surface] Customizable color
 *
 * @slot - Default slot, content of the
button
 *
 * @fires click - Dispatched when the
button is clicked
 *
 * @extends LionButton
 */
```

web-component-analyzer

> > >

> >

```
{
  "name": "egg-button",
  "path": "./packages\\button\\egg-button.js",
  "attributes": [
    { "name": "disabled", "description":
"Disabled attribute", "type": "Boolean" }
  ],
  "properties": [
    { "name": "role", "type": "string" },
    { "name": "type", "type": "string" },
    { "name": "active", "type": "boolean" }
  ],
  "events": [
    { "name": "click", "description":
"Dispatched when the button is clicked" }
  ],
  "slots": [
    { "name": "", "description": "Default slot,
content of the button" }
  ],
  "cssProperties": [
    { "name": "--egg-surface", "description":
"Background when disabled", "type": "color" },
    { "name": "--egg-surface-hover",
"description": "Hover surface color", "type":
"color" },
    { "name": "--egg-button-background",
"description": "Customizable background color",
"type": "color", "default": "\"transparent\"" },
    { "name": "--egg-button-color",
"description": "Customizable color", "type":
"color", "default": "\"--egg-on-surface\"" }
  ]
}
```

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egg-button

Attributes

disabled
`Boolean`

Disabled attribute

Properties

active
`boolean`

role
`string`

type
`string`

Events

click

Dispatched when the button is clicked

Slots

default

Default slot, content of the button

Variable	Description	Type	Default
--egg-button-background	Customizable background color	color	`"transparent"`
--egg-button-color	Customizable color	color	`"--egg-on-surface"`
--egg-surface	Background when disabled	color	
--egg-surface-hover	Hover surface color	color	

Conclusion

- Open source
- Quickly add new components
- Easy to maintain

THANK YOU!

UBISOFT IT

IT ENGINEERING & PLATFORM

Mathieu Puech