theory of forms

accessible forms

with lion

Outline

theory of forms

A) Accessible forms

A1) Inputs and labels
A2) Helper texts
A3) Groups 1: Field sets
A4) Groups 2: Forms
A5) Platform Validation
A6) Custom Validation
A7) Customized feedback mechanisms
A8) Platform fields
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B) Meet Lion forms

B1) Taxonomy
B2) Anatomy of the FormControl
B3) Lion field api
B4) Challenges with shadow dom
B5) Lion controls overview

A1. Inputs and labels

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<label>Zip Code</label>
<input>

A
<label for="zip-code">Zip Code</label>
<input id="zip-code">

B
<label> Zip Code <input> </label>

C
<label for="zip-code" id="my-label">Zip Code</label>
<input id="zip-code" aria-labelledby="my-label my-icon">
<svg id="my-icon" aria-label="country">...</svg>

A2. Helper texts

theory of forms


```
<div>
This text helps understand the purpose
of below input
</div>

<label for="zip-code">Zip Code</label>
<input id="zip-code">
```

```
<div id="my-helper-text">
This text helps understand the purpose of below input
</div>

<label for="zip-code">Zip Code</label>
<input id="zip-code" aria-describedby="my-helper-text">
```

A3. Groups 1: fieldsets

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1

Address
Zip Code City

2

Address
Zip Code City

You are currently on a text element.

More info: https://www.w3.org/WAI/tutorials/forms/grouping/#associatlion-related-controls-with-wai-aria

```
<div class="my-group">
  <div>Address</div>

  <label for="zipcode">Zip Code</label>
  <input id="zipcode">

  <label for="city">City</label>
  <input id="city">
</div>
```

1

```
<fieldset>
  <legend>Address</legend>

  <label for="zipcode">Zip Code</label>
  <input id="zipcode">

  <label for="city">City</label>
  <input id="city">
</fieldset>
```

2

```
<div role="group"
 aria-labelledby="group-label">

  <div id="group-label">Address</div>

  <label for="zipcode">Zip Code</label>
  <input id="zipcode">
  ...
</div>
```

A4. Groups 2: forms

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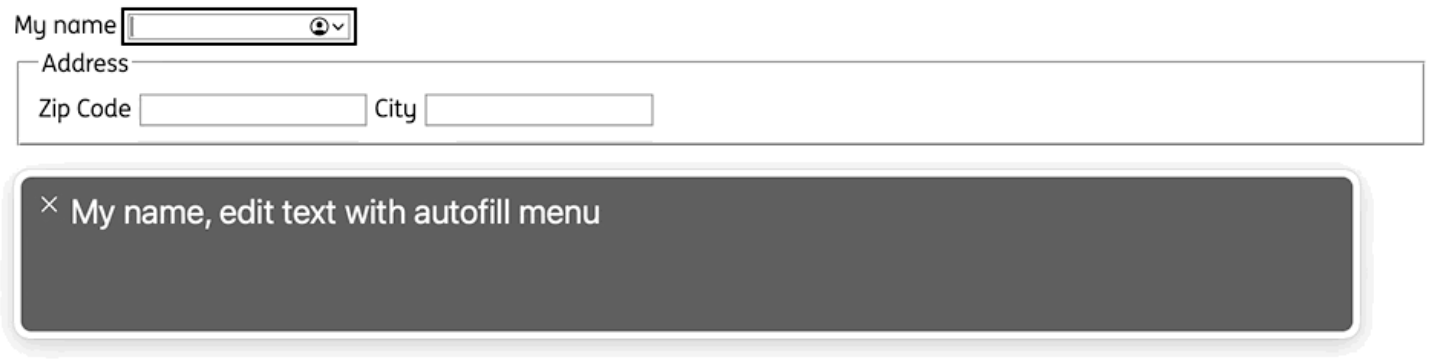


```
<form>
  <label for="name">Name</label>
  <input id="name">


  <fieldset>
    ....
  </fieldset>
</form>
```

A5. Platform Validation

theory of forms


```
<label for="zip-code">Zip Code</label>
<input id="zip-code" required maxlength="6" />
```

A6. Custom Validation

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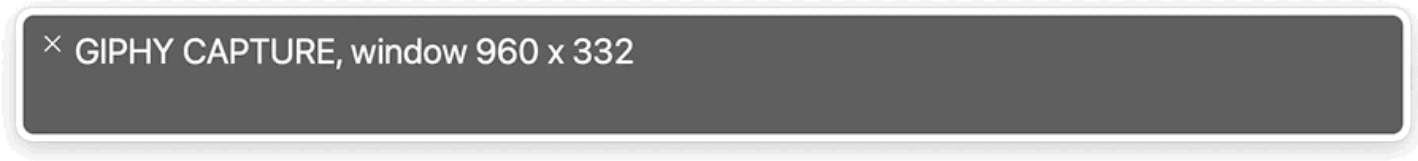
What if we want to check whether the zip code is correct for a certain country?

Zip Code 1234D

Please fill in a Dutch zipcode




```
<label for="zip-code">Zip Code</label>

<input id="zip-code"
  aria-describedby="validation-output"
  aria-invalid=true"" />

<div id="validation-output" aria-live="polite">
  {{errorMessage}}
</div>
```

```
// Simplified example. Validating on blur is a common approach (for instance implemented by Polymer)
const dutchZipCodeRegex = /^[1-9][0-9]{3} ?(?!sa|sd|ss)[a-z]{2}$/i;
const inputElement = document.getElementById('zip-code');
const validationOutputElement = document.getElementById('validation-output');
inputElement.setAttribute(
  'aria-describedby',
  inputElement.getAttribute('aria-describedby') + ' ' + validationOutputElement.id,
);
inputElement.addEventListener('blur', () => {
 If (!dutchZipCodeRegex.test(inputElement.value)) {
    validationOutputElement.innerText = 'Please fill in a Dutch zipcode';
    inputElement.setAttribute('aria-invalid', 'true');
 } else {
    validationOutputElement.innerText = '';
    inputElement.setAttribute('aria-invalid', 'false');
  }
});
```

A7. Customized feedback mechanisms

theory of forms

- What if we have **multiple validators?** (dutchZipCode, zipCodeMatchesWithCity)
  - if we display one message at a time, who wins?
  - If we display multiple, how do we determine order?
  - who is responsible for controlling aria-invalid?

- What if we want to control the **validation moment** (not on blur, but keyup)?

- What if we want to show **positive feedback** as well (and warnings/info messages)?

- What if we want to support **async validators**?

- What would It mean for **maintainability/scalability/development speed** when all teams implement validation like in the previous example (no standards / no conventions)?

Small hint: **Lion** has got you covered

A8. Platform fields

theory of forms

<input>
<label>
<select>
<textarea>
<button>
<fieldset>
<legend>
<datalist>
<output>
<option>
<optgroup>

<input type="button">
<input type="checkbox">
<input type="color">
<input type="date">
<input type="datetime-local">
<input type="email">
<input type="file">
<input type="hidden">
<input type="image">
<input type="text">
<input type="time">
<input type="url">
<input type="week">
<input type="month">
<input type="number">
<input type="password">
<input type="radio">
<input type="range">
<input type="reset">
<input type="search">
<input type="submit">
<input type="tel">

not all of fields feature complete, stylable and/or consistently implemented cross browser

A9. Custom fields

theory of forms

Listbox

https://www.w3.org/TR/wai-aria-practices-1.1/#Listbox

Combobox

https://www.w3.org/TR/wai-aria-practices-1.1/#combobox

Checkbox

https://www.w3.org/TR/wai-aria-practices-1.1/#checkbox

RadioButton

https://www.w3.org/TR/wai-aria-practices-1.1/#radiobutton

Slider

https://www.w3.org/TR/wai-aria-practices-1.1/#slider

https://www.w3.org/TR/wai-aria-practices-1.1/#slidertwothumb

Spinbutton

https://www.w3.org/TR/wai-aria-practices-1.1/#spinbutton

Part B

meet Lion forms

B1. Taxonomy | Landscape and hierarchy

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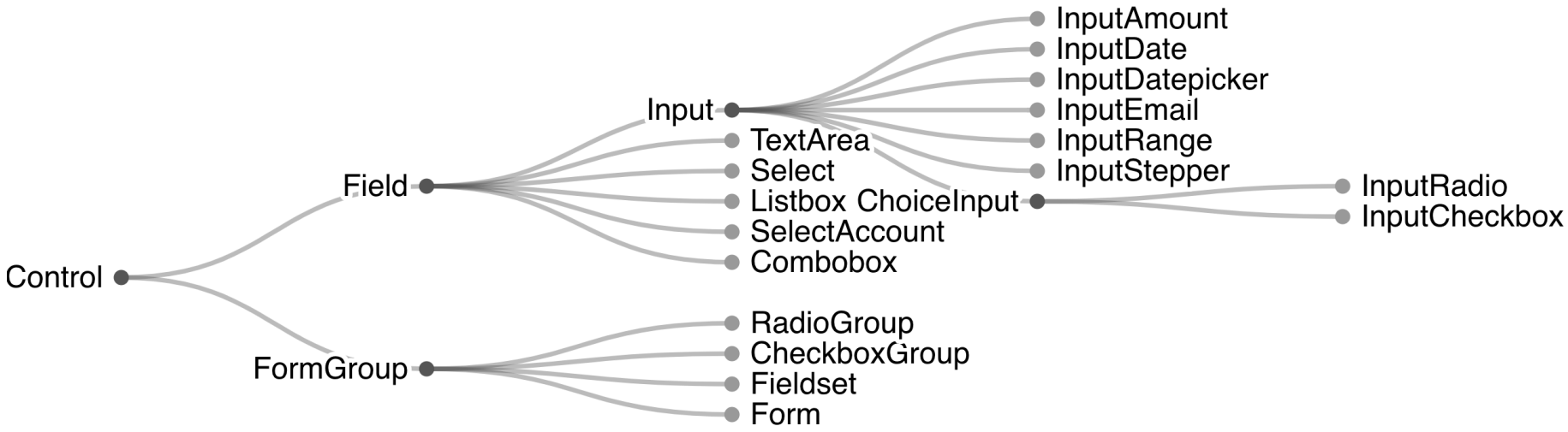

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B2. Anatomy of a FormControl (1)

```
<div class="form-field">
 <div class="form-field__group-one">
  <div class="form-field__label">
   <label slot="label" for="lion-input-gknnd0szvz" id="label-lion-input-gknnd0szvz">
    Zip Code
   </label>
  </div>

  <small class="form-field__help-text">
   <div slot="help-text" id="help-text-lion-input-gknnd0szvz"></div>
  </small>
 </div>

 <div class="form-field__group-two">
  <div class="input-group">
   <div class="input-group__before">
    <slot name="before"></slot>
   </div>

   <div class="input-group__container">
     <div class="input-group__input">
      <input slot="input"
       class="form-control”
       id="lion-input-gknnd0szvz"
       aria-invalid="false”
       aria-labelledby="label-lion-input-gknnd0szvz"
       aria-describedby="help-text-lion-input-gknnd0szvz feedback-lion-input-gknnd0szvz"
       type="text"
       name=”zipcode"/>"
   </div>
```

```
    <div class="input-group__suffix">
      <div slot="suffix">[suffix]</div>
    </div>
  </div>

  <div class="input-group__after">
    <slot name="after"></slot>
  </div>
 </div>

 <div class="form-field__feedback">
  <lion-validation-feedback-98328
    slot="feedback"
    aria-live="polite"
    id="feedback-lion-input-gknnd0szvz">
  </lion-validation-feedback-98328>
 </div>
</div>
</div>
```

theory of forms

B2. Anatomy of a FormControl (2)

Date

B3. Lion field api

theory of forms


```
<lion-input
  label=”Birth date”
  help-text=“DD/MM/YYYY”
  .validators="${[new Required()]}">
</lion-input>
```

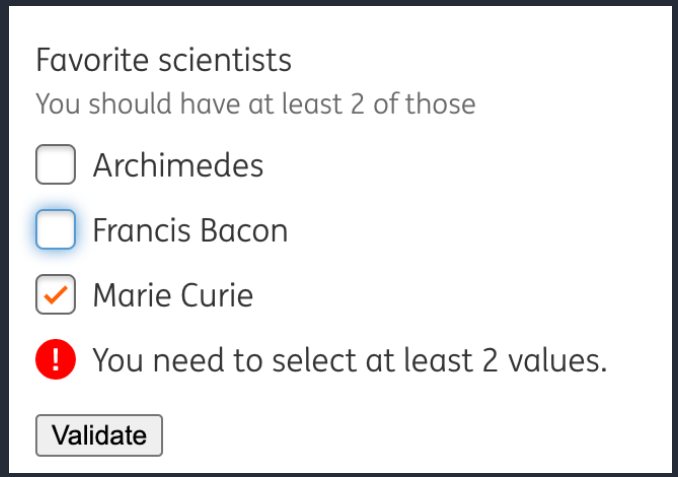
B4. Challenges with shadow dom

theory of forms

Aria id references must be in the same dom tree

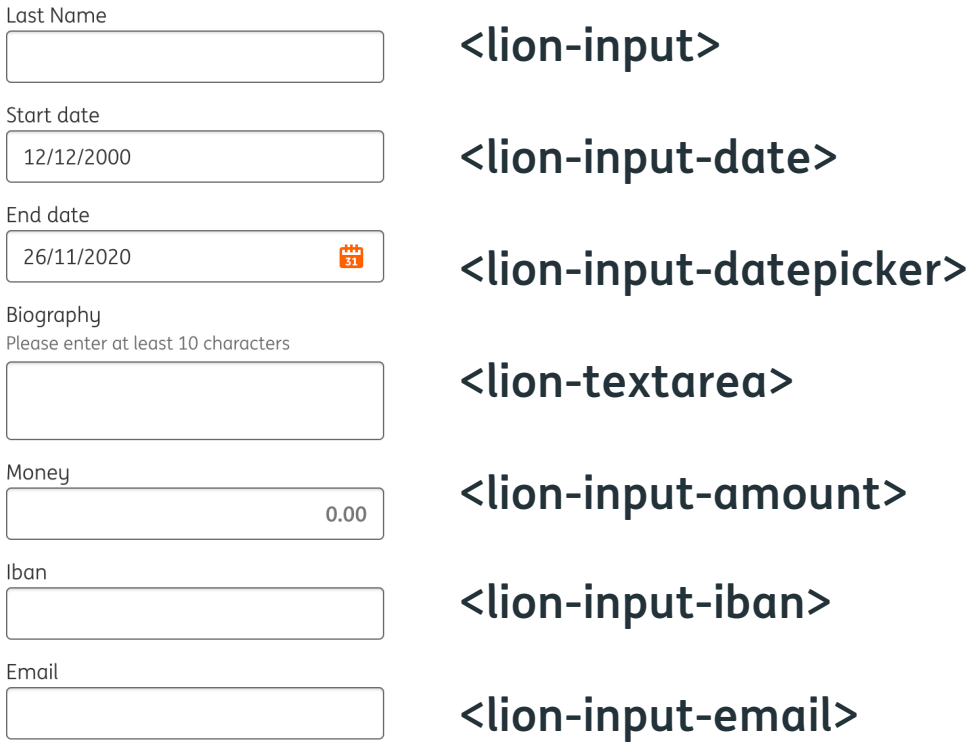
- Until Accessibility Object Model spec completed: leverage light dom
- Complex parent-child fieldset relations
- Compatibility with native form
- For components like combobox, select-account this gets quite complex

```
<form>
  <lion-checkbox-group>
    #shadow-root
    <lion-validation-feedback id="group-message">
      You need to select at least 2 values
    </lion-validation-feedback>

    <input type=checkbox aria-describedby="group-message">

  </lion-checkbox-group >
```



B5. Lion controls overview (1)

theory of forms



<lion-input>

<lion-input-date>

<lion-input-datepicker>

<lion-textarea>

<lion-input-amount>

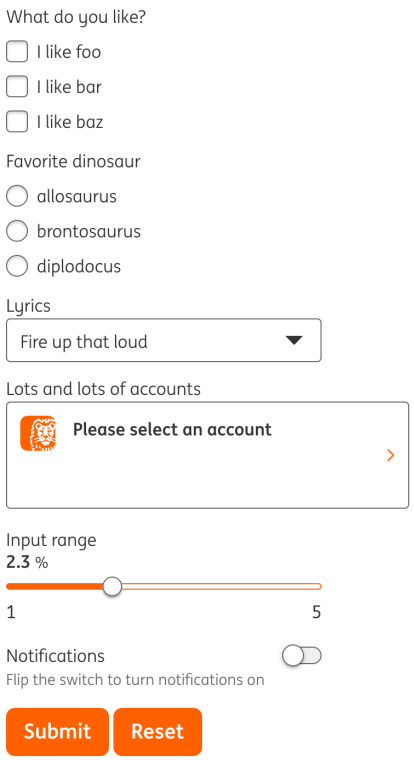
<lion-input-iban>

<lion-input-email>

https://webdemos.feature-testing.ing.net/25277-master/?path=/docs/forms-features-overview--main

B5. Lion controls overview (2)

theory of forms



<lion-checkbox-group>, <lion-checkbox>

<lion-radio-group>, <lion-radio>

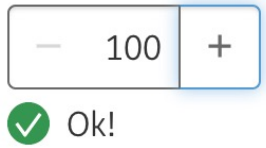
<lion-select>

<lion-select-account>

<lion-input-range>

<lion-switch>

<lion-button>



<lion-input-stepper>

<lion-chip-choice-group>

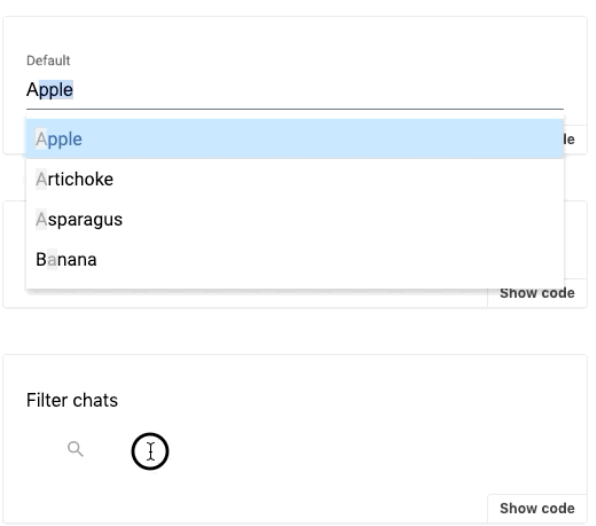
Note: the button was especially made compatible with the native form

B5. Lion controls overview (3)

More to come:

<lion-input-file>

<lion-combobox>



theory of forms

And we have many more features:

- Advanced modelValues
- Formatting, parsing, serialization
- Advanced validation
- Interaction states
- etc...

Feedback or questions?