

Webcomponents

canoo Engineering AG
2015





About us

```
<speaker name=„Michael Heinrichs“  
  company=„Canoo Engineering AG“  
  web=„blog.netopyr.com“  
  twitter=„@net0pyr“  
  description=„UI Magician, Active writer  
    and speaker“>  
</speaker>
```



```
<speaker name=„Hendrik Ebbers“  
  company=„Canoo Engineering AG“  
  web=„www.guigarage.com“  
  twitter=„@hendrikEbbers“  
  description=„JUG lead, blogger,  
    book author, JSR EC Member“>  
</speaker>
```



☰ Content

- The web component specification
- Web component polyfills
- Polymer
- Perspectives



Revolution of the web





Bower

- A package manager for the web
- Search for dependencies and install them as packages
- Created by Twitter
- Open Source

www.bower.io



Bower

requires npm, node.js and git

```
$ npm install -g bower
```

in your project folder

```
$ bower init
```

*download &
add module*

*add dependency to
bower file*

```
$ bower install --save webcomponentsjs
```


What to Watch

- BEST OF YOUTUBE
- Popular on YouTube
- Music
- Sports
- Gaming
- Movies
- News

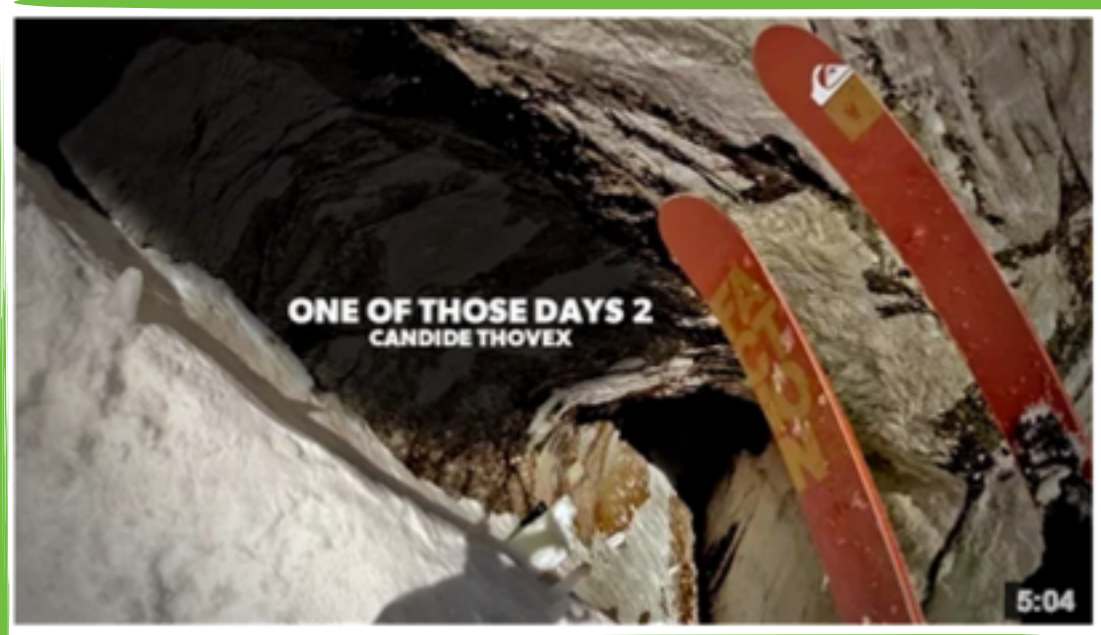
Browse channels

Sign in now to see your channels and recommendations!

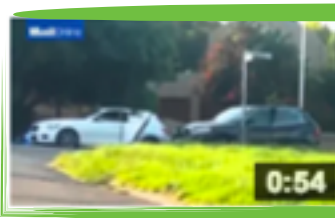
Sign In

What to Watch Music

Choose your language. You're viewing YouTube in English (US). You can change this preference below. Learn more



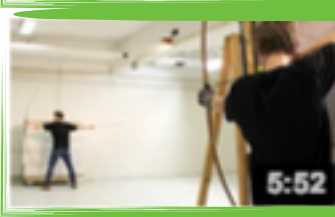
One of those days 2 - Candide Thovex
 by Candide Thovex
 12,168,667 views • 1 week ago



Dramatic footage filmed by woman who thought she was watching police arrest a woman... only to real
 by Carrie Allison
 47,948 views • 6 days ago

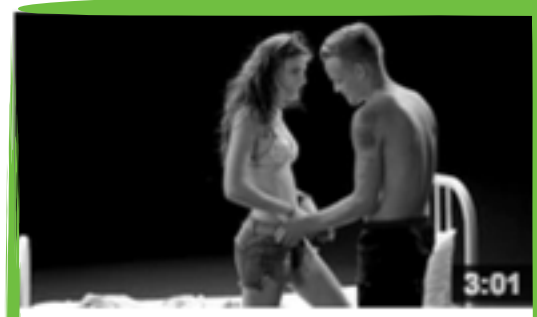


'Bart' The 'Zombie Cat' Claws Its Way Back From The Dead
 by lugamedia
 152,464 views • 1 day ago

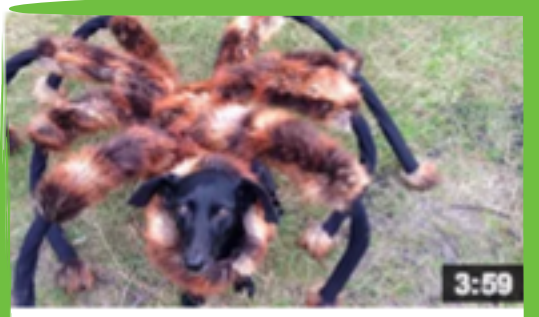


Lars Andersen: a new level of archery
 by larsandersen23
 22,026,712 views • 6 days ago

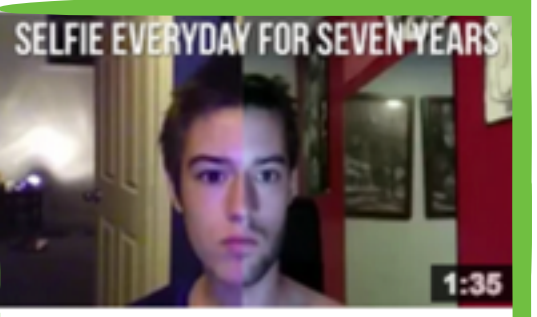
Popular on YouTube - Switzerland Recommended channel



UNDRESS ME
 by Tatia Pllieva
 19,864,541 views • 6 months ago



Mutant Giant Spider Dog (SA Wardega)
 by SA Wardega
 129,461,366 views • 4 months ago



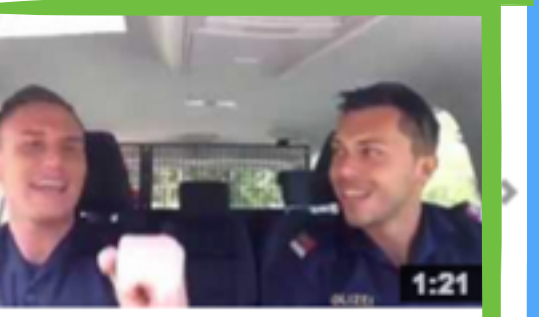
Selfie everyday for 7 years
 • 12 yrs old to 19 yrs old!...
 by Hugo Cornellier
 5,350,552 views • 6 months ago



Phone 6 Plus Bend Test
 by Unbox Therapy
 33,704,941 views • 4 months ago



[FULL HD] UTair Aviation
 767-300 NEAR MISS? GO...
 by Barcelona-EI Prat In'tl
 28,776,077 views • 6 months ago



Polizisten hören Helene Fischer's 'Atemlos' im...
 by Spass MussSein
 3,542,577 views • 6 months ago

Subscribe 128,657

Cyprien Recommended channel



Cyprien - Noël
 by Cyprien
 13,862,593 views • 1 year ago



LES téléphones - Cyprien
 by Cyprien
 15,552,898 views • 3 years ago



Cyprien - L'école
 by Cyprien
 20,670,324 views • 1 year ago



Cyprien - Les geeks
 by Cyprien
 18,941,535 views • 2 years ago



Cyprien - Le vol
 by Cyprien
 15,145,986 views • 2 years ago



Cyprien - Les maniaques de l'hygiène
 by Cyprien
 14,367,822 views • 1 year ago

Subscribe 6,714,670

shakiraVEVO Recommended channel

Subscribe 6,191,082


```
<li class="yt-shelf-grid-item yt-uix-shelfslider-item">
  <div class="yt-lockup yt-lockup-grid yt-lockup-video vve-check clearfix"
    data-context-item-id="naiLVvuPCAw"
    data-visibility-tracking=
      "CFEQpDAYBSITCM70r_3JucMCFY6yHAodHk0ANii0HkCMkLzc7-qi1J0B">
    <div class="yt-lockup-dismissable">
      <div class="yt-lockup-thumbnail contains-addto">
        <a aria-hidden="true" href="/watch?v=naiLVvuPCAw"
          class=" yt-uix-sessionlink      spf-link "
          data-sessionlink=
            "itct=CFEQpDAYBSITCM70r_3JucMCFY6yHAodHk0ANii0HjIKZy1oaWdoLXJjaA">
          <div class="yt-thumb video-thumb">
            
          </div>
        </div>
      </div>
    </div>
  </div>
</li>
```

Web Applications
Today





iPhone 6 Plus Bend Test

by Unbox Therapy ✓

63,704,941 views • 4 months ago



Web Applications Today

```
<li class=" yt-uix-shelfslider-item">
  <div class="yt-lockup yt-lockup-grid yt-lockup-video vve-check clearfix" data-context-item-id="naiLVvuPCAw"
    data-visibility-tracking="CFEQpDAYBSITCM70r_3JucMCFY6yHAodHk0ANii0HjIKZy1oaWdoLXJjaA">
    <div class="yt-lockup-dismissable">
      <div class="yt-lockup-thumbnail contains-addto">
        <a aria-hidden="true" href="/watch?v=naiLVvuPCAw" class=" yt-uix-sessionlink   spf-link "
          data-sessionlink="itct=CFEQpDAYBSITCM70r_3JucMCFY6yHAodHk0ANii0HjIKZy1oaWdoLXJjaA">
          <div class="yt-thumb video-thumb">
            
          </div>
          <span class="video-time" aria-hidden="true">1:21</span>
        </a>
        <span class="thumb-menu dark-overflow-action-menu video-actions">
          <button onclick=";return false;"
            class="yt-uix-button-reverse flip addto-watch-queue-menu spf-nolink hide-until-delayloaded yt-uix-button yt-uix-button-dark-overflow-action-menu yt-uix-button-size-default yt-uix-button-has-icon no-icon-markup yt-uix-button-empty"
            aria-expanded="false" aria-haspopup="true" type="button">
          <span class="yt-uix-button-arrow yt-sprite"></span>
          <ul class="watch-queue-thumb-menu yt-uix-button-menu yt-uix-button-menu-dark-overflow-action-menu" style="display: none;">
            <li role="menuitem" class="overflow-menu-choice addto-watch-queue-menu-choice addto-watch-queue-play-next yt-uix-button-menu-item"
              data-action="play-next" onclick=";return false;" data-video-ids="naiLVvuPCAw">
              <span class="addto-watch-queue-menu-text">Play next</span>
            </li>
            <li role="menuitem" class="overflow-menu-choice addto-watch-queue-menu-choice addto-watch-queue-play-now yt-uix-button-menu-item"
              data-action="play-now" onclick=";return false;" data-video-ids="naiLVvuPCAw">
              <span class="addto-watch-queue-menu-text">Play now</span>
            </li>
          </ul>
        </span>
        <button class="yt-uix-button yt-uix-button-size-small yt-uix-button-default yt-uix-button-empty yt-uix-button-has-icon no-icon-markup addto-button video-actions spf-nolink hide-until-delayloaded addto-watch-later-button-sign-in yt-uix-tooltip"
          type="button" onclick=";return false;" title="Watch Later" role="button"
          data-video-ids="naiLVvuPCAw" data-button-menu-id="shared-addto-watch-later-login"><span
            class="yt-uix-button-arrow yt-sprite"></span></button>
        <button class="yt-uix-button yt-uix-button-size-small yt-uix-button-default yt-uix-button-empty yt-uix-button-has-icon no-icon-markup addto-button addto-queue-button video-actions spf-nolink hide-until-delayloaded addto-tv-queue-button yt-uix-
tooltip"
          type="button" onclick=";return false;" title="TV Queue" data-video-ids="naiLVvuPCAw"
          data-style="tv-queue"></button>
      </div>
      <div class="yt-lockup-content">
        <h3 class="yt-lockup-title">
          <a href="/watch?v=naiLVvuPCAw"
            class=" yt-ui-ellipsis yt-ui-ellipsis-2 yt-uix-sessionlink   spf-link "
            data-sessionlink="itct=CFEQpDAYBSITCM70r_3JucMCFY6yHAodHk0ANii0HjIKZy1oaWdoLXJjaA"
            title="Polizisten hören Helene Fischer&#39;s &#39;Atemlos&#39; im Polizeiauto"
            aria-describedby="description-id-439757"
            dir="ltr">Polizisten hören Helene Fischer&#39;s&#39;Atemlos&#39; im Polizeiauto</a>
          <span class="accessible-description" id="description-id-439757"> - Duration: 1:21.</span>
        </h3>
        <div class="yt-lockup-byline">by <a href="/user/djgreyhair class=" yt-uix-sessionlink   spf-link g-hovercard" data-name=""
          data-sessionlink="itct=CFEQpDAYBSITCM70r_3JucMCFY6yHAodHk0ANii0Hg" data-ytid="UCCBrSuWhYxpwZYSTY7kkB4A">Spass MussSein</a>
        </div>
        <div class="yt-lockup-meta">
          <ul class="yt-lockup-meta-info">
            <li>3,542,577 views</li>
            <li>6 months ago</li>
          </ul>
        </div>
      </div>
    </div>
  </div>
</li>
```

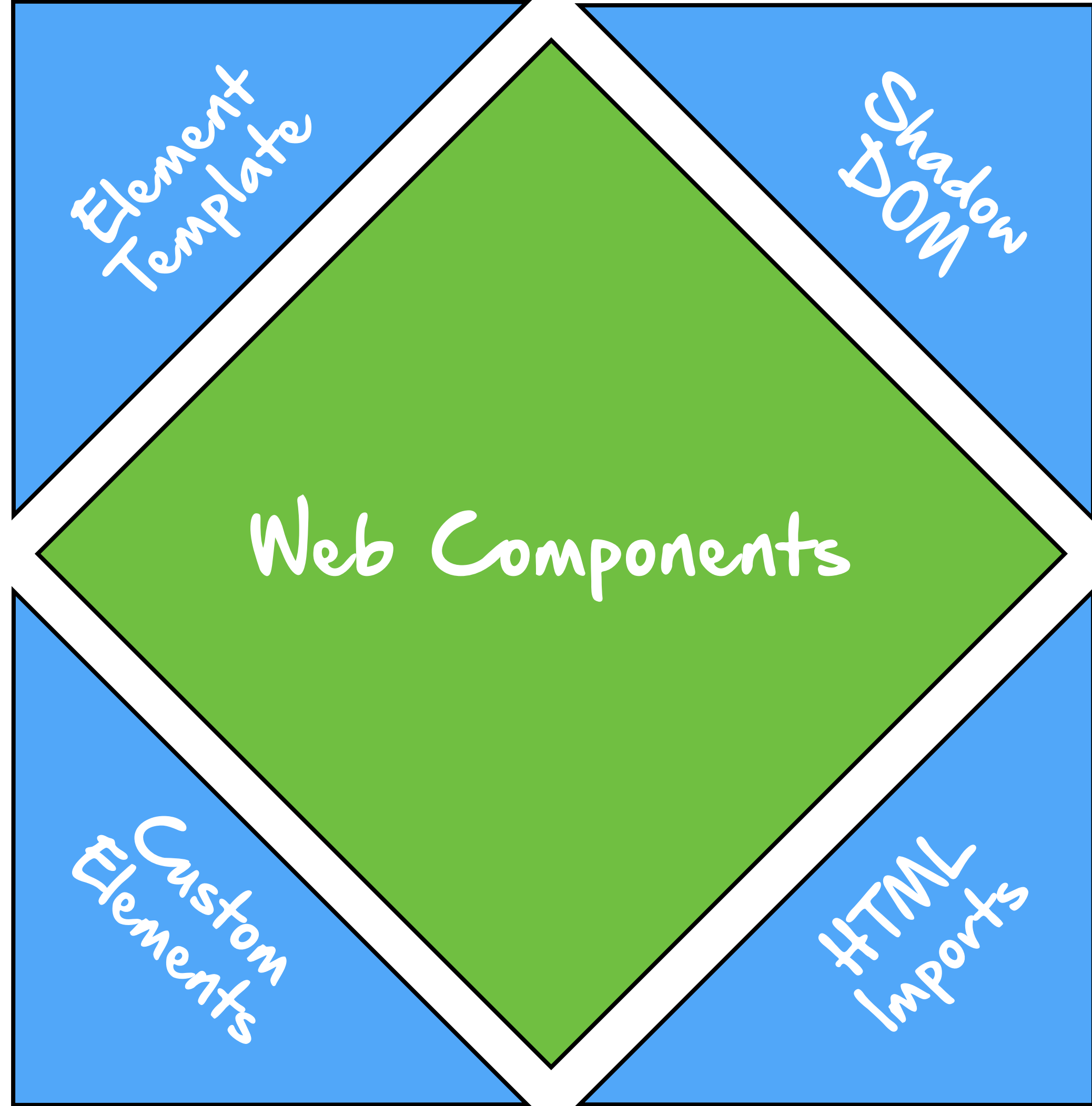
```
<shelf  
  title="Popular on YouTube - Switzerland"  
  subscribers="128,657">
```

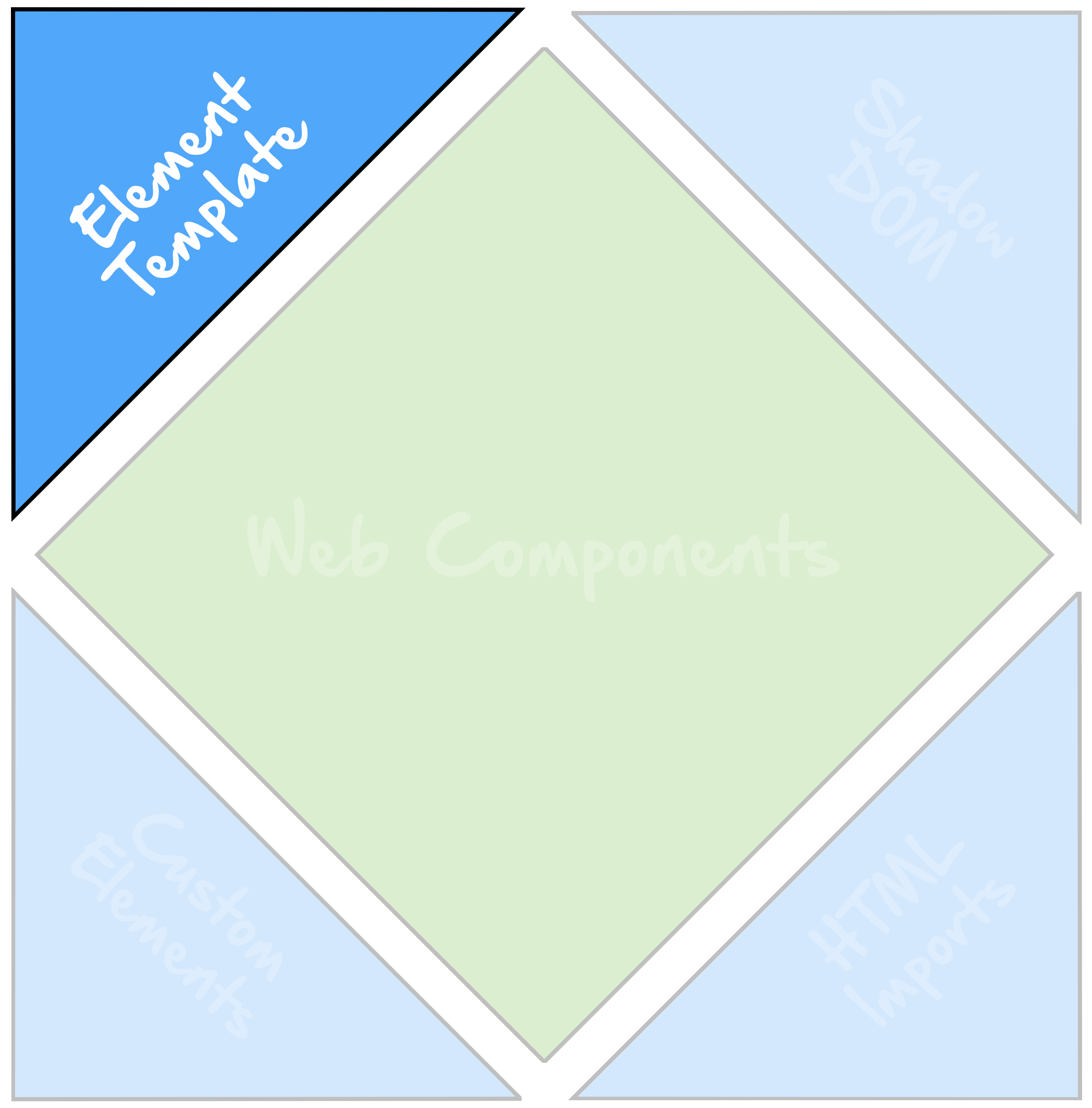
```
<shelf-grid-item  
  title="iPhone 6 Plus Bend Test"  
  url="https://www.youtube.com/watch?v=znK652H6yQM"  
  thumbnail="https://i.ytimg.com/vi\_webp/znK652H6yQM/mqdefault.webp"  
  user="Unbox Therapy"  
  userUrl="https://www.youtube.com/user/unboxtherapy"  
  views="63,732,280"  
  time="4 months ago">
```

...

Web Applications
Tomorrow







Activities



And **Michael** did that again.

Seconds ago



Hendrick did this again.

Minutes ago



Michael did that.

1 hour ago



Hendrick did this.

Yesterday



```
<div class="activity-stream">
  <h2>Activities</h2>
  <div class="activity">
    
    <div class="time">Seconds ago</div>
    <div class="content"><a>Michael</a> had fun coding.</div>
  </div>
  <div class="activity">
    
    <div class="time">Minutes ago</div>
    <div class="content"><a>Hendrick</a> blogged on GuiGarage.</div>
  </div>
  ...
</div>
```

<template>




```
<div class="activity-stream">
  <h2>Activities</h2>
  <div class="activity">
    
    <div class="time">Seconds ago</div>
    <div class="content"><a>Michael</a> had fun coding.</div>
  </div>
  <div class="activity">
    
    <div class="time">Minutes ago</div>
    <div class="content"><a>Hendrick</a> did this again.</div>
  </div>
  ...
</div>
```

```
<template id="activity-template">  
  <div>  
    <img class="icon" src="" width="40" height="40">  
    <div class="time"></div>  
    <div class="content"></div>  
  </div>  
</template>
```

template tag

copy boilerplate

```
<div class="activity">  
    
  <div class="time">Seconds ago</div>  
  <div class="content"><a>Michael</a> had fun coding.</div>  
</div>
```

```
<template id="activity-template">
  <div>
    <img class="icon" src="" width="40" height="40">
    <div class="time"></div>
    <div class="content"></div>
  </div>
</template>
```

```
var template = document.querySelector('#activity-template');
```

```
var clone = document.importNode(template.content, true);
```

```
document.body.appendChild(clone);
```

 use content property

```
<template id="activity-template">
  <div>
    
    <div class="time">{{item.time}}</div>
    <div class="content">{{item.content}}</div>
  </div>
</template>
```

No Data Binding



↑
22+



↑
26+ and
Android 4.4+

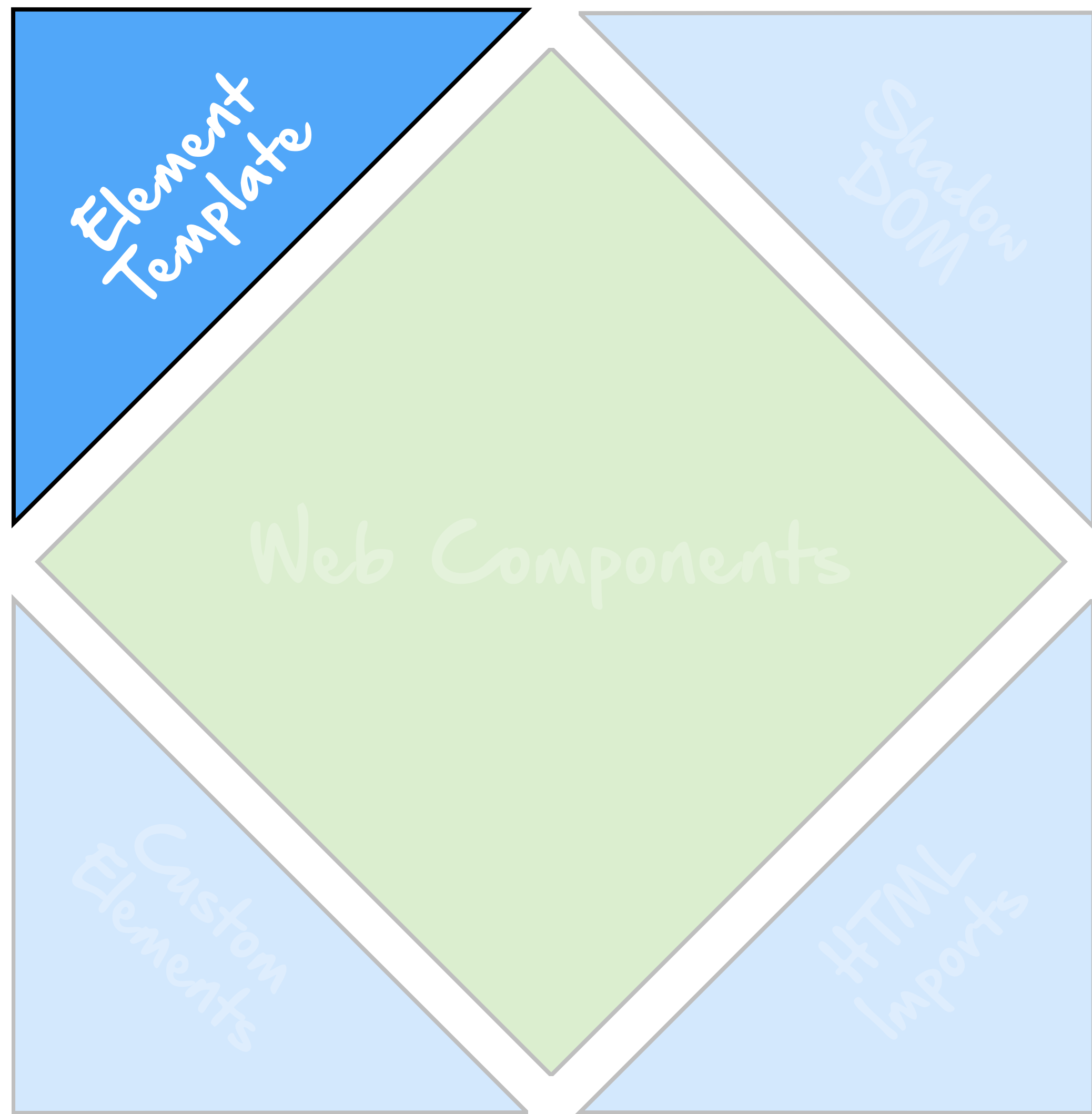


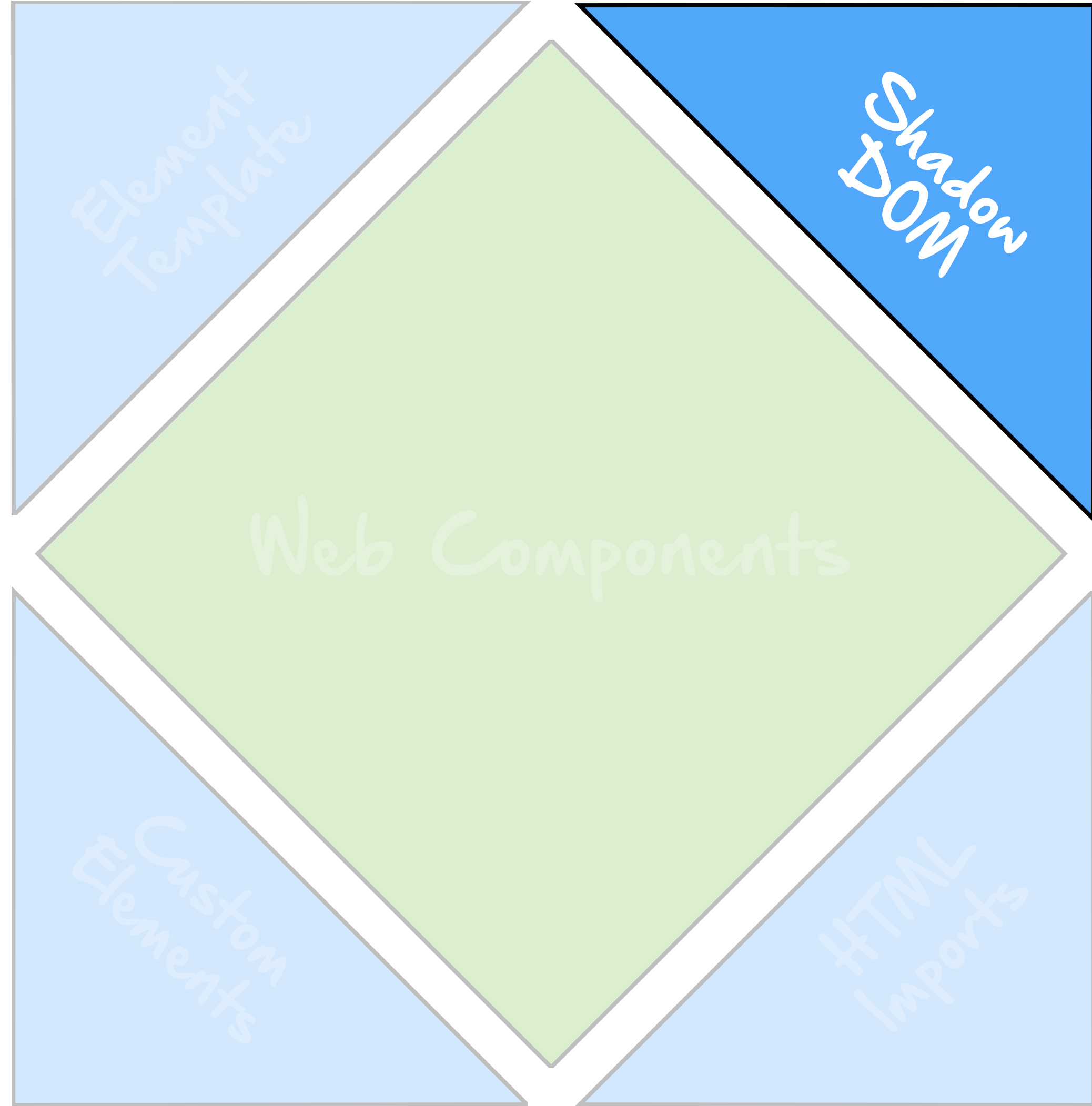
↑
7.1+

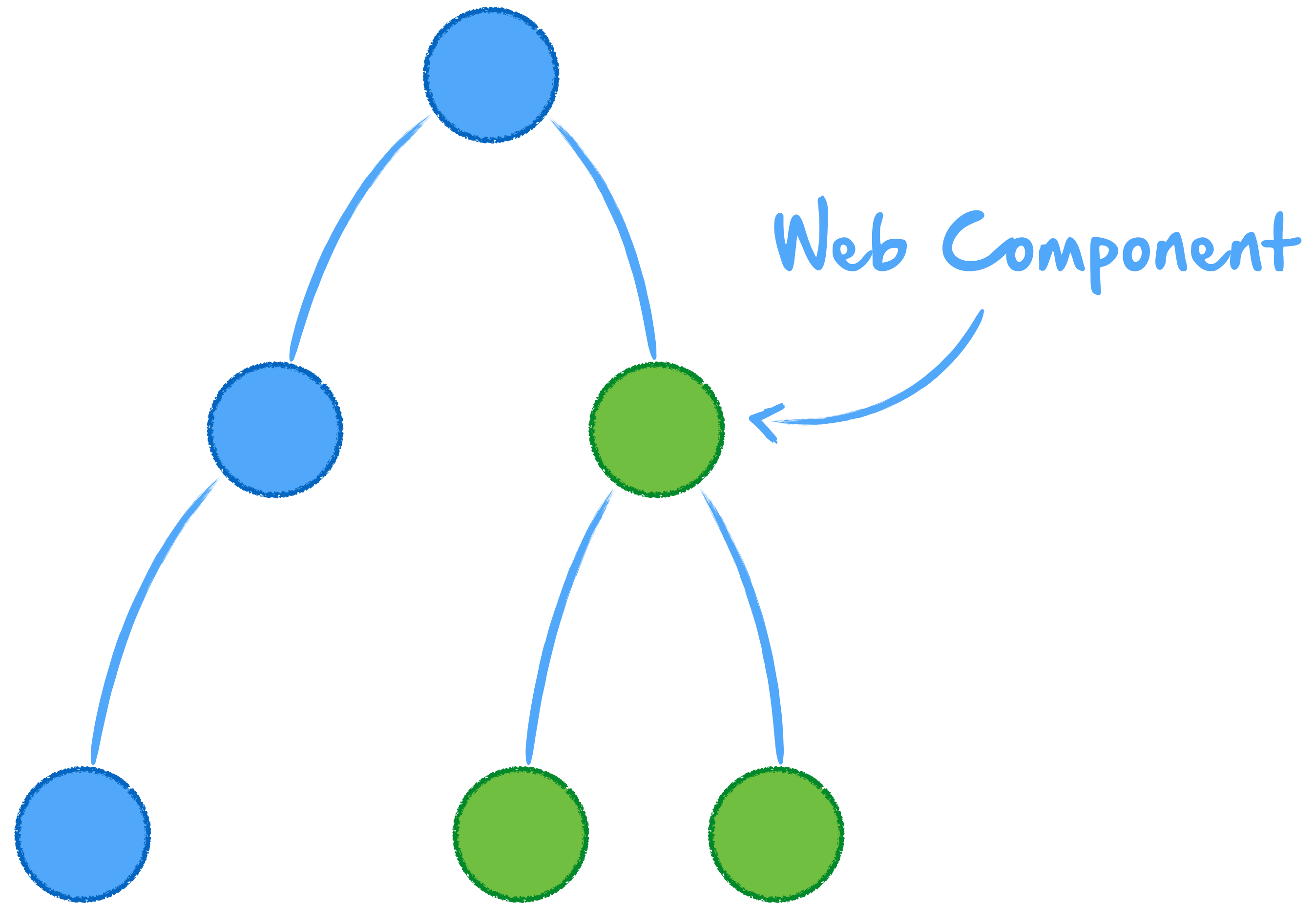


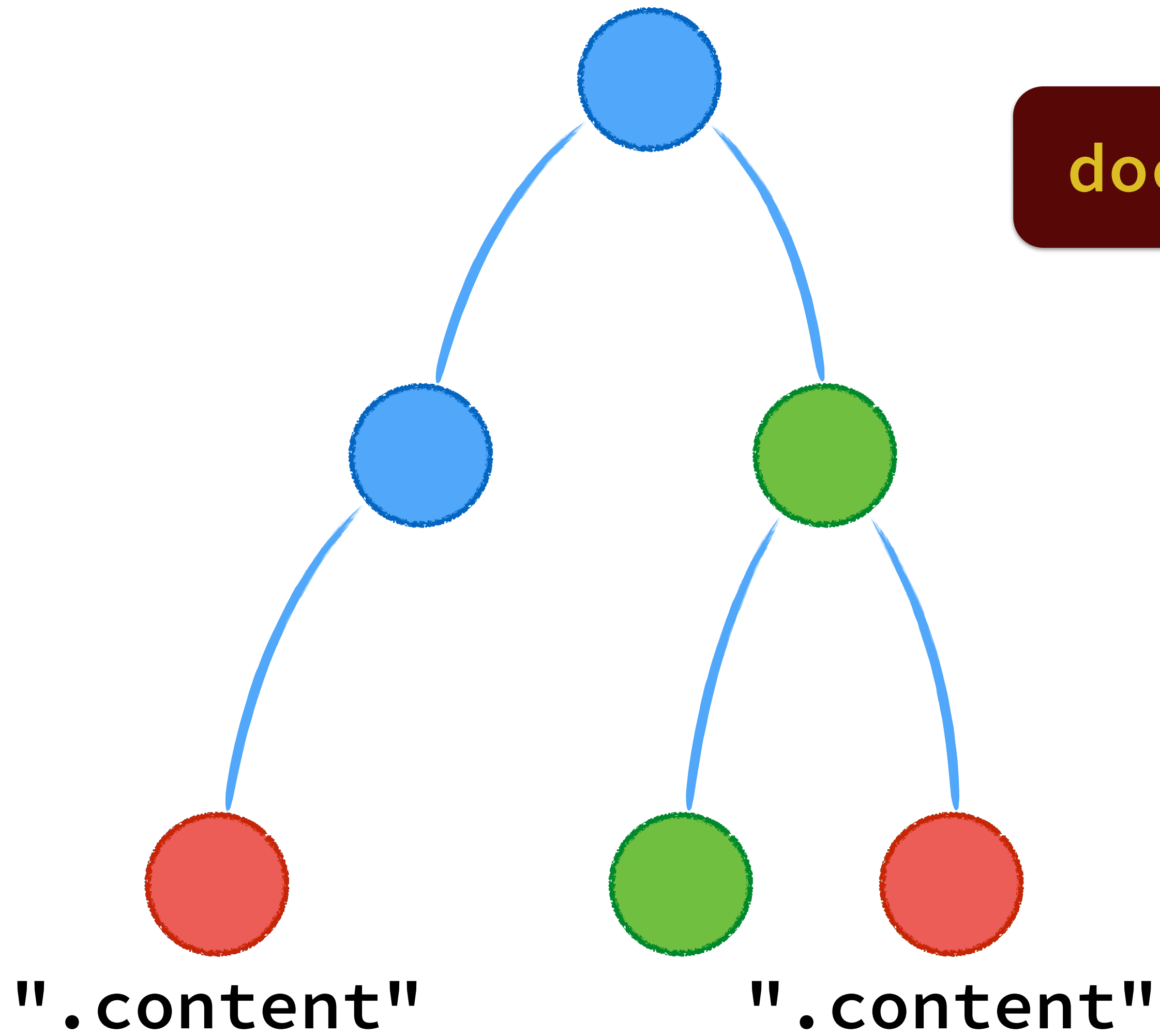
↑
15+







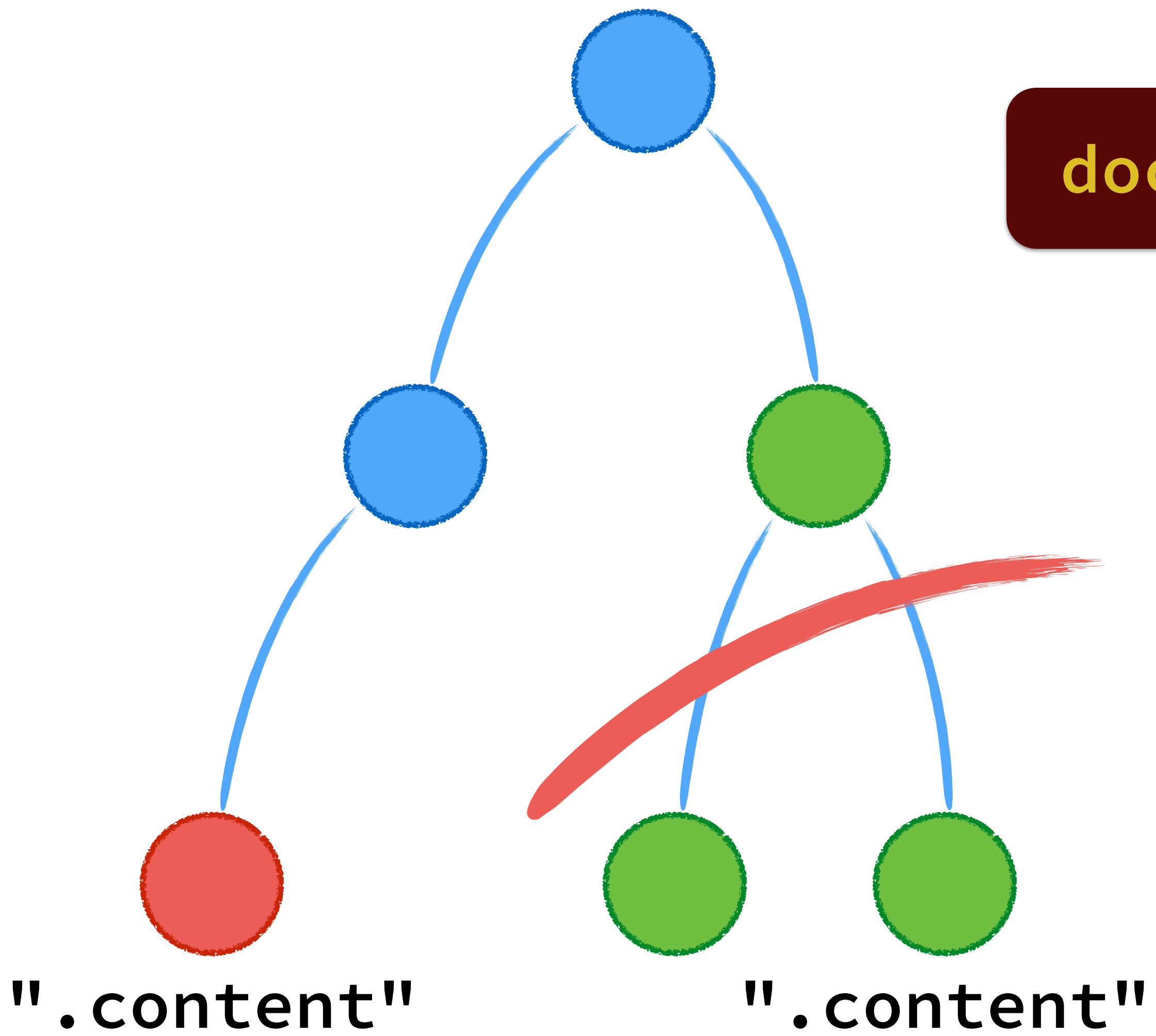




```
document.querySelector(".content")
```

```
.content {  
  color: blue;  
}
```





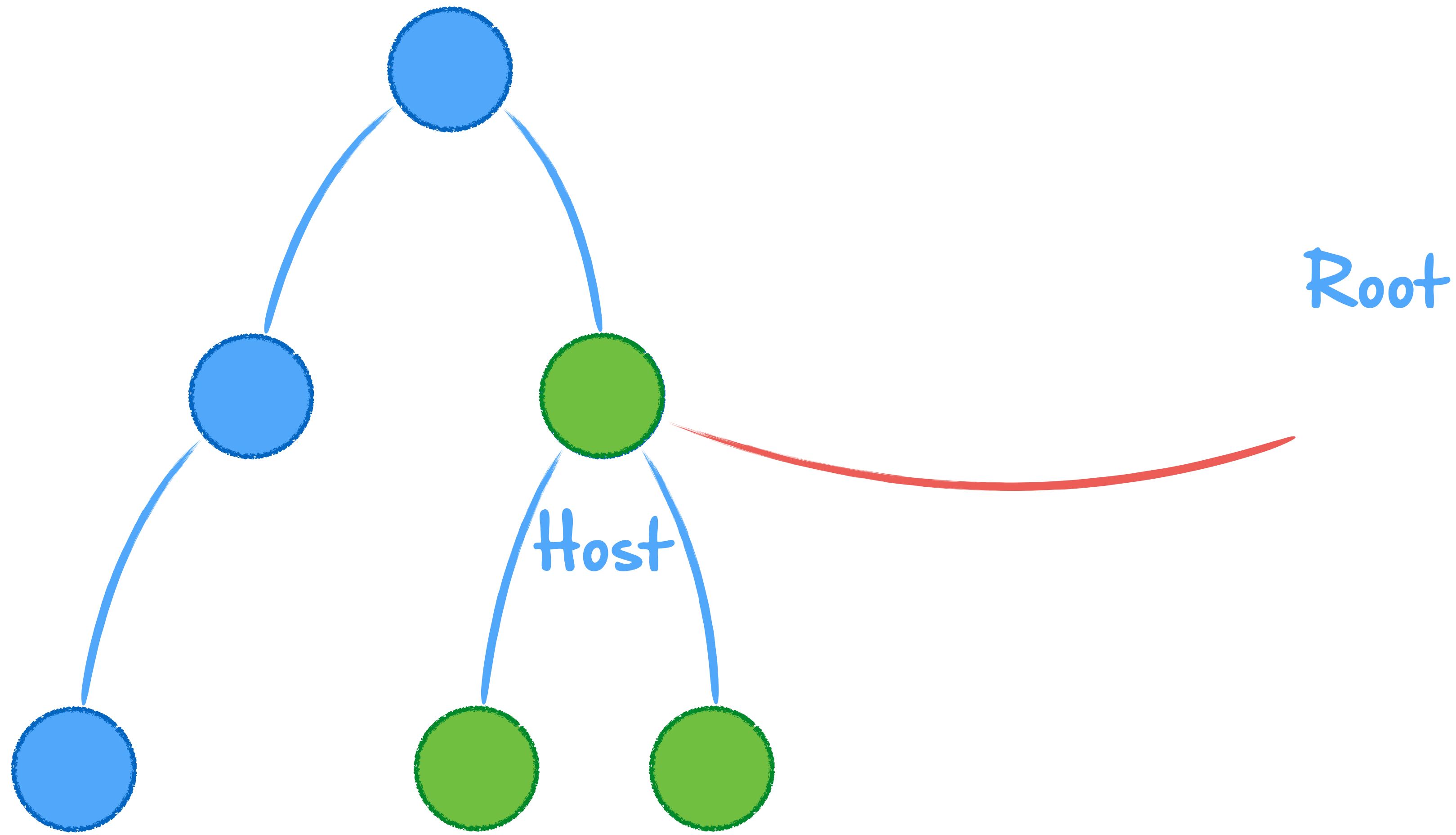
```
document.querySelector(".content")
```

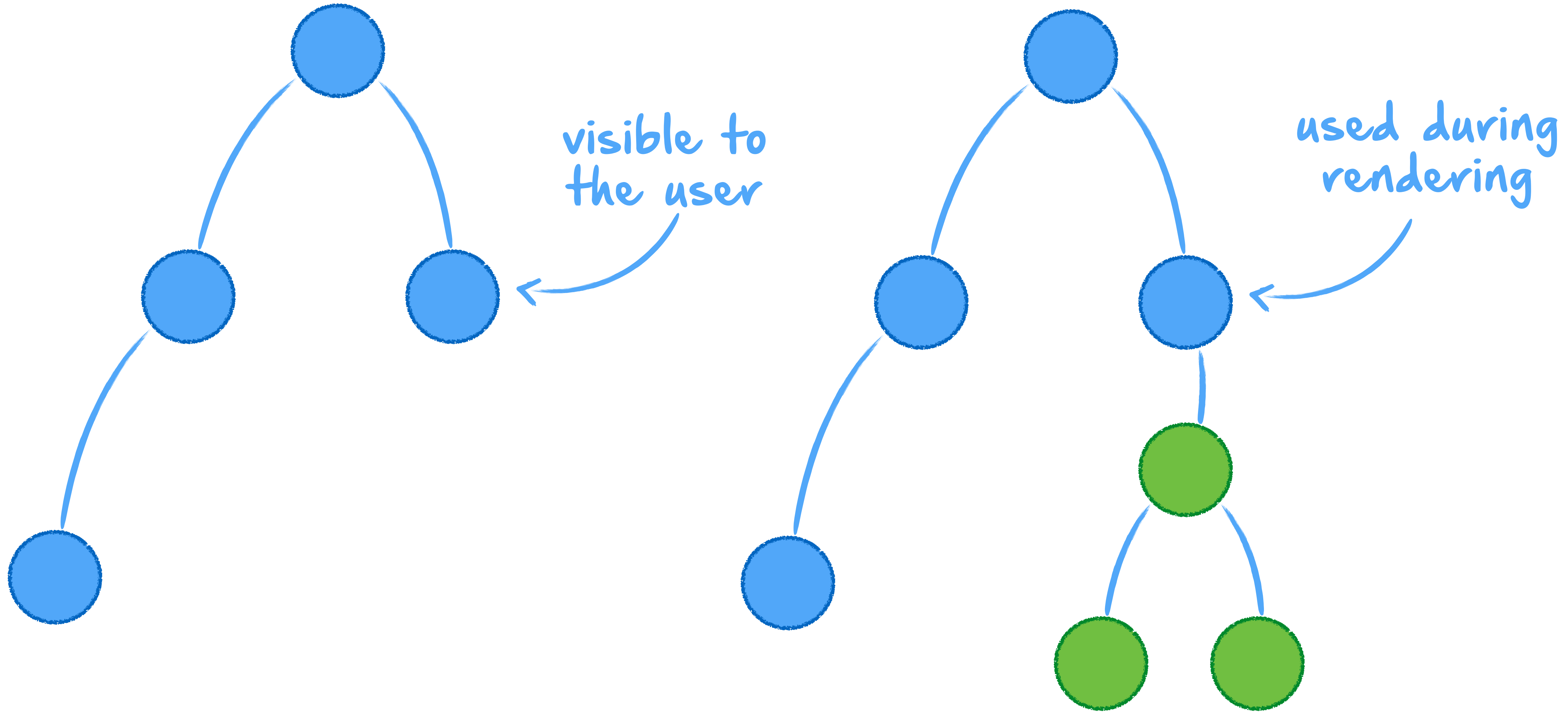
```
.content {  
  color: blue;  
}
```

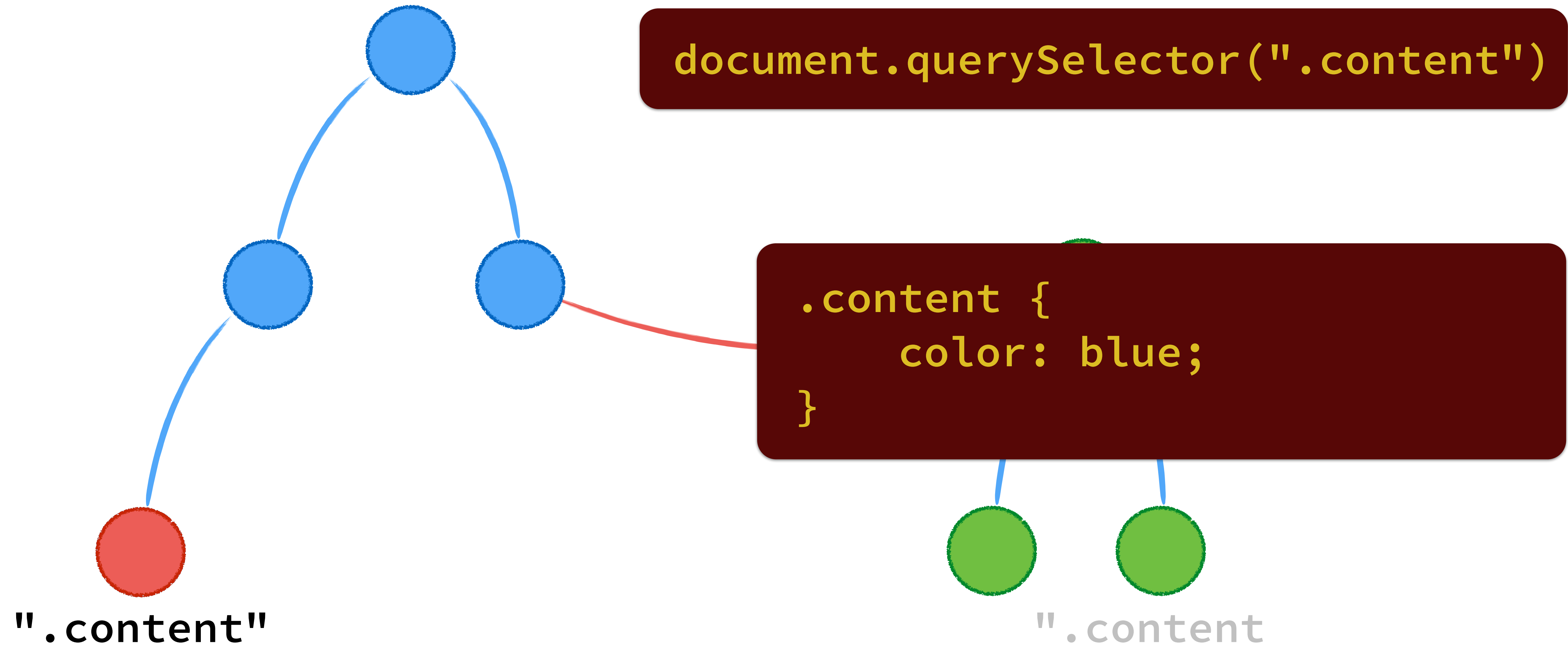


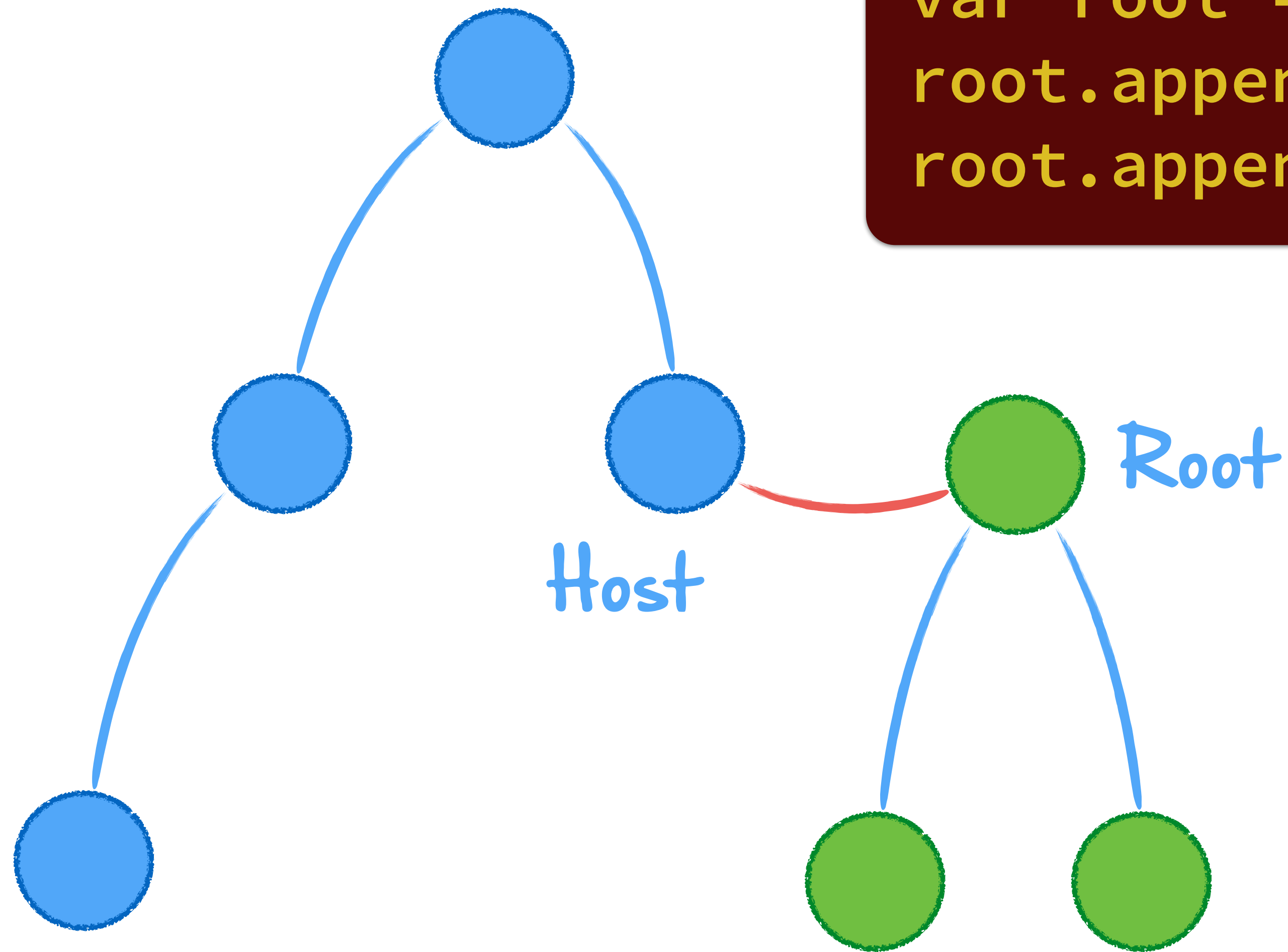
Shadow DOM





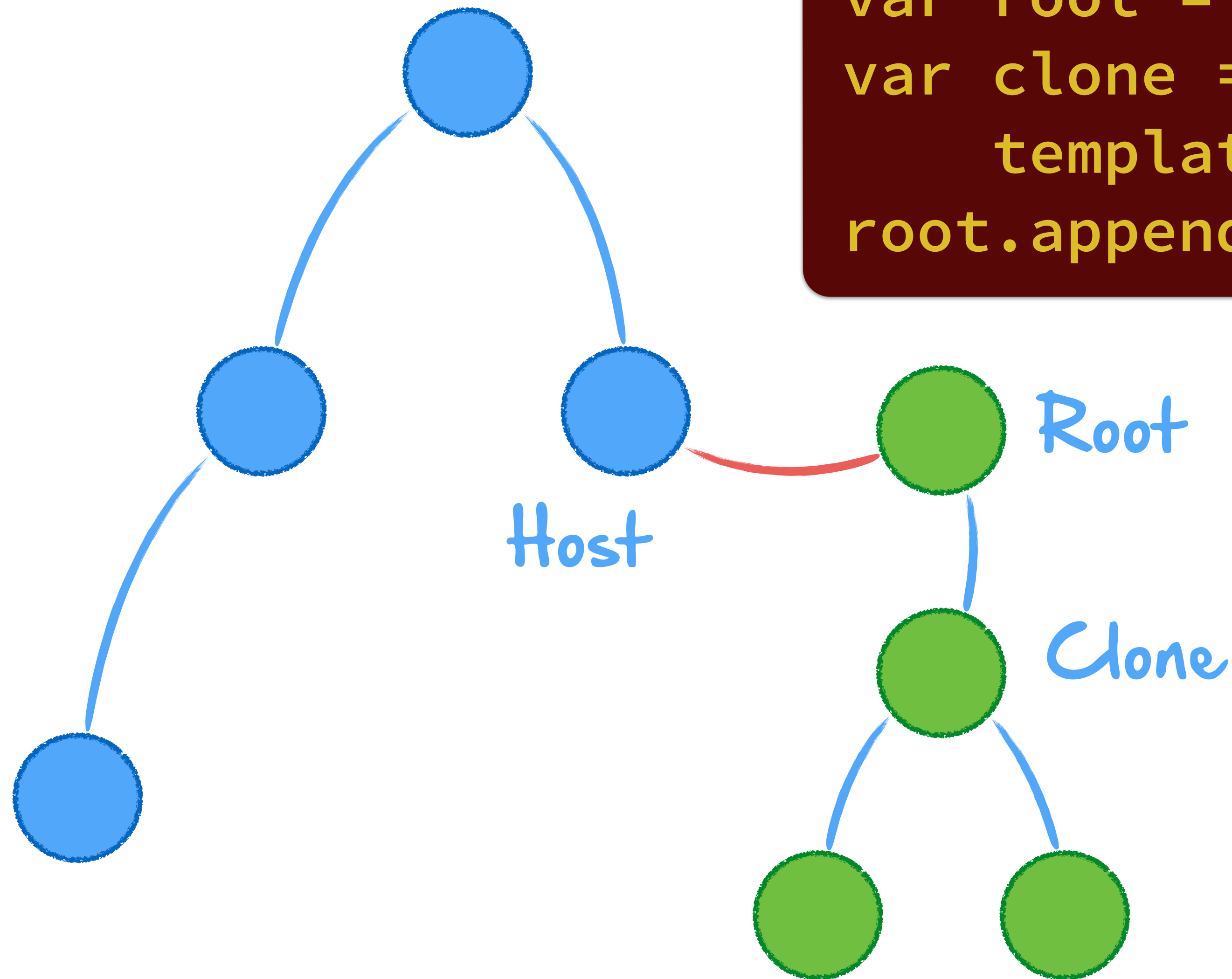




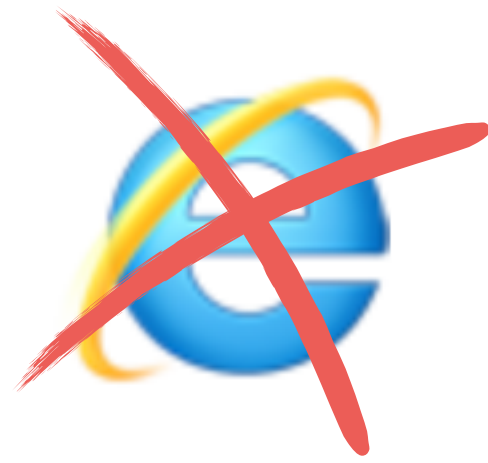
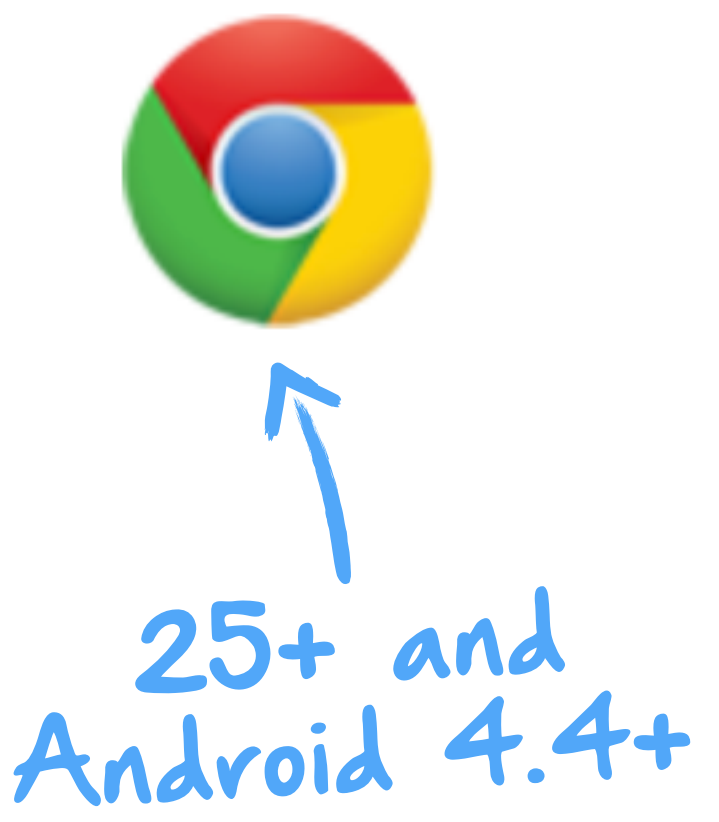


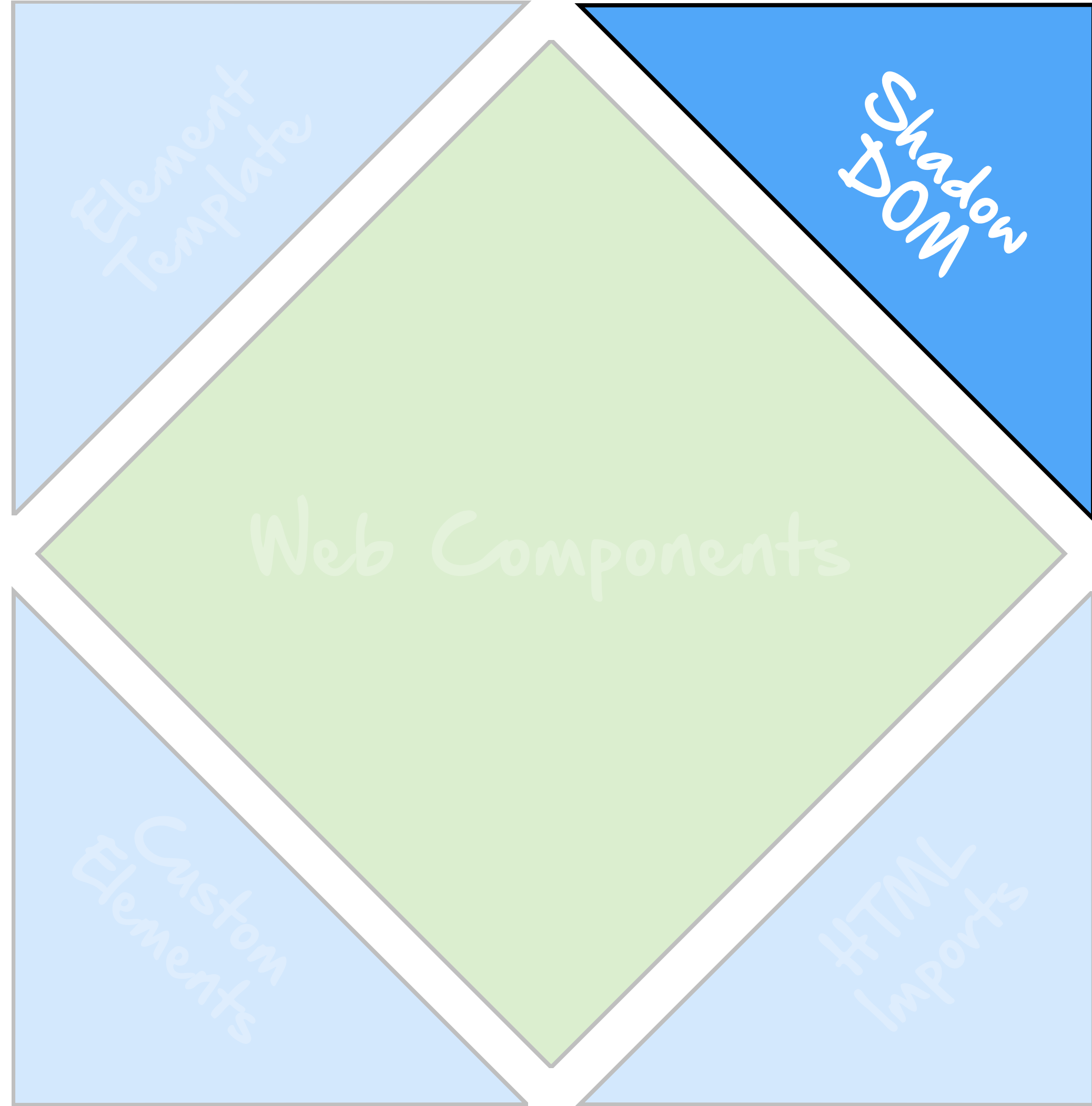
```
var root = host.createShadowRoot();  
root.appendChild(child1);  
root.appendChild(child2);
```

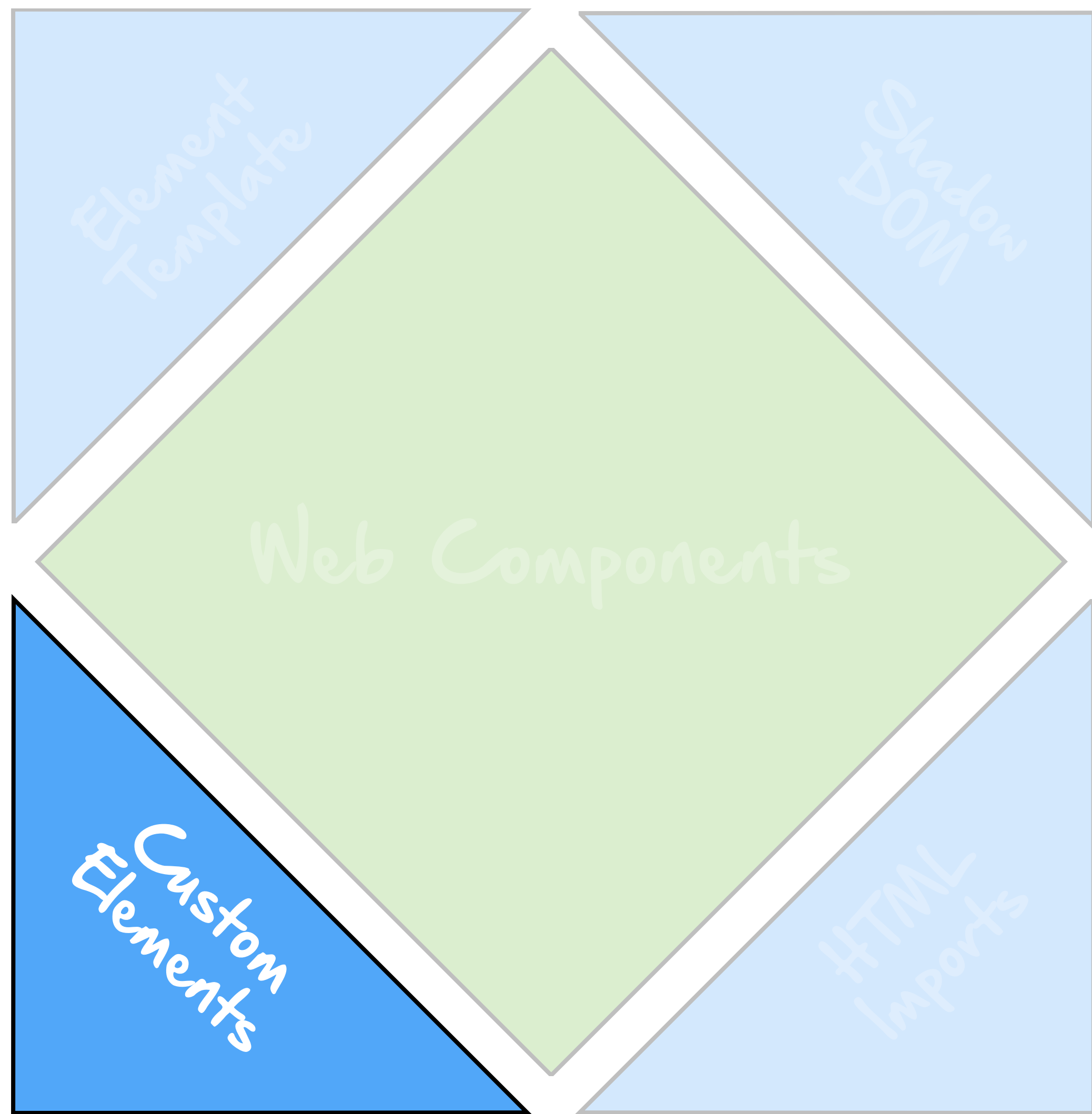




```
var root = host.createShadowRoot();  
var clone = document.importNode(  
  template.content, true);  
root.appendChild(clone);
```








```
<div class="activity">  
  <a>Michael</a> had fun coding.  
</div>
```

How do we store the icon source and time?

What is a `<div>` with the class "activity" anyway?

```
<div class="activity">  
  <a>Michael</a> had fun coding.  
</div>
```

```
<activity-card iconSrc="img/michael.jpg" time="Seconds ago">  
  <a>Michael</a> had fun coding.  
</activity-card>
```

Custom Elements



```
var activityCardPrototype = Object.create(HTMLElement.prototype);  
  
var options = {prototype: activityPrototype}  
document.registerElement("activity-card", options);
```

Rough translation
to Java

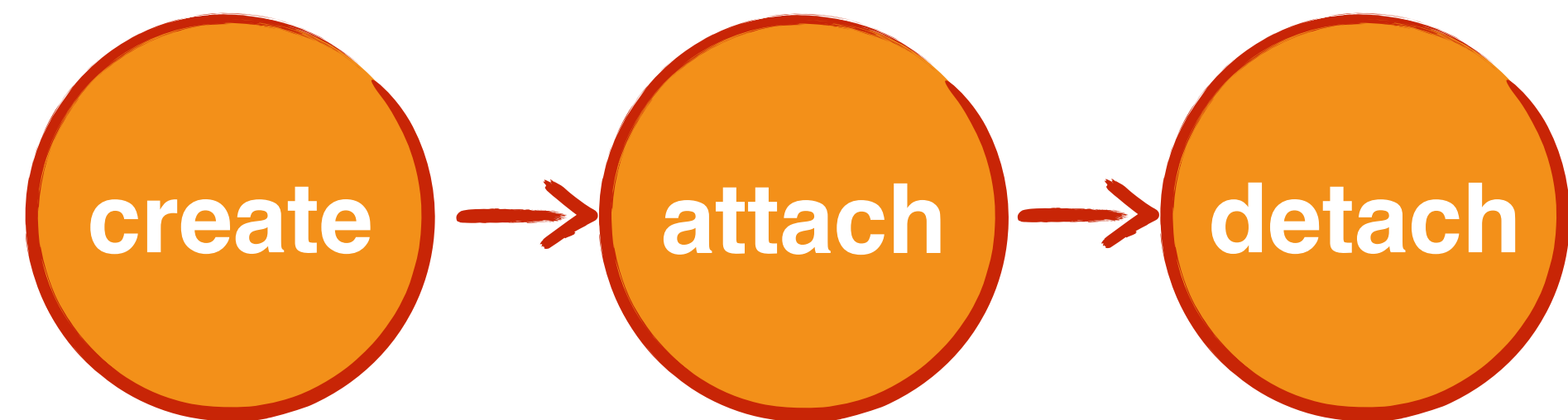


```
class ActivityCard extends HTMLElement {};  
Class<ActivityCard> activityCardClass = ActivityCard.class;  
  
ElementRegistrationOptions options =  
    new ElementRegistrationOptions(activityCardClass);  
document.registerElement("activity-card", options);
```



```
var activityCardPrototype = Object.create(HTMLElement.prototype);  
  
var options = {prototype: activityPrototype}  
document.registerElement("activity-card", options);
```

```
<activity-card iconSrc="img/michael.jpg" time="Seconds ago">  
  <a>Michael</a> had fun coding.  
</activity-card>
```



createdCallback

attachedCallback

detachedCallback



attributeChangedCallback

(attrName, oldVal, newVal)



```
var activityPrototype = Object.create(HTMLElement.prototype);

activityPrototype.createdCallback = function() {
  var template = $("#activity-template");
  var clone = document.importNode(template.content, true);

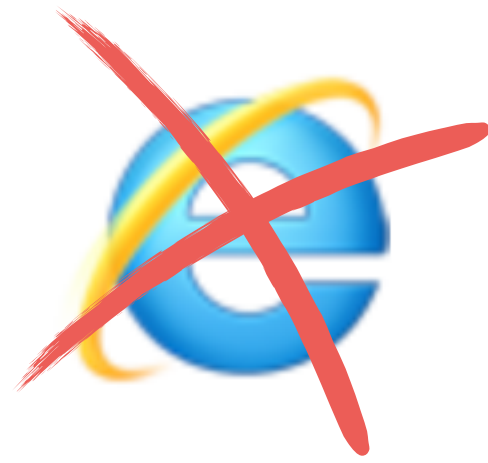
  var host = $(this);
  $(".icon", clone).attr("src", host.attr("iconSrc"));
  $(".time", clone).text(host.attr("time"));

  var shadow = this.createShadowRoot();
  shadow.appendChild(clone);
};

document.registerElement("activity-card", {prototype: activityPrototype});
```

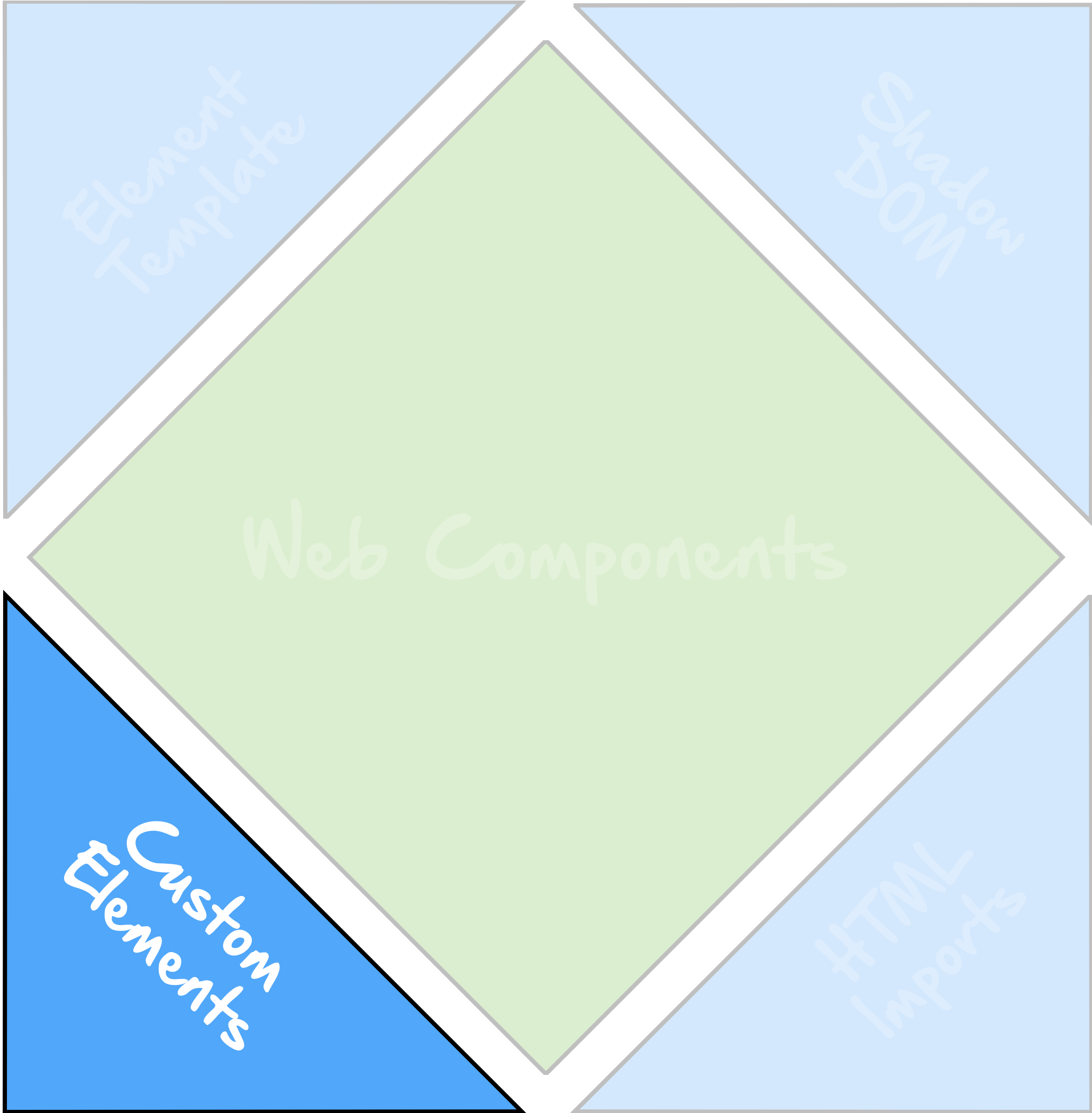


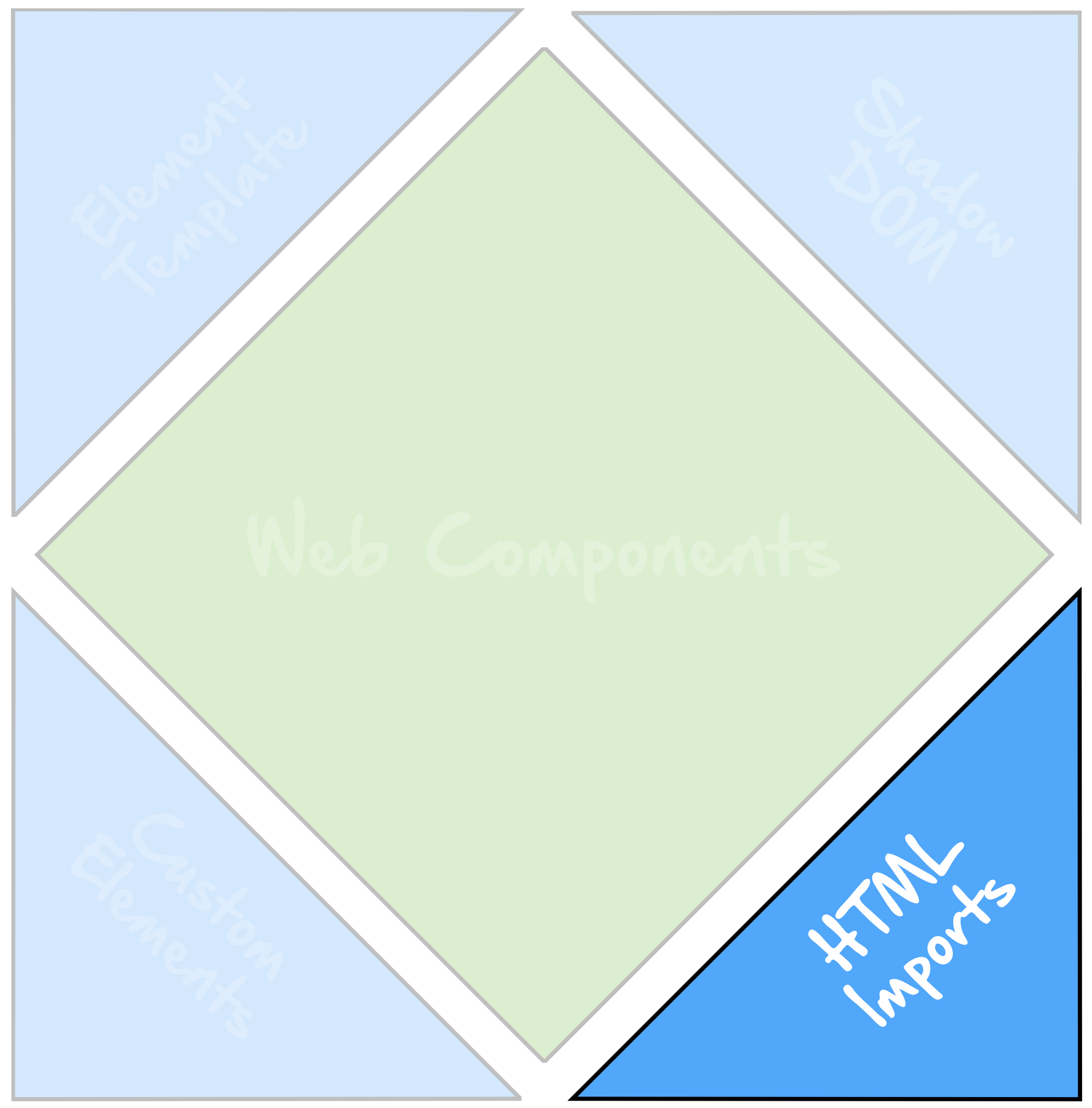
35+ and
Android 4.4.4+

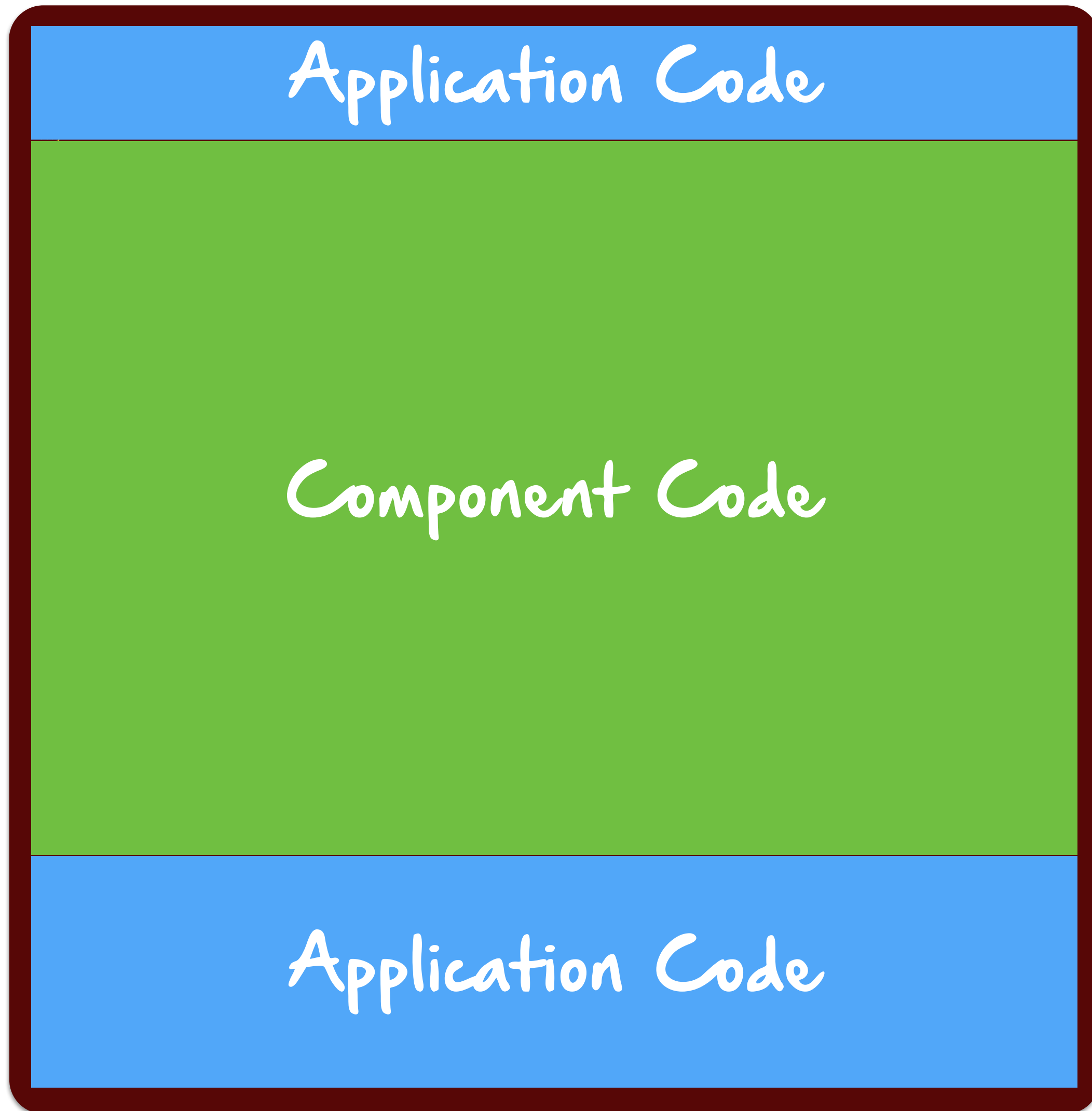


26+









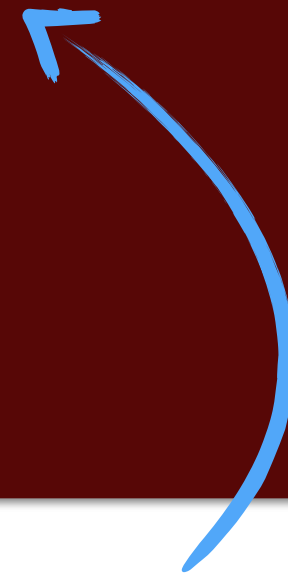
HTML Imports



```

<!DOCTYPE html>
<html>
<head lang="en">
  <meta charset="UTF-8">
  <title>Activity Stream - Standard Web Component</title>
  <link href="stylesheet.css" rel="stylesheet">
  <script src="bower_components/jquery/dist/jquery.min.js"></script>
</head>
<body>
  <div class="activity-stream">
    <h2>Activities</h2>
    <activity-card iconSrc="./img/michael.jpeg" time="Seconds ago">
      <a href="profiles/michael">Michael</a> had fun writing web components.
    </activity-card>
    <activity-card iconSrc="./img/hendrick.jpeg" time="Minutes ago">
      <a href="profiles/hendrick">Hendrick</a> blogged on <a href="http://guigarage.com">GuiGarage</a>.
    </activity-card>
    <activity-card iconSrc="./img/michael.jpeg" time="1 hour ago">
      <a href="profiles/michael">Michael</a> needed an extra large cup of coffee.
    </activity-card>
    <activity-card iconSrc="./img/hendrick.jpeg" time="Yesterday">
      <a href="profiles/hendrick">Hendrick</a> watched a movie.
    </activity-card>
  </div>
</body>
</html>

```



`<link rel="import" href="activity-card.html">`

```

<template>
  <style>
    * {
      font-family: "Helvetica Neue Light", "HelveticaNeue-Light", "Helvetica Neue", Calibri, Helvetica, Arial, sans-serif;
    }
    .activity {
      width: 500px;
      height: 40px;
      padding: 10px;
      background-color: #f0f8ff;
      font-size: small;
      margin: 10px 0;
    }
    .activity .icon {
      float: left;
      border-radius: 100%;
    }
    .activity .time {
      float: right;
      color: #b7b7b7;
      font-style: italic;
    }
    .activity .content {
      margin-left: 60px;
    }
  </style>

  <div class="activity">
    <img class="icon" src="" width="40" height="40">
    <div class="time"></div>
    <div class="content"><content></content></div>
  </div>
</template>

<script>

  var activityPrototype = Object.create(HTMLElement.prototype);

  activityPrototype.createdCallback = function() {
    var template = document.querySelector('template');
    var clone = document.importNode(template.content, true);

    var host = $(this);
    $(".icon", clone).attr("src", host.attr("iconSrc"));
    $(".time", clone).text(host.attr("time"));

    var shadowRoot = this.createShadowRoot();
    shadowRoot.appendChild(clone);
  };

  // Register our new element
  document.registerElement('activity-card', {
    prototype: activityPrototype
  });
</script>

```

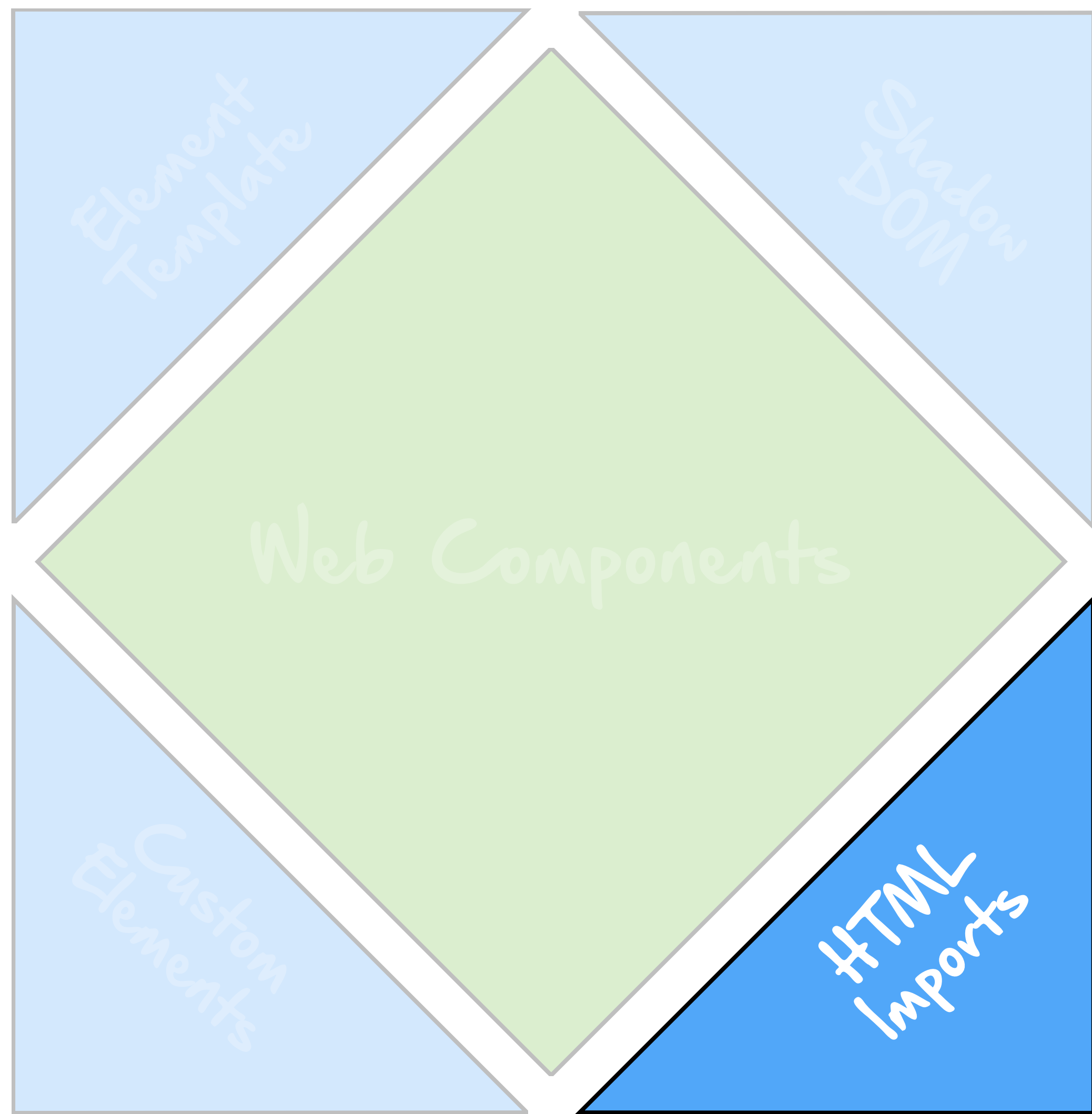
activity-card.html

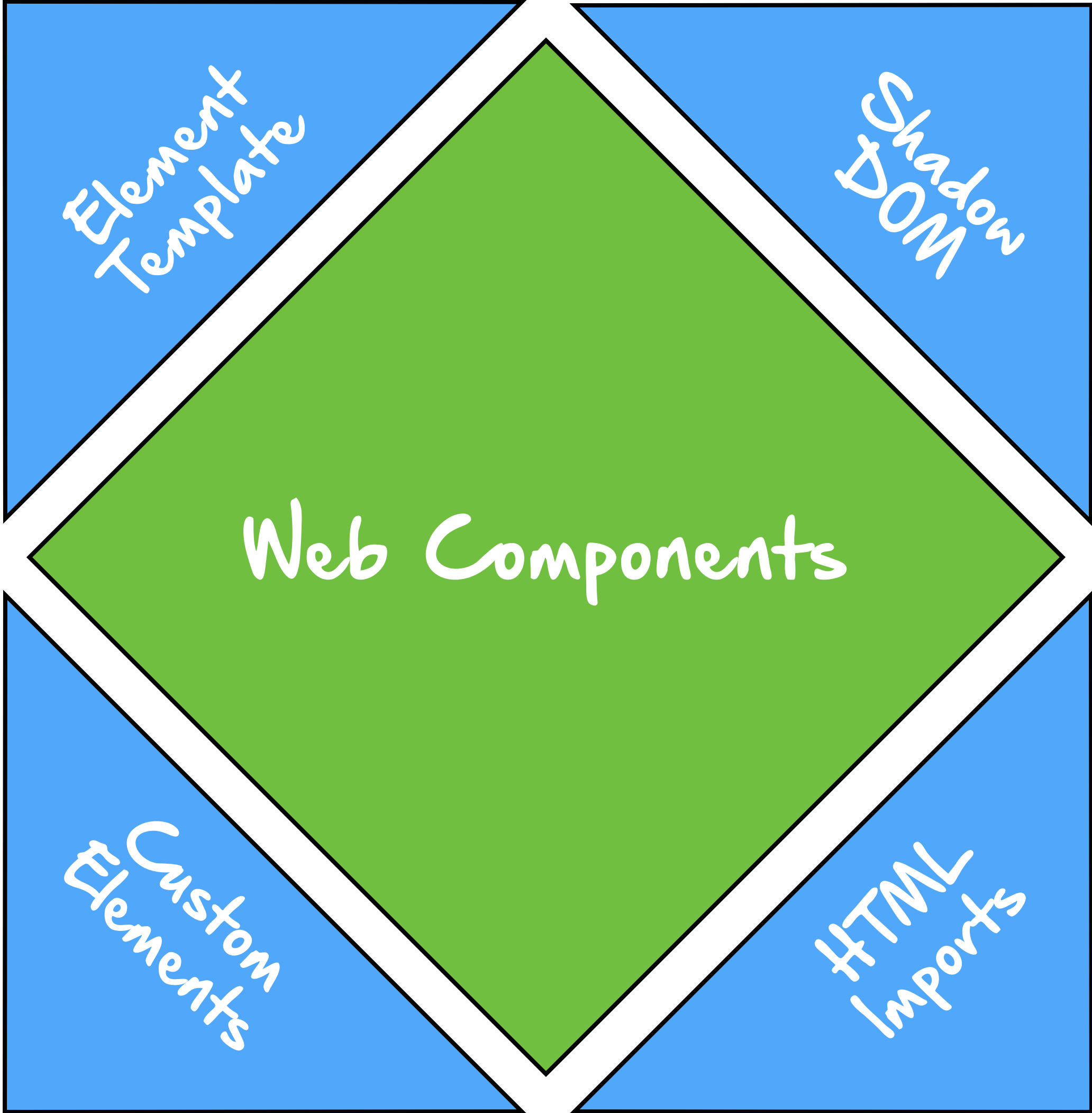


36+ and
Android Browser
37

26+







 webcomponent.js

- Today not all browsers support the new standards
- The community provides a polyfills to enable web components in browser that have no native support

```
$ bower install --save webcomponentsjs
```

install it with bower

use it in your code

```
<script src="bower_components/webcomponentsjs/webcomponents.js"></script>
```



webcomponent.js


- The polyfills are the junction of X-Tag and Polymer basic libraries
- Mozilla created X-Tag as a polyfill to provide web components
- Google created Polymer as a polyfill to provide web components



webcomponent.js

- X-Tag and Polymer depends on webcomponents-js
- Both libraries provide additional features that are not part of the specification

webcomponents.org

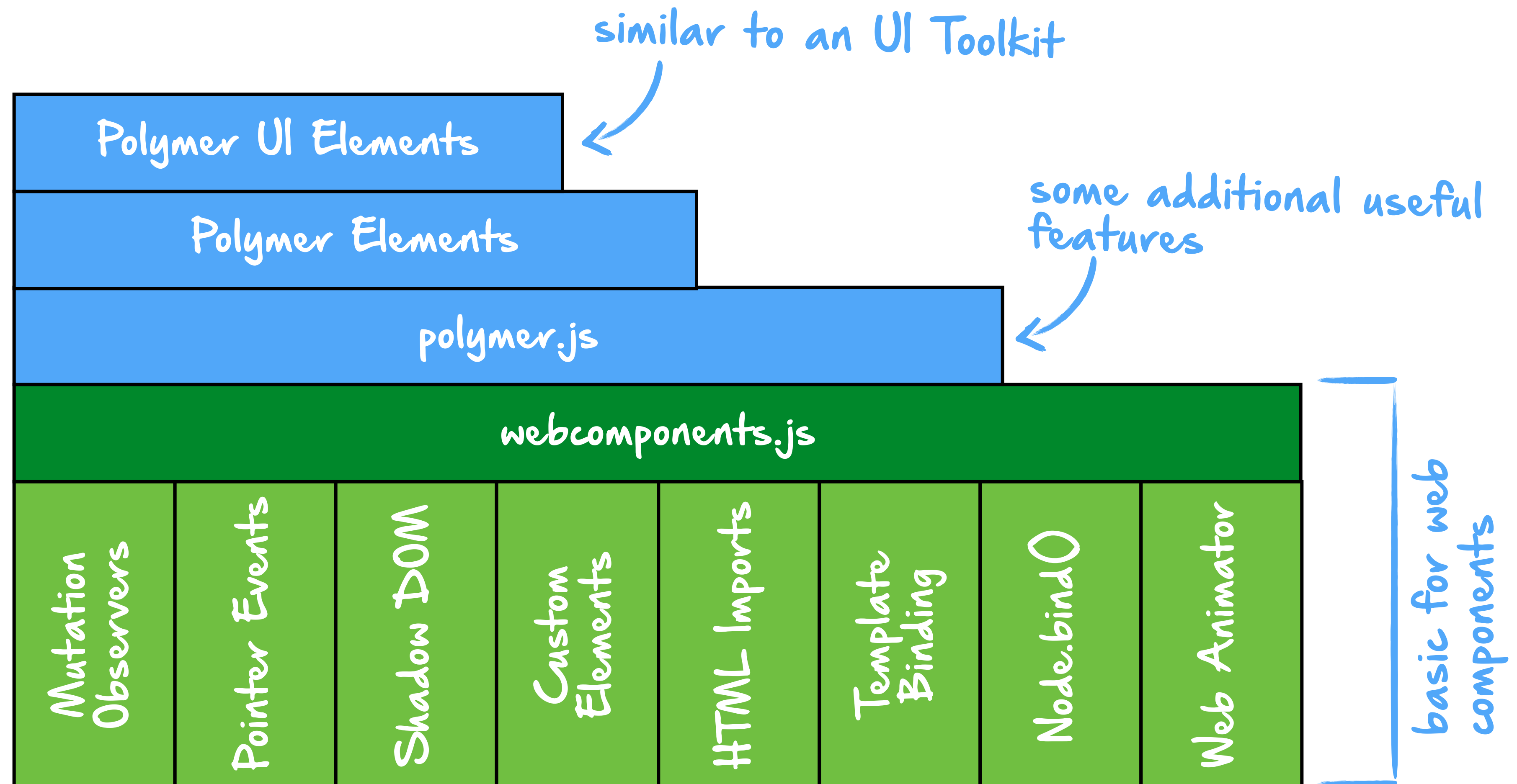
 Polymer

- Polymer is created & supported by Google
- Current version depends on webcomponents.js (since 0.5.1)
- Adds some API sugar on top of webcomponents.js

www.polymer-project.org



Polymer Stack





Data Bindings

- two-way data binding is one of the additional features of Polymer

```
<template repeat="{{s in salutations}}">
  <li>{{s.what}}: <input type="text" value="{{s.who}}"></li>
</template>
```

```
this.salutations = [
  {what: 'Hello', who: 'World'},
  {what: 'Goodbye', who: 'DOM APIs'}
];
```

<X> X-Tag

- X-Tag is created & supported by Mozilla
- Future version will depend on webcomponents.js (dependency added Jan 5, 2015)
- Adds some API sugar on top of webcomponents.js

x-tags.org

<X> X-Tag

- X-Tag is supported by most modern browsers



5+



4+ and
Android 2.1+



4+


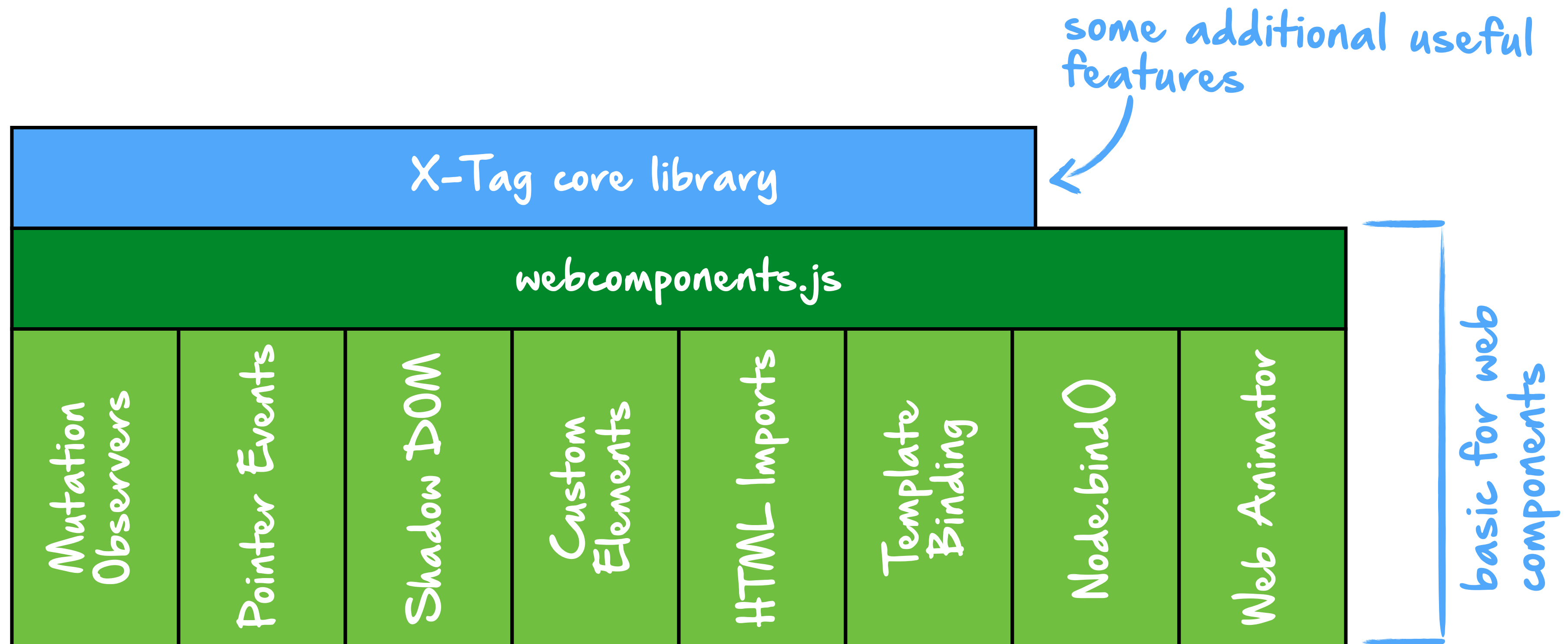



9+



11+



 X-Tag



The next steps

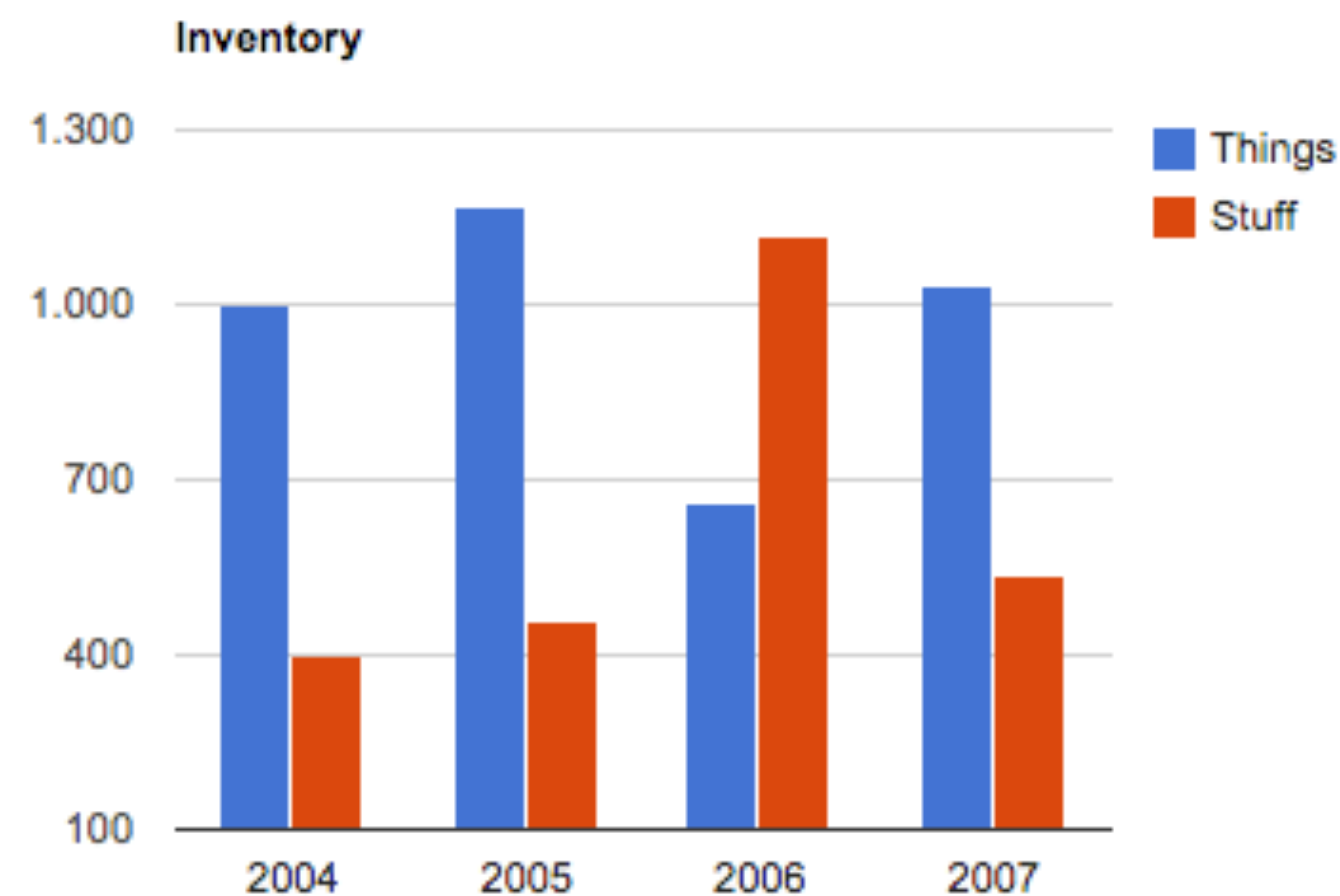
- Web Components can be reused
- Web Components can be styled
- A logical consequence is to provide toolkits





Google Web Components

- Google is build a lot of components (maps, youtube...)



Hangout starten

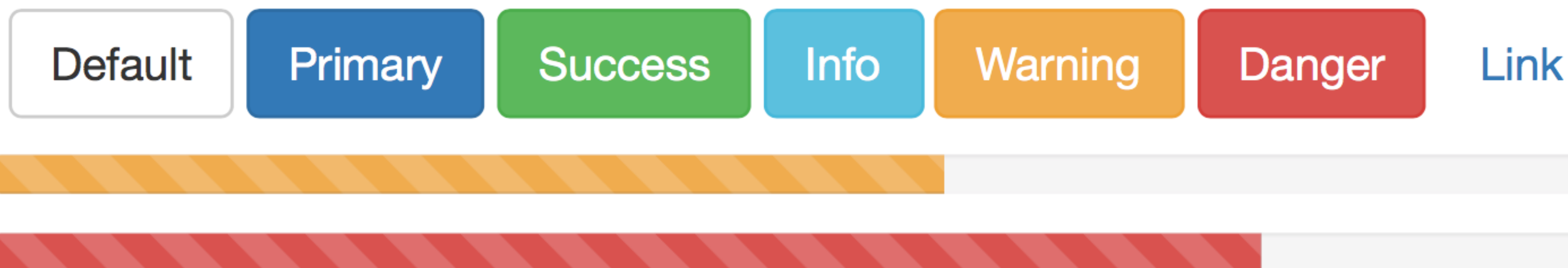
```
<google-chart></google-chart>
```

```
<google-hangout-button></google-hangout-button>
```

<http://googlewebcomponents.github.io>

Twitter Bootstrap

- provides predefined CSS rules
- Can be used for layout
- Provides its own style
- Provides an icon set





Google Polymer Paper

- provides custom web components
- provides layouts
- provides icon sets

Item

Disabled

[Link](#)

Long items
wrap by default



label

floating label

disabled





Bootstrap



Paper



- Polymer is only released as developer preview
- Bootstrap is final (Version 3.x)
- Polymer is based on modern web technology
- Bootstrap is based on CSS (and some JavaScript)
- Polymer provides custom web components
- Bootstrap provides CSS rules



Why does Google provide it?

- Polymer is the web part of „Material Design“
- Provide the same user experience on any device
- Provide the same user experience over many applications

„We challenged ourselves to create a visual language for our users that synthesizes the classic principles of good design with the innovation and possibility of technology and science.“





developers.google.com



Google Developers

Abonniert

Übersicht

Videos

Playlists

Kanäle

Kanalinfo



Auch abonniert von

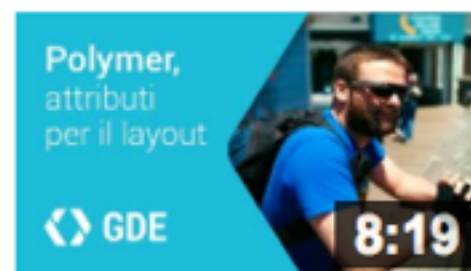
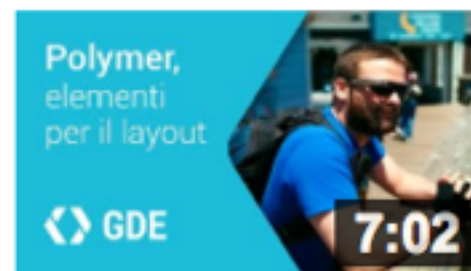


Empfohlene Videos



Google I/O 2014 - Polymer and the Web Components revolution

von Google Developers, 38.503 Aufrufe, vor 7 Monaten



Polymer, elementi per il layout [Italiano]

von Google Developers
1.497 Aufrufe vor 5 Tagen

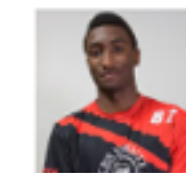
Polymer, attributi per il layout [Italiano]

von Google Developers
654 Aufrufe vor 5 Tagen

How I: Prep to fundraise with four questions

von Google Developers
1.266 Aufrufe vor 5 Tagen

Ähnliche Kanäle auf YouTube



Marques Brownlee

Abonnieren



Software - Thema

Abonnieren



The Verge

Abonnieren



Derek Banas

Abonnieren

Was gibt's Neues?



Text



Fotos



Link



Video



Veranst..



Abstim...

Star Wars



Zeeshan Naqi

Lifestyle - 10:16

Still Cracking originally shared:
<http://fiz-x.com/category/humor/>
<http://stillcracking.com/>

Mehr anzeigen

**When you're home alone
and hear a scary noise**



Firefly

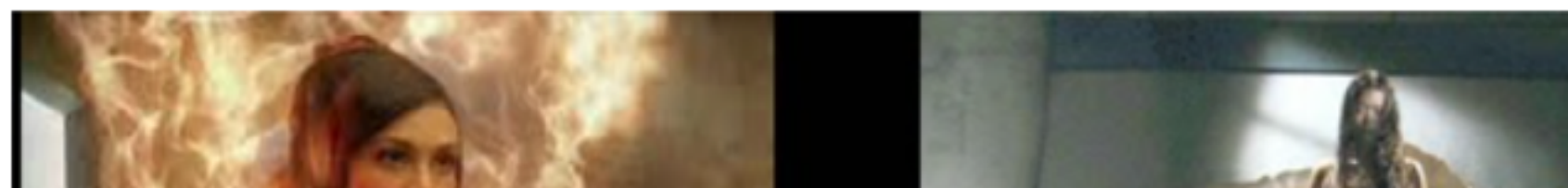


Andrew Fisk

Discussion - Gestern um 15:35

In a battle to the death, who wins?

Übersetzen

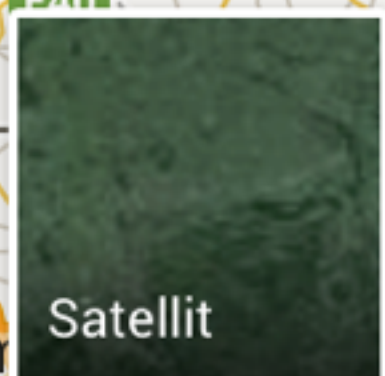
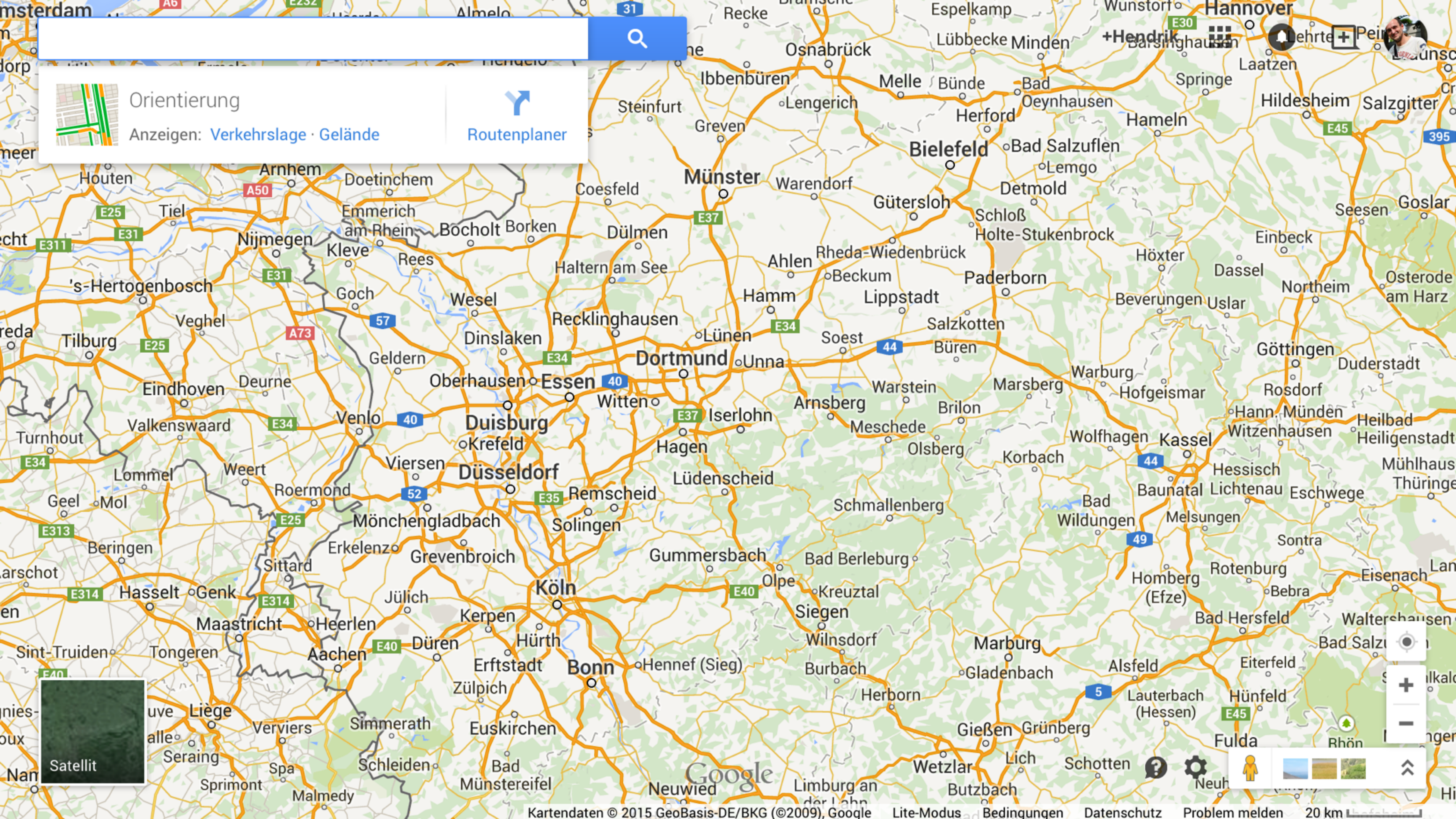


Suchfeld mit Suchsymbol

Orientierung

Anzeigen: [Verkehrslage](#) · [Gelände](#)

[Routenplaner](#)



Navigation controls: zoom in (+), zoom out (-), full screen (square), and a person icon.



Important features

- Responsive Design
- Customizable - Create your cooperative design
- Easy to use
- Extendable

Paper Elements

Checkbox

Radio Button

Toggle Button

Input

Toolbar

Spinner

Progress Bar

Slider

Toolbar

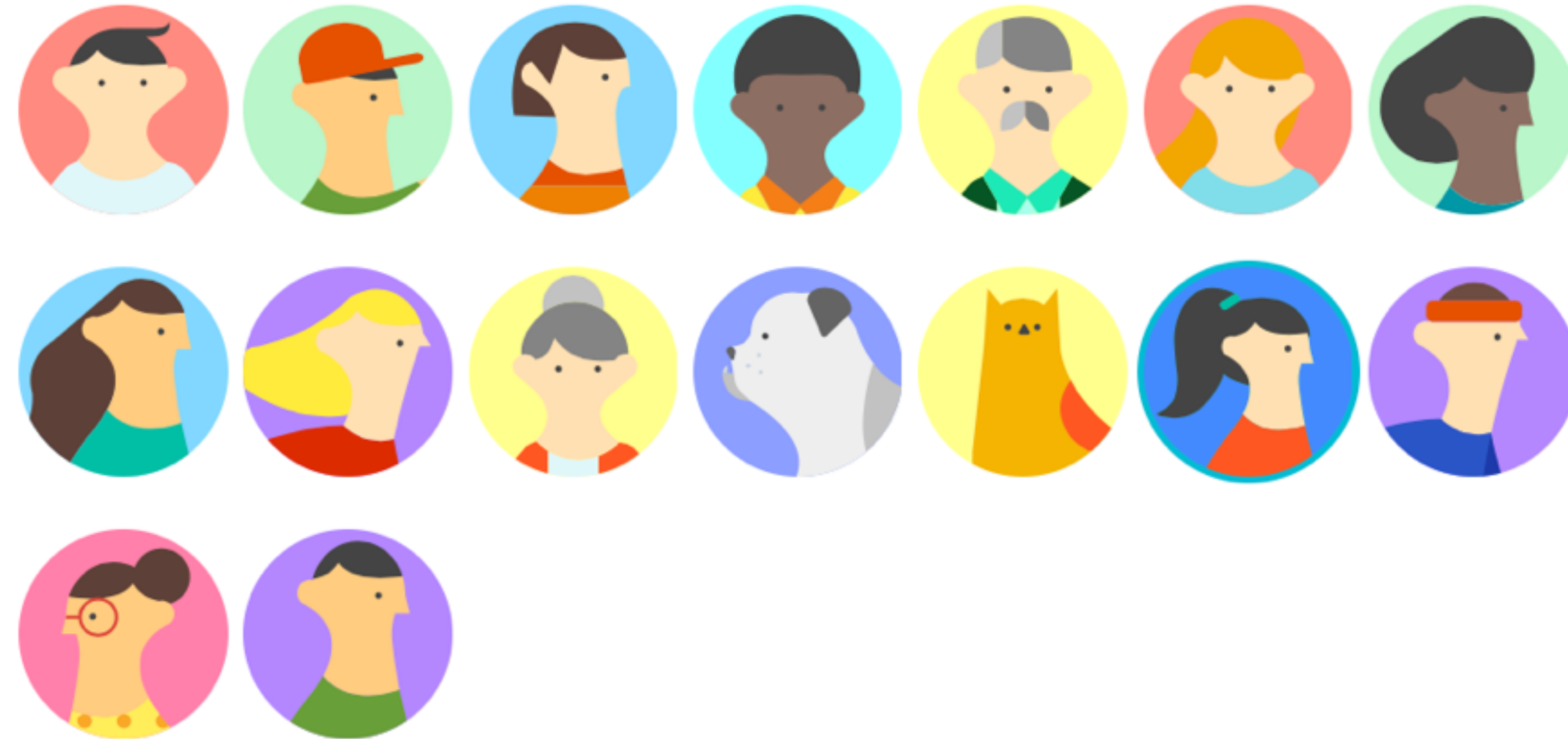


Sign In

Hendrik

Ebbers

Choose an Avatar





Mole is a popular paste in Mexico. Mole is a mixture of chili's and what other tasty ingredient?

Fill in the Blank



$$62+9$$

7

8

9

DEL

2nd

(

)

%

Deg

4

5

6

+

1/x

x^2

x^3

y^n

Rad

1

2

3

-

$x!$

$\sqrt{\quad}$

$\sqrt[n]{y}$

log

func

.

0

=

\div

sin

cos

tan

ln

Table

sinh

cosh

tanh

e^n

Graph

\times

EXP

π

EE

Rand

The logo for Polymer Paper, consisting of a stylized 'P' shape formed by several overlapping triangles in shades of blue, purple, and pink.

Polymer Paper

- Layout containers
- Components
- Animations
- Icons





How to use Components

- All components (layouts, controls, icons) are build as web components
- A single component or a set can be added by using bower

```
$ bower install --save Polymer/paper-slider
```

```
<link rel="import" href="bower_components/paper-slider/paper-slider.html">
```

import it in HTML



Paper Button

- The default Button
- shows ripple animation on click

```
<paper-button>flat button</paper-button>  
<paper-button raised>raised button</paper-button>  
<paper-button noink>No ripple effect</paper-button>
```

Flat buttons

BUTTON

COLORED

DISABLED

NOINK

Raised buttons

BUTTON

COLORED

DISABLED

NOINK



Paper CheckBox

- A styled CheckBox
- State can be defined as attribute

```
<paper-checkbox></paper-checkbox>
```

```
<paper-checkbox checked></paper-checkbox>
```



Auto-updates

Auto-update apps over wifi only



Clear search history

Remove all the searches you have ever performed



Use as default browser



Paper Dialog

- A dialog
- Supports title, modality, actions, ...

```
<paper-dialog heading="Title">  
  <p>Some content</p>  
</paper-dialog>
```

Title

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

MORE INFO...

DECLINE

ACCEPT



Overview

label

floating label

disabled

ITEM ONE

ITEM TWO

ITEM THREE





Overview

Wi-Fi



Bluetooth



Custom Colors



Disabled



Radio button



Radio button (toggles)



Icon buttons



Regular



Item

Disabled

[Link](#)

Long items wrap by default




Icons


cloud-circle



cloud-done


cloud-download



cloud-off


content-copy


content-cut



content-paste


create


delete


description


dns


done


error



event


exit-to-app


expand-less


extension


face


favorite


favorite-outline



Icons



filter-b-and-w



filter-center-focus



filter-drama



filter-frames



filter-tilt-shift



filter-vintage



flare



flash-auto



flip



gradient



grain



grid-off



hdr-on



hdr-strong



hdr-weak



healing



iso



landscape



leak-add



leak-remove





Layout

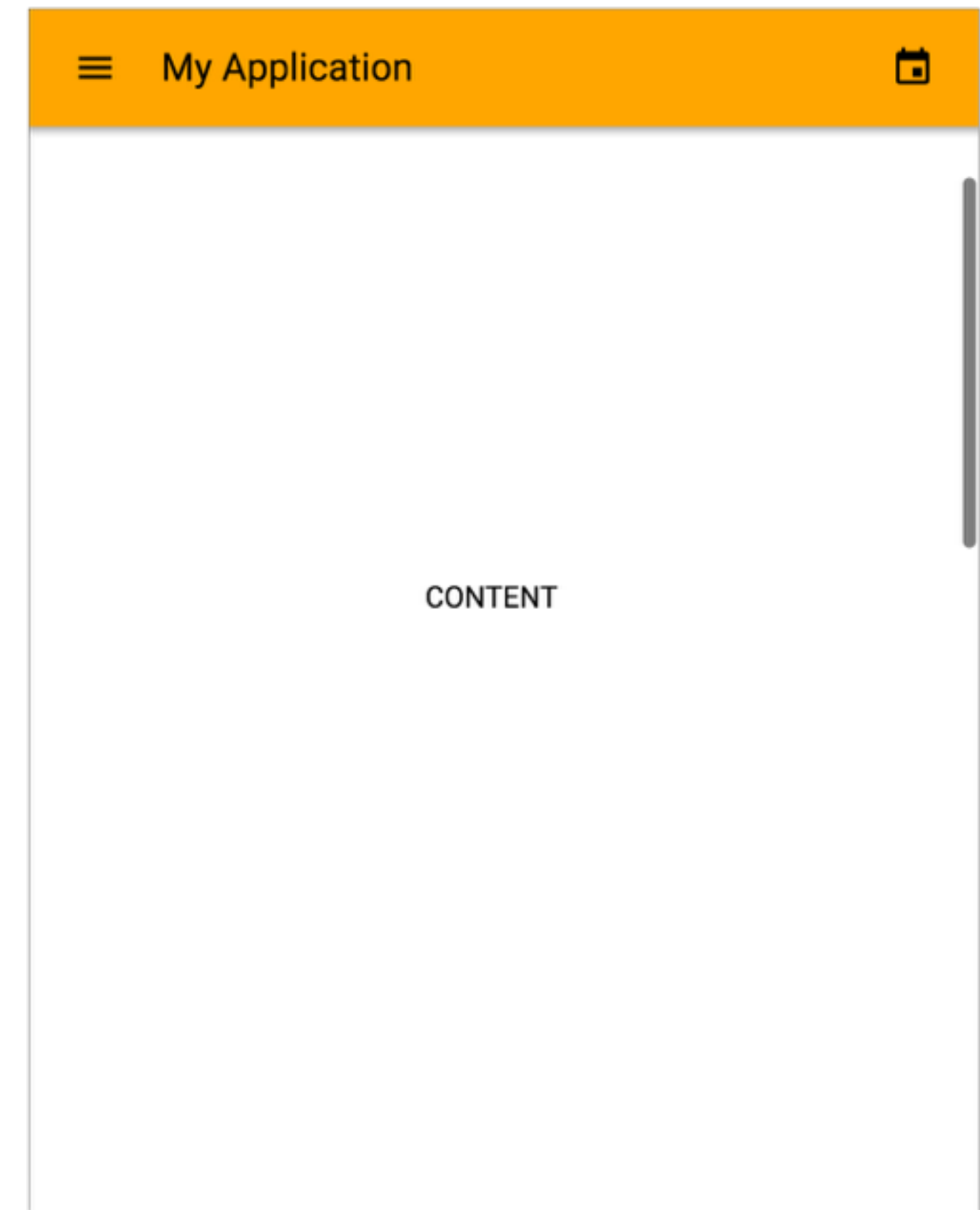
- HeaderPanel
- Toolbar
- DrawerPanel
- Scaffold



Toolbar

- An application toolbar
- Toolbar content will be aligned

```
<core-toolbar>  
  <paper-icon-button icon="menu"></paper-icon-button>  
  <div>My Application</div>  
  <span flex></span>  
  <paper-icon-button icon="event"></paper-icon-button>  
</core-toolbar>
```





Polymer layout attributes

- Declarative layout system
- use CSS Flexbox internally
- Layout params are defined as HTML attributes

```
<span flex></span>
```

```
<body fullbleed layout vertical>Hello World</body>
```

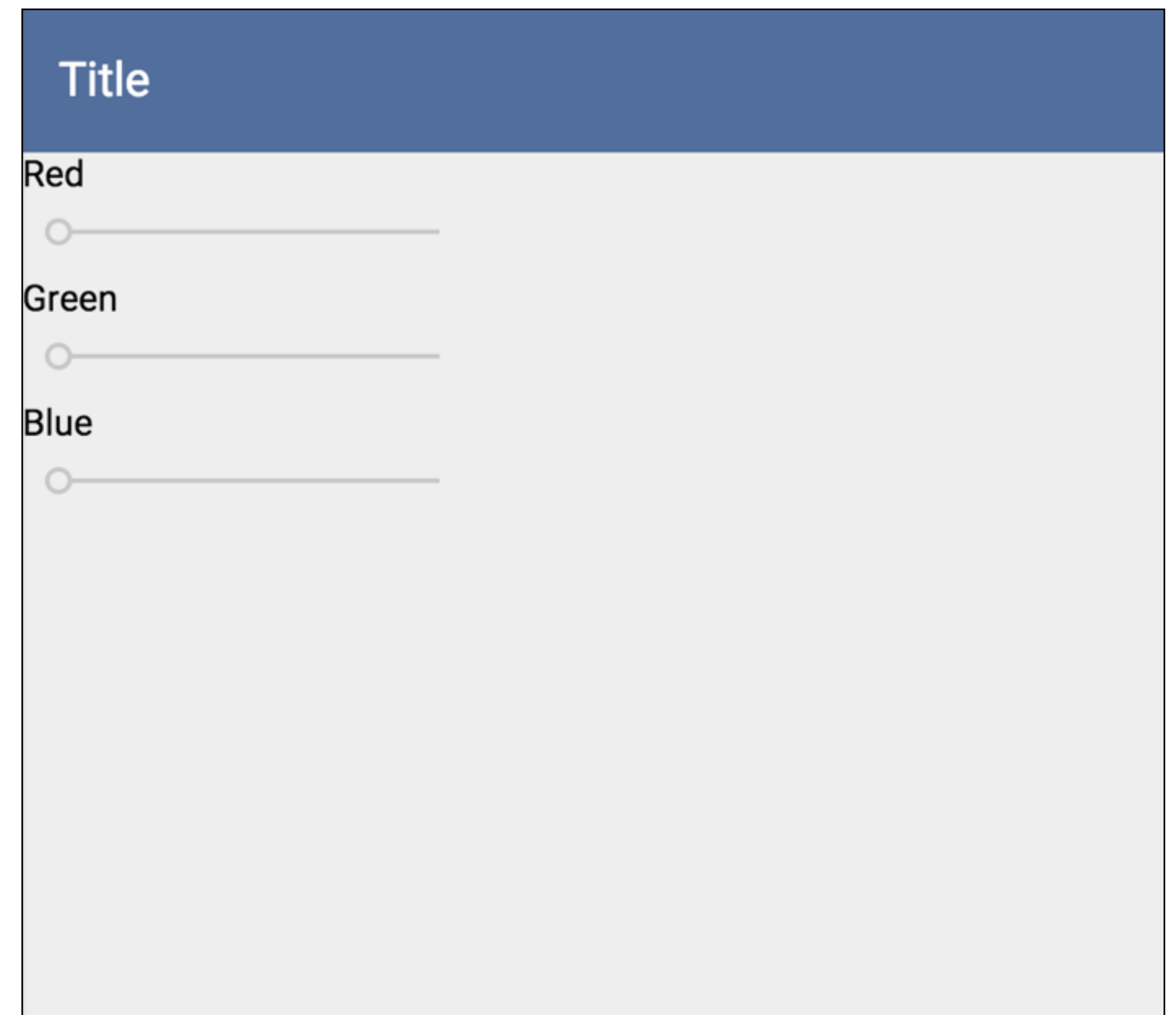
```
<div layout vertical><div>
```



HeaderPanel

- Wrapper around toolbar and content
- Toolbar always on top
- Content scrollable



```
<core-header-panel flex>  
  <core-toolbar>Title</core-toolbar>  
  <div>content</div>  
</core-header-panel>
```





DrawerPanel

- Adds a responsive menu
- Defines attributes to open and close the menu
- Normally wraps 2 core-header-panel

Menu	Title
 One	Red <input type="checkbox"/>
 Two	Green <input type="checkbox"/>
	Blue <input type="checkbox"/>



DrawerPanel

```
<core-drawer-panel>
  <core-header-panel drawer>
    <core-toolbar></core-toolbar>
    <core-menu>
      <core-item label="One"></core-item>
    </core-menu>
  </core-header-panel>
  <core-header-panel main>
    <core-toolbar>
      <paper-icon-button core-drawer-toggle icon="menu"></paper-icon-button>
    </core-toolbar>
    <div>content</div>
  </core-header-panel>
</core-drawer-panel>
```

drawer panel

main panel

show drawer

 Scaffold

- Basic skeleton
- Best practice to create an application
- Contains all the shown features

```
<core-scaffold>
  <core-header-panel navigation flex>
    <!-- nav drawer -->
  </core-header-panel>

  <span tool>Title</span>

  <div>content</div>
</core-scaffold>
```

defines the drawer

defines the main toolbar

 Polymer demo

- Create a new folder
- Install needed modules with Bower

```
$ mkdir app  
$ cd app  
$ bower init  
$ bower install --save Polymer/paper-elements
```

 Polymer demo

- Create index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
  </head>

  <body>Hello World</body>

</html>
```

 Polymer demo

- add `webcomponents.js`

```
<head>
  . . .
  <script src=„bower_components/webcomponentsjs/webcomponents.js“>
  </script>
</head>
```

- define initial layout for body

```
<body fullbleed layout vertical>Hello World</body>
```

 Polymer demo

- add the default font

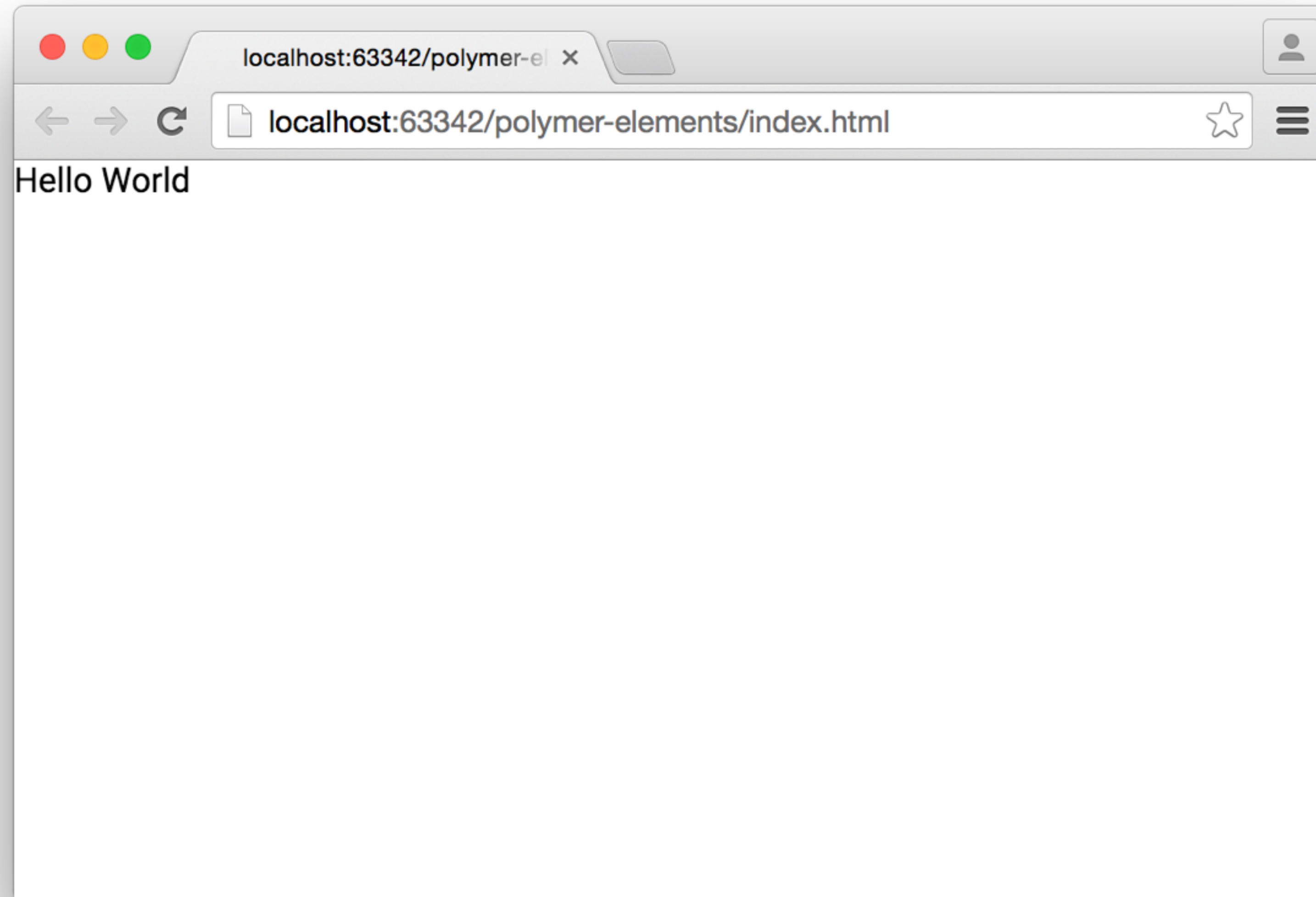
```
<head>
  <link rel="import" href=„bower_components/font-roboto/
  roboto.html">

  <style>
    html,body {
      font-family: 'RobotoDraft', sans-serif;
    }
  </style>

</head>
```



Polymer demo



 Polymer demo

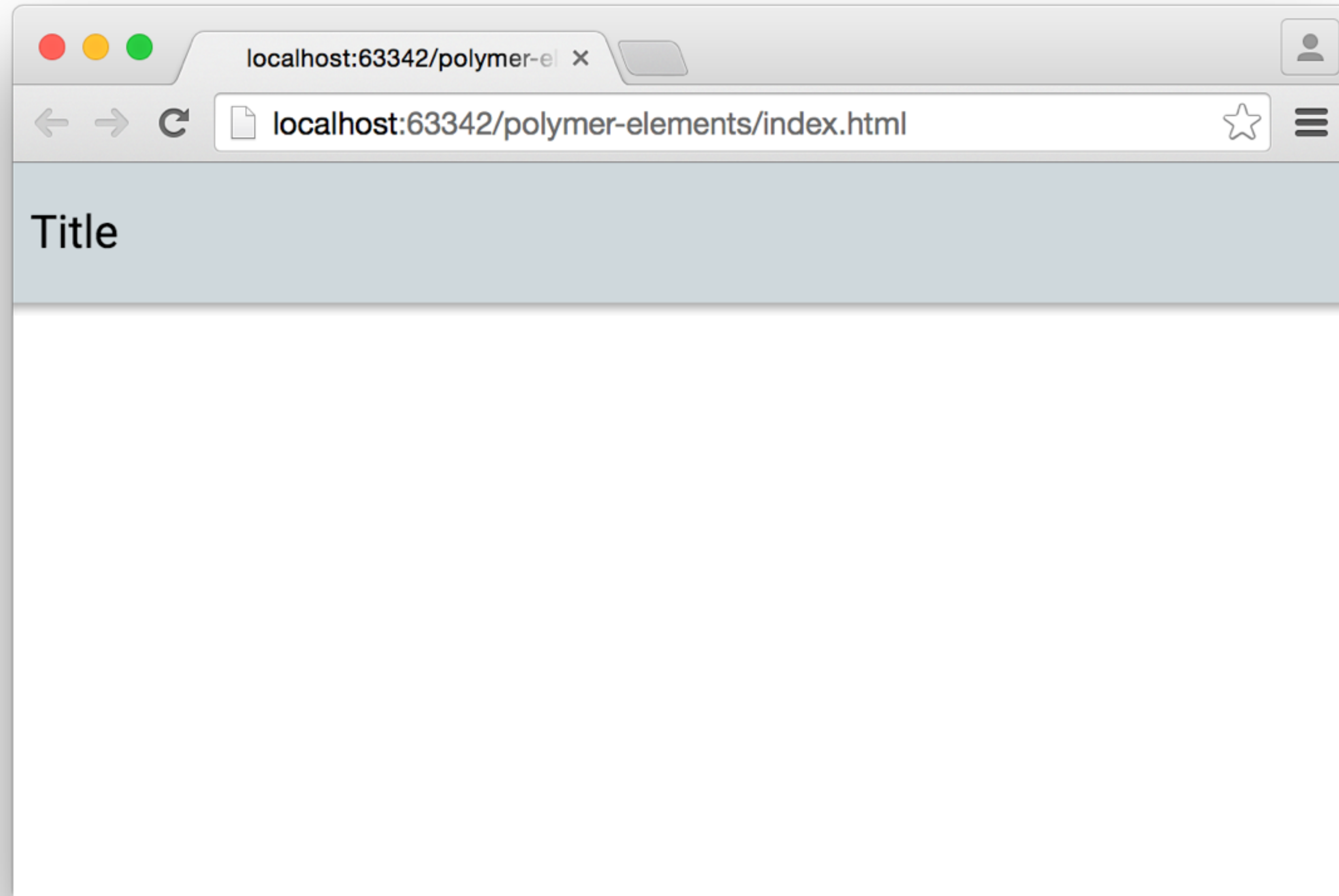
- add a header panel with a toolbar

```
<link rel="import"  
  href="bower_components/core-header-panel/core-header-panel.html">  
<link rel="import"  
  href="bower_components/core-toolbar/core-toolbar.html">
```

```
<body fullbleed layout vertical>  
  <core-header-panel flex>  
    <core-toolbar>Title</core-toolbar>  
  </core-header-panel>  
</body>
```




Polymer demo



 Polymer demo

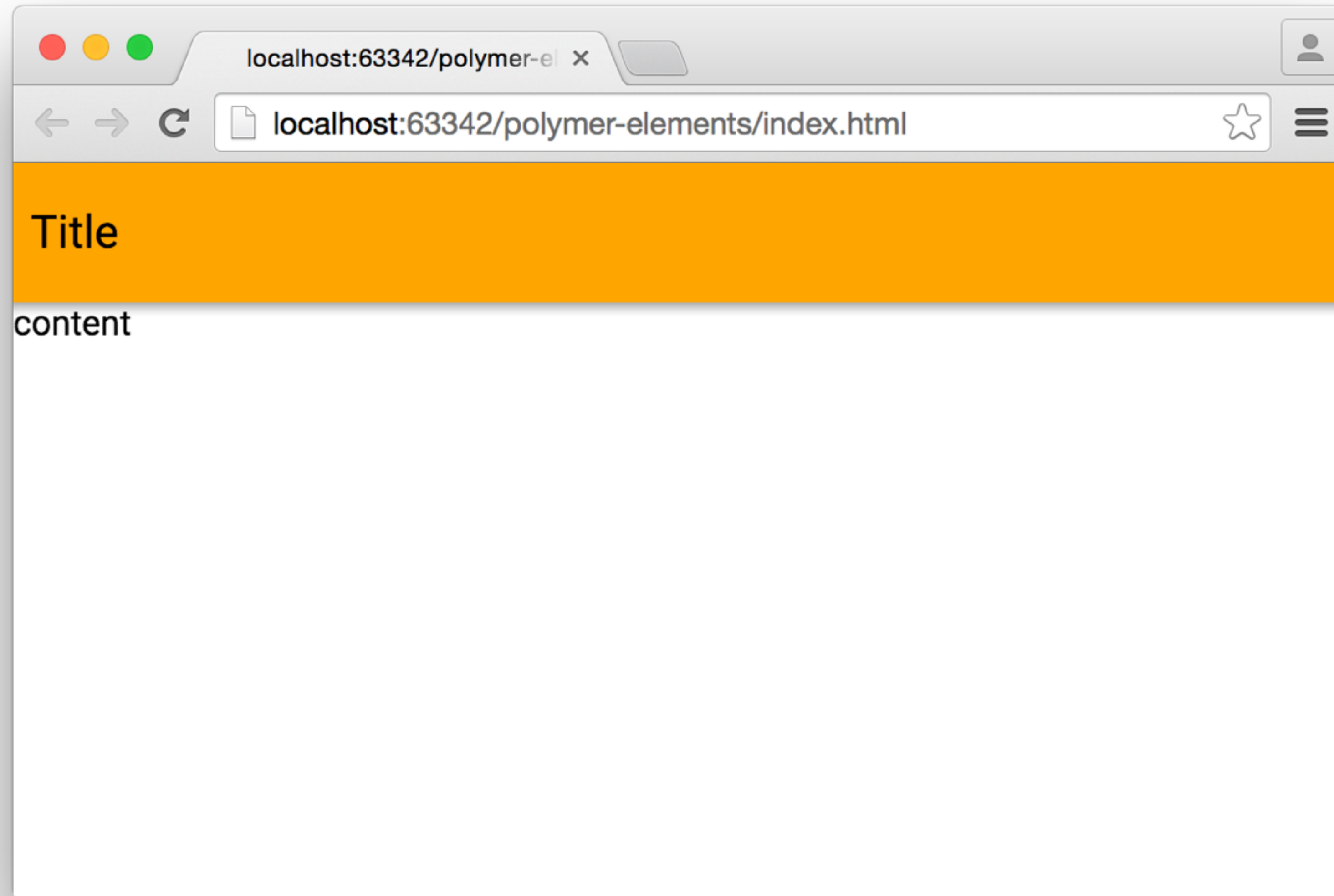
- Define a toolbar color

```
<style>  
  core-toolbar {  
    background-color: orange;  
  }  
</style>
```

- Add some content

```
<div>content</div>
```

Polymer demo





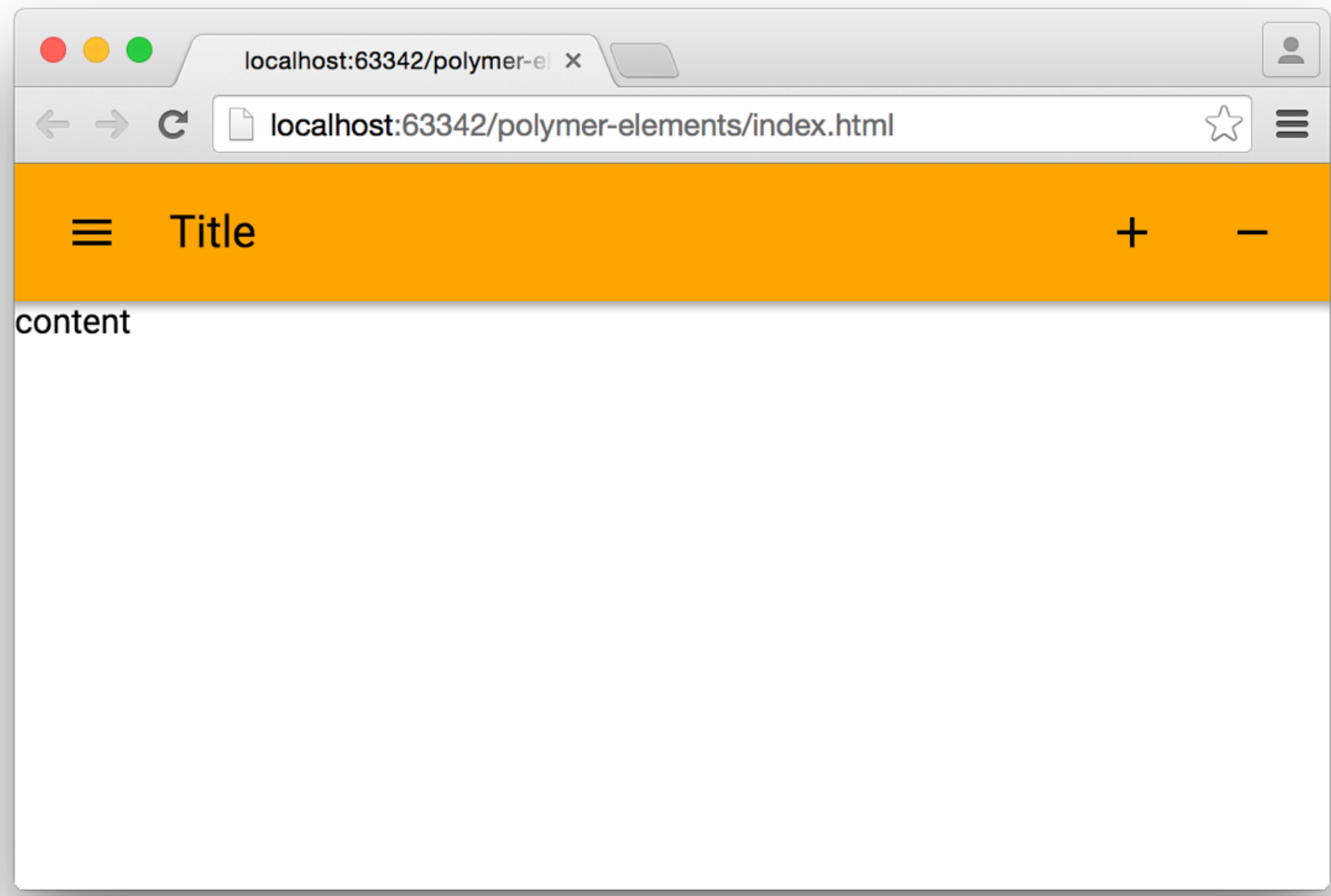
Polymer demo

- Add some content to the toolbar

```
<link rel="import"  
  href="bower_components/paper-icon-button/paper-icon-button.html">
```

```
<core-toolbar>  
  <paper-icon-button icon=„menu"></paper-icon-button>  
  <span flex>Title</span>  
  <paper-icon-button icon=„add"></paper-icon-button>  
  <paper-icon-button icon=„remove"></paper-icon-button>  
</core-toolbar>
```

Polymer demo



 Polymer demo

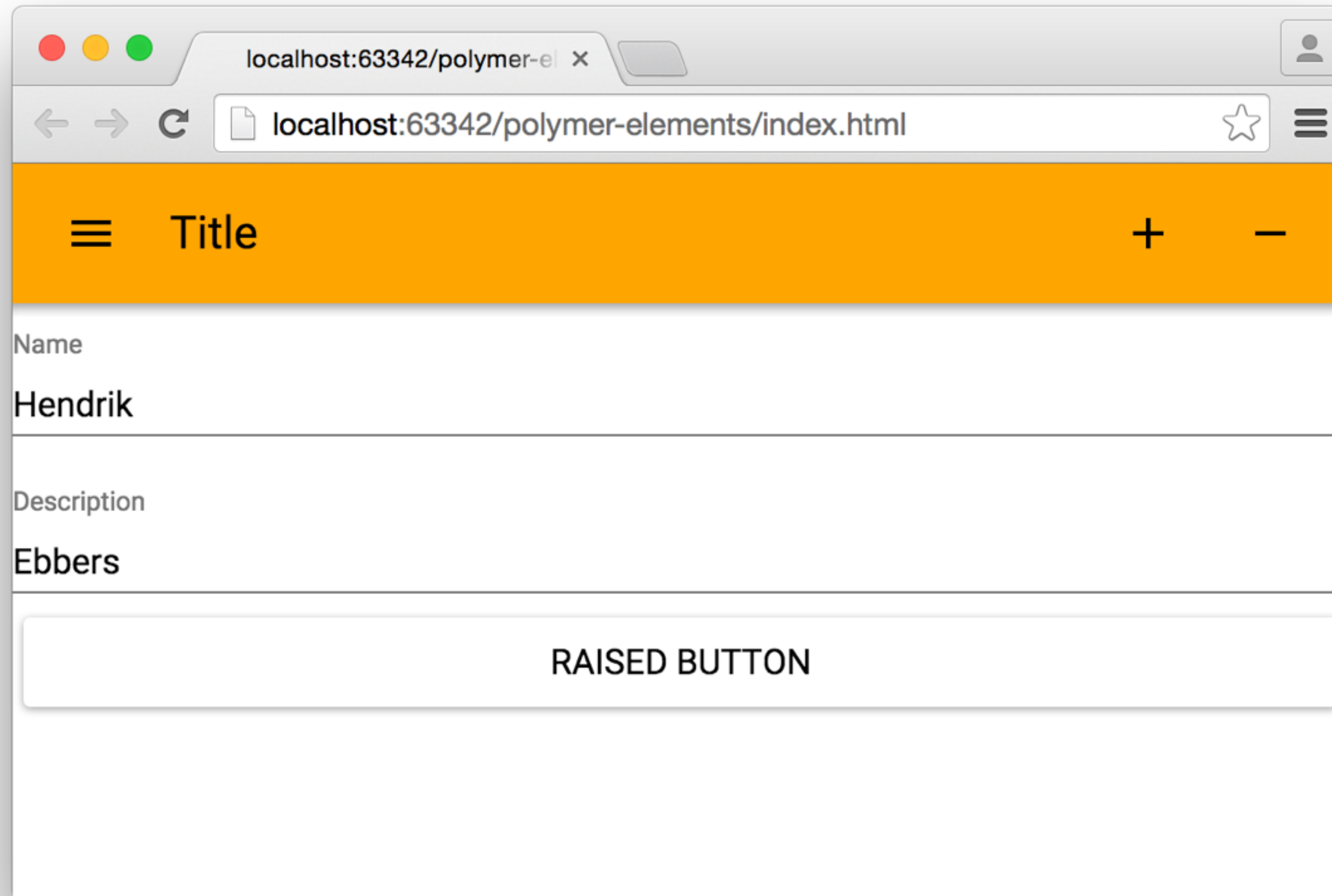
- Add paper elements as content

```
<link rel="import"
  href=„bower_components/paper-input/paper-input.html">
<link rel="import"
  href="bower_components/paper-button/paper-button.html">
```

```
<div layout vertical>
  <paper-input floatingLabel label="Name"></paper-input>
  <paper-input floatingLabel label="Description"></paper-input>
  <paper-button raised>save</paper-button>
</div>
```




Polymer demo



 Polymer demo

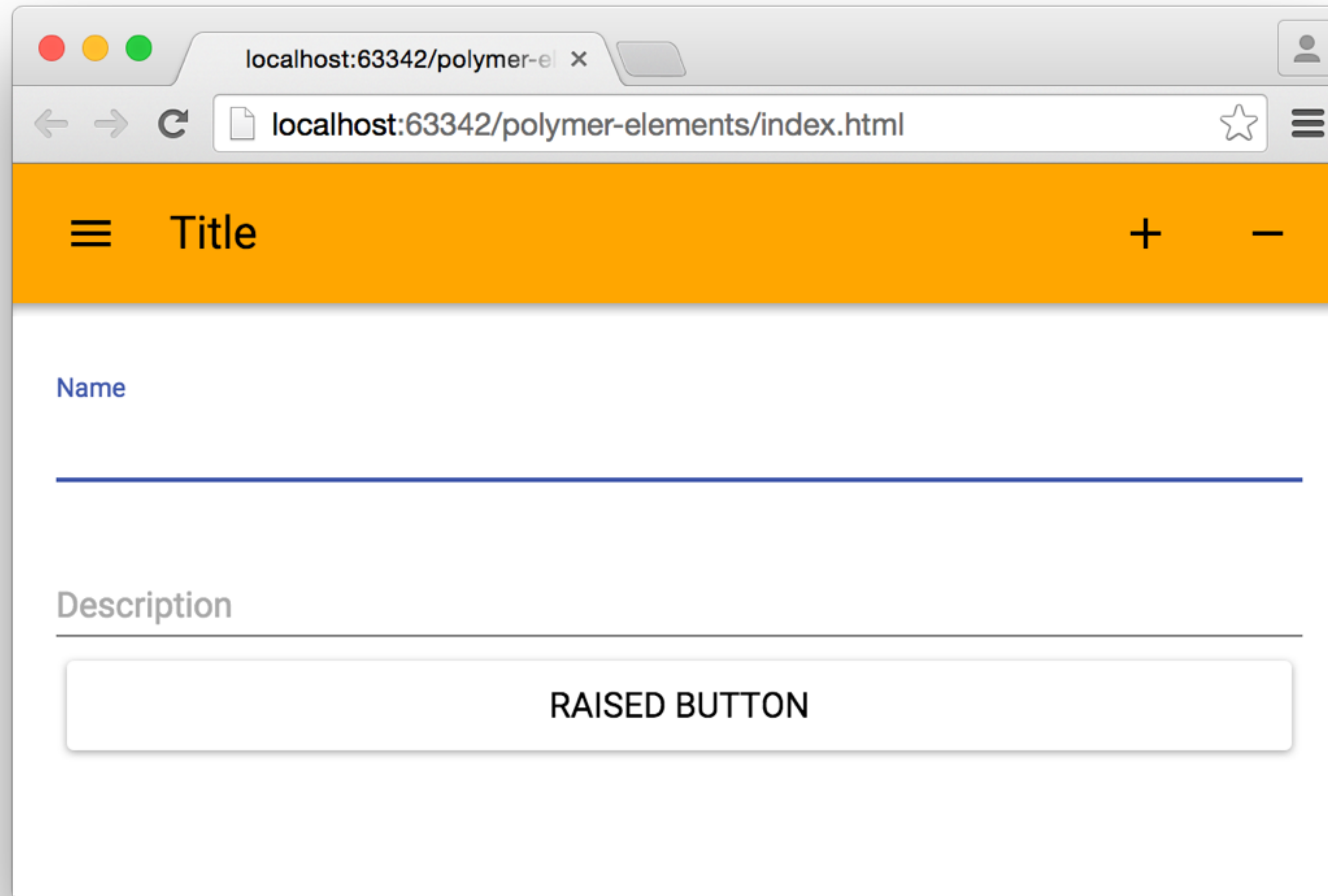
- Add some padding

```
.content {  
    padding: 20px;  
}
```

```
<div class=„content" layout vertical>  
  <paper-input floatingLabel label="Name"></paper-input>  
  <paper-input floatingLabel label="Description"></paper-input>  
  <paper-button raised>save</paper-button>  
</div>
```



Polymer demo



The logo for Polymer Designer, featuring a stylized 'P' composed of several overlapping triangles in shades of blue, purple, and pink.

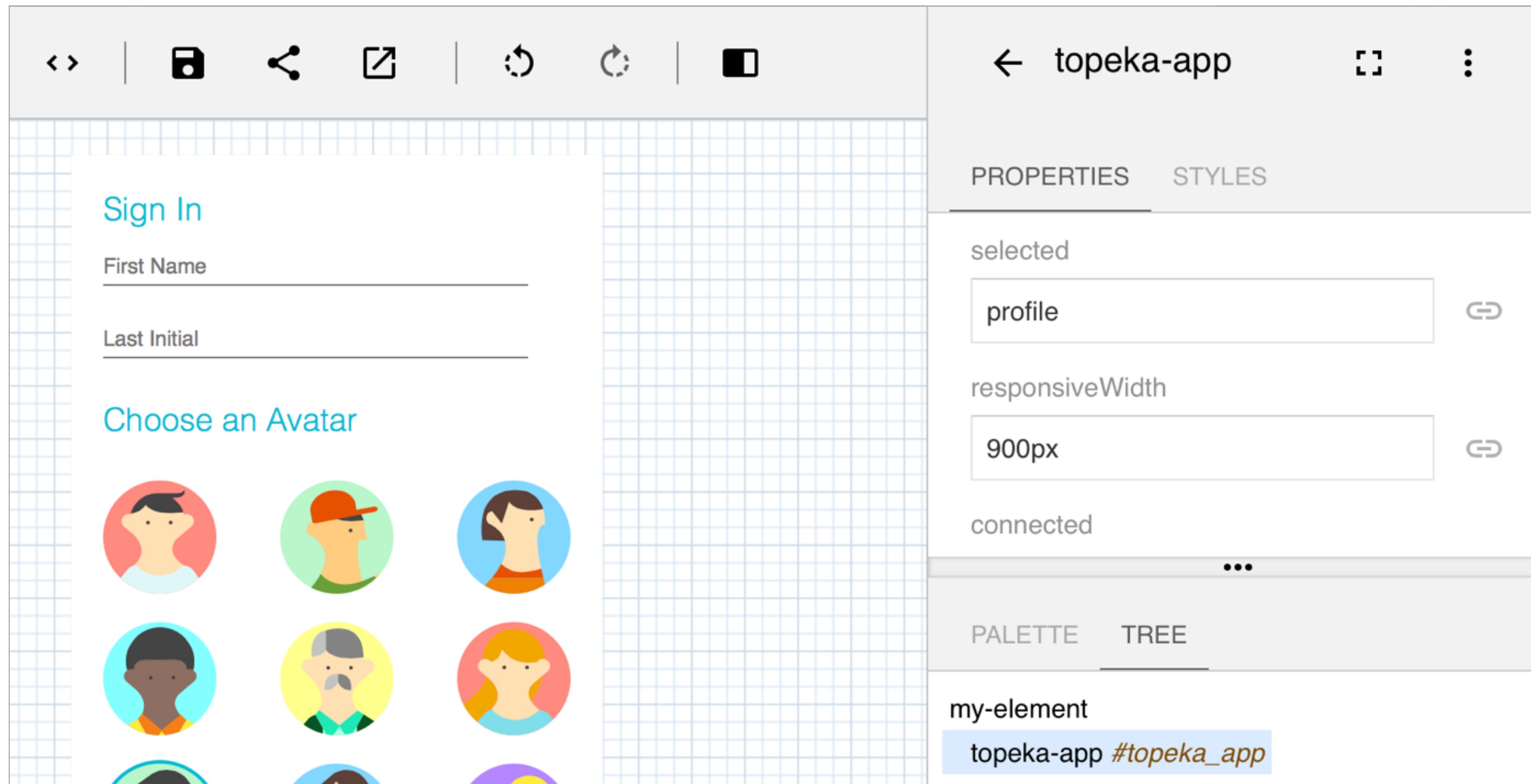
Polymer Designer

- The Polymer team offers a WYSIWYG designer for Polymer
- Good to have a look at all components and play with the layout

<https://polymer-designer.appspot.com>



Polymer Designer



The screenshot displays the Polymer Designer interface. The main workspace shows a form with the following elements:

- Sign In** (blue link)
- First Name** (text input field)
- Last Initial** (text input field)
- Choose an Avatar** (blue link)
- A grid of six circular avatar icons with different colors and styles.

The right-hand panel shows the component tree and properties for the selected element, `topeka-app`.

Component Tree:

- `my-element`
 - `topeka-app #topeka_app` (highlighted)

Properties Panel:

- `selected`: `profile`
- `responsiveWidth`: `900px`
- `connected`: (checked)

The interface includes a top toolbar with icons for navigation, save, share, zoom, and refresh. The right panel also has tabs for `PROPERTIES` and `STYLES`, and `PALETTE` and `TREE`.

Jake Johnson
jake@divshot.com

Inbox

- Inbox
- Social
- All labels
- Starred
- Sent
- All Mail
- Spam
- Trash
- Help Scout
- Sprintly
- Notes
- Intercom

	Member Info Holiday Party Office Hours: Entrepreneurship, Pricing, Public Speaking Motorcycle Parking Jake, Here's some members-only love for your Tuesday: Haven't gotten your ticket to our	Dec 09				
	Michael Bleigh (via Google Slides) Polymer LA Event - Invitation to edit Michael Bleigh has invited you to edit the following presentation: Polymer LA Event Open in Slides	Dec 09				
	MaxCDN Support MaxCDN Account Login from unrecognized IP Warning: Unknown IP Accessing Account Hello Michael, We just wanted to let you know that your account	Dec 09				
	MaxCDN Support MaxCDN Account Login from unrecognized IP Warning: Unknown IP Accessing Account Hello Michael, We just wanted to let you know that your account	Dec 09				
	Spotify New Music on Spotify See what's new on Spotify View in your browser Spotify Get ready for the best of 2014—every	Dec 09				
	Mary Best	Dec 09				





Additional resources

- <http://webcomponents.org> ← *most important entry point*
- <http://component.kitchen> ←
- <http://customelements.io> ← *custom web components catalogs*



```
<questions></questions>
```