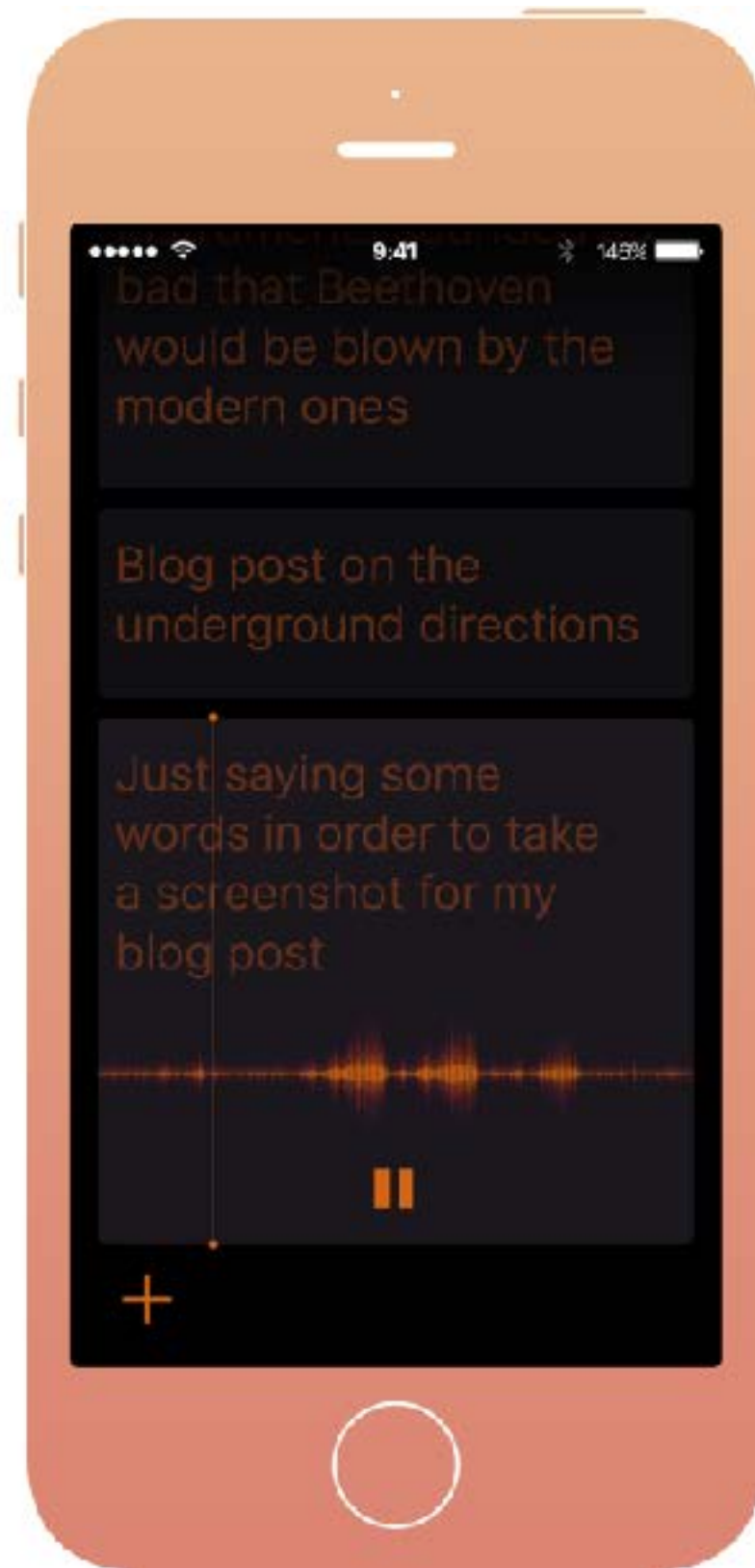
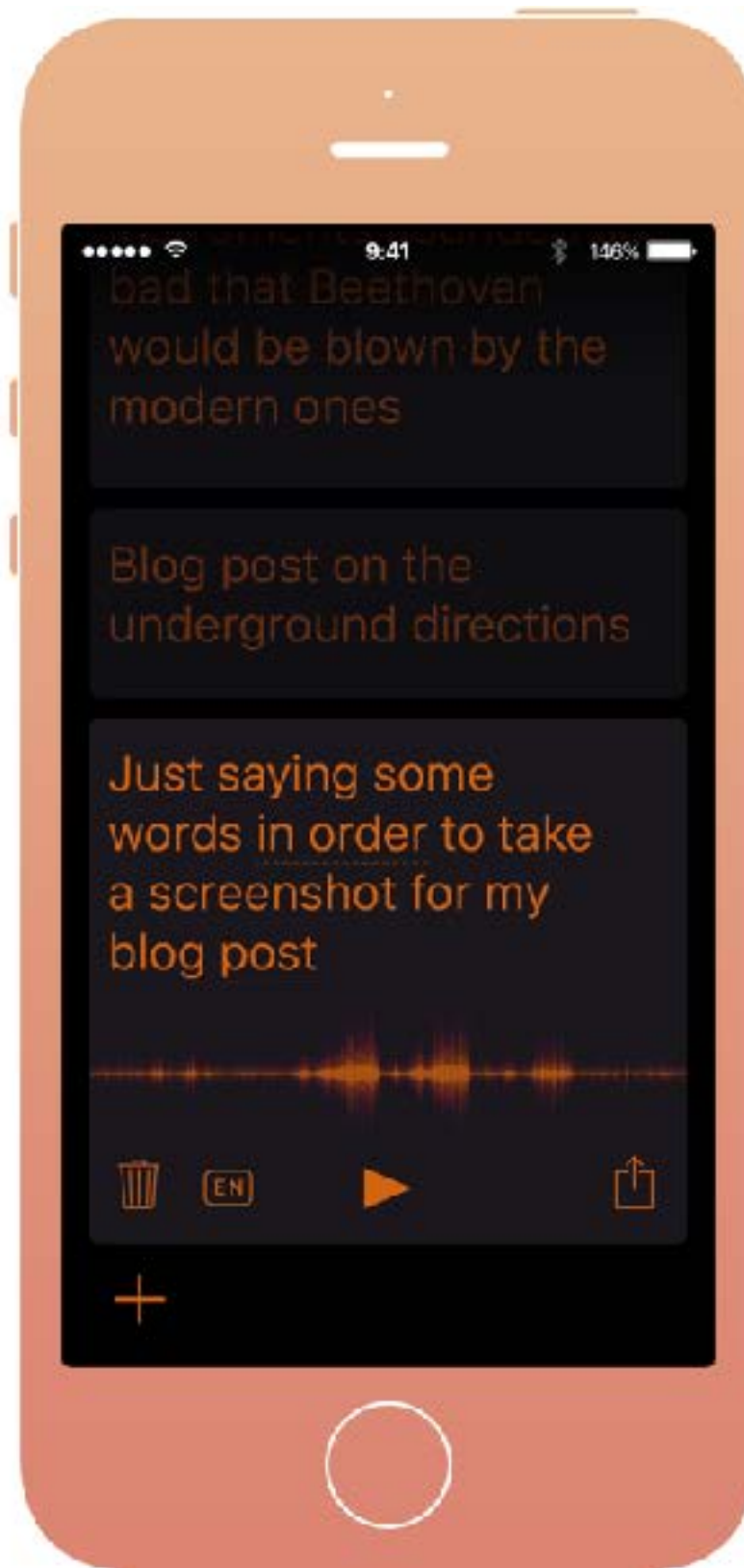
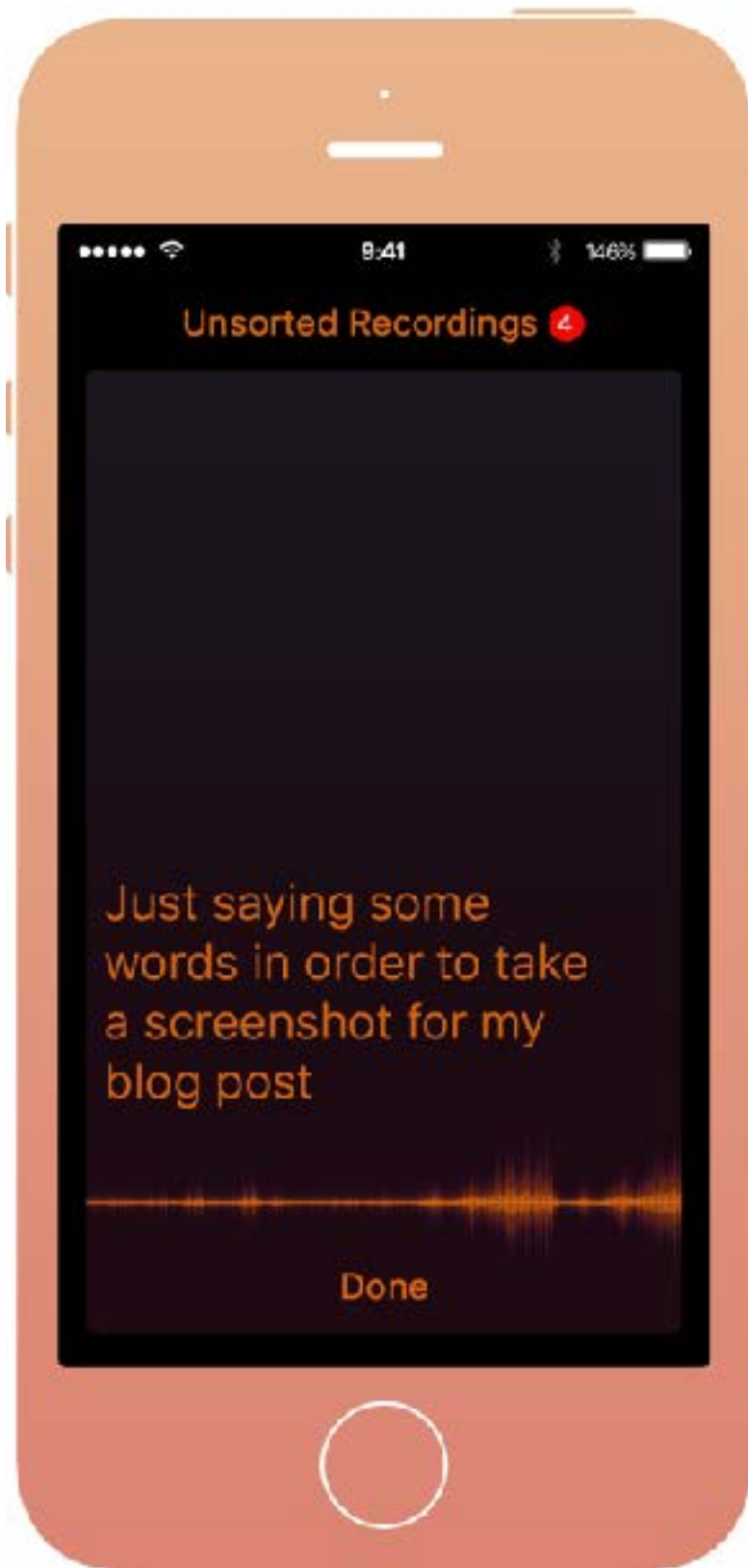


Designing Declarative APIs

By Ilya Birman,
ilyabirman.net







| | | | | | | |
|----------|--------|--------------------------|-----------------------------|------------------|----|---|
| 17:37:08 | 3983 | Новое Поле, Центральная | Снял Иван Петров | +7 913 341-23-49 | 8 | 7 |
| 17:37:01 | | | Нарушение эк. зоны | | | |
| 17:36:58 | | | Поставил Иван Петров | | | |
| 17:37:01 | * 10 | Металлургов, 82, 13 | Снял Андрей Семенов | +7 922 205-45-54 | 11 | 6 |
| 17:36:47 | | | Нарушение эк. зоны | | | |
| 17:36:49 | * 1897 | Комарова, 141, 7 | Треш. кнопка | +7 916 324-44-59 | 9 | 5 |
| 17:36:19 | | | Треш. кнопка | | | |
| 17:36:49 | 3857 | Молоды вардейцев, 49 | Поставил Анна Каренина | +7 351 903-00-76 | 12 | 4 |
| 17:36:55 | 439 | Ленина, 83, 74 | Треш. кнопка | +7 922 143-83-49 | 1 | 2 |
| 17:36:24 | 4848 | Комсомольский пр., 84 | Поставил Федор Карамзев | +7 999 312-51-54 | 4 | 5 |
| 17:36:12 | 2152 | Варламова, Уральская, 41 | Снял Константин Константино | +7 908 444-41-34 | 10 | 3 |
| 17:36:58 | | | Нарушение эк. зоны | | | |

| | | | | | | |
|----------|--------|------------------------------|-------------------------|------------------|----|---|
| 17:36:09 | 104 | 250-летия Челябинска, 27, 22 | Нарушение эк. зоны | +7 922 233-20-50 | 10 | 3 |
| 17:36:56 | * 1009 | Мороки, 6 | Сняла Софья Мармеладова | +7 351 903-06-71 | 11 | 6 |
| 17:36:48 | | | Сняла Софья Мармеладова | | | |
| 17:36:38 | 3980 | Герои Молодцов, 4, 42 | Снял Леонид Якубович | +7 902 645-53-66 | 11 | 6 |
| 17:36:54 | | | Нарушение эк. зоны | | | |
| 17:36:25 | * 4945 | Пр-т Ленина, 100а, 2-й этаж | Пропажа ТС | +7 999 312-30-00 | 12 | 4 |

| | | | | | | |
|----------|------|-----------------------------|------------------------|------------------|----|---|
| 17:36:49 | 1897 | Комарова, 114, 7 | Треш. кнопка: проверка | +7 916 423-54-91 | 9 | 5 |
| 17:36:55 | 433 | Ленина, 83, 74 | Треш. кнопка: проверка | +7 922 148-43-19 | 1 | 2 |
| 17:36:22 | 447 | 2-я Порядковая, 9 | Включение | +7 999 312-51-54 | 4 | 5 |
| 17:36:13 | 104 | 250-летия Челябинска, 37, 2 | Нарушение эк. зоны | +7 922 233-20-50 | 10 | 3 |
| 17:32:49 | 1544 | Б. Жельницкого, 5 | Треш. кнопка: проверка | +7 351 903-71-05 | 8 | 7 |
| 17:32:49 | 3708 | Комсомольский, 63 | Разряд АИБ | +7 922 653-45-76 | 1 | 2 |



104

Трешка

Часто ищем

220 В

АИБ

Вскр. прибор

1. Вх. дверь (СМК)

2. Вх. дверь (объем)

4. КТС

250-летия Челябинска, 37, 52

Квартира Булочникова Оксана Андреевна

Код. сл. «Вентилятор»

Пароль 514-791-010

Что где

Антенна штыведал на приборе внутри

Прибор внутри справа от входа

Индикатор снаружи над входом



ГБР не определена

Обработано



Проверка...




Блокировка...



bureau.ru/en

browser: bureau.ru

БЮРО> [Новости](#) [Проекты](#) [Книги](#) [Школа](#) [Курсы](#) [Советы](#) [Коворкафе](#) [О компании](#) [ИБ](#)



Начало занятий — 28 августа

ШКОЛ

МЕНЕДЖЕРОВ

+2 новых предмета

6
дней до конца

Открыта запись
Подготовительные курсы в школу: учебная программа

Набор в школу

- [Дизайнерам](#)
- [Редакторам](#)
- [Менеджерам](#)



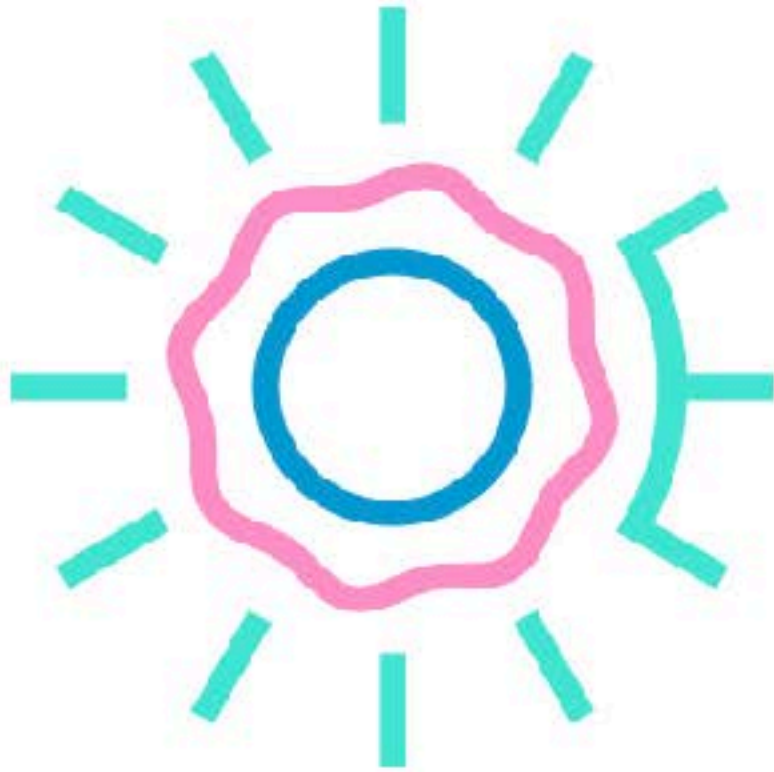
Ilya Birman
When I Am 128

Aegea blogging engine

blogengine.me



ilyabirman.net



[Emerge.js for nice page loading](#)



[Likely, the social buttons](#)



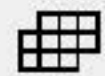
[Jouele, the audio player](#)

Designing Declarative APIs

By Ilya Birman,
ilyabirman.net

1. Theory

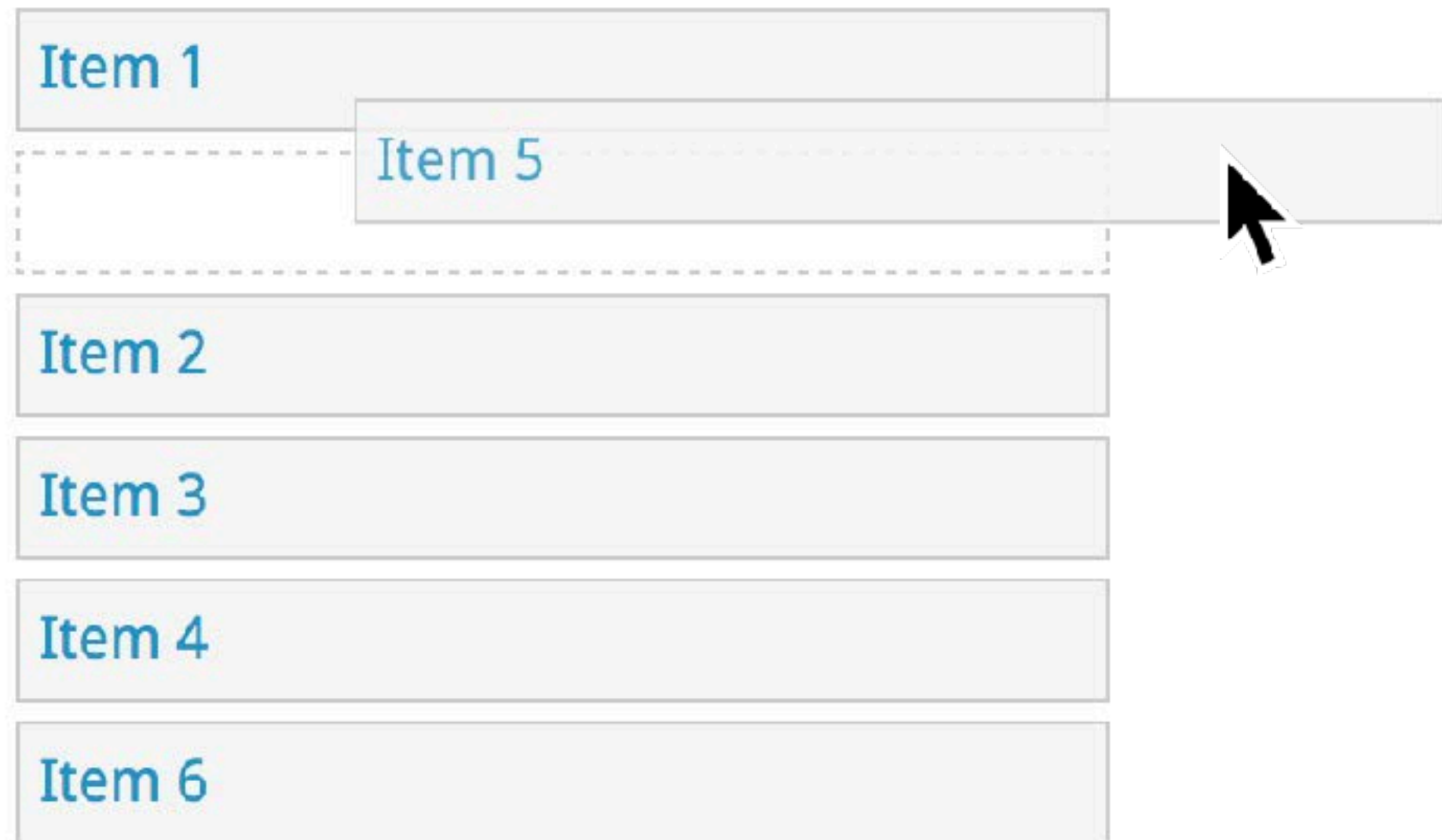
23.10.2017 02:01:35



| Mo | Tu | We | Th | Fr | Sa | Su | | 2013 | | |
|------|----|----|----|----|----|----|-------|--------|----|----|
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | Jan | 2014 | | |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | Feb | 2015 | 00 | |
| 28 | 29 | 30 | 31 | | | | Mar | 2016 | 01 | 00 |
| June | | | | 1 | 2 | 3 | Apr | 2017 • | 02 | 01 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 | May • | 2018 | 03 | 02 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | June | 2019 | 04 | 03 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 | July | 2020 | 05 | 04 |
| 25 | 26 | 27 | 28 | 29 | 30 | | Aug | 2021 | 06 | 05 |
| | | | | | | | Sept | | | |
| | | | | | | | Oct | | | |
| July | | | | | | 1 | Nov | | | |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | Dec | | | |

Demos

Sortable List



SuperComplete

Implements text completion
in input fields

```
<script src="supercomplete.js" />  
<link rel="stylesheet"  
      src="supercomplete.css"  
>
```



```
<script src="supercomplete.js" />  
<link rel="stylesheet"  
      src="supercomplete.css"  
>
```

```
<script>  
var superCompleteInstance =  
    new SuperComplete ('id')  
</script>
```

```
<script src="supercomplete.js" />  
<link rel="stylesheet"  
      src="supercomplete.css"  
>
```

```
<script>  
$ ( '#id' ).superComplete ()  
</script>
```



```
<script src="supercomplete.js" />  
<link rel="stylesheet"  
      src="supercomplete.css"  
>
```

```
<input type="text" class="supercomplete" />
```

Imperative → Declarative

fotorama.io



by
Artem
Polikarpov



helsinki.jpg

berlin.jpg

rome.jpg

zurich.jpg

```
  
  
  

```

```
<div class="fotorama">  
  
  
  
  
  
  
</div>
```


fotorama.io



by
Artem
Polikarpov



“But this is wrong!..”

“Just linking a script
shouldn’t cause anything
to happen on a page”


```
<div class="special">  
  Text  
</div>
```

```
<link rel="stylesheet" src="main.css" />
```

```
<div class="special">
```

```
  Text
```

```
</div>
```

```
<link rel="stylesheet" src="main.css" />
```

```
<script>
```

```
document.getElementsByClassName('special')  
——.applyStyles('main')
```

```
</script>
```

```
<div class="special">
```

```
  Text
```

```
</div>
```


Auto initialization is a good thing.

It's as appropriate for JavaScript
as it is for CSS

**“This may cause
conflicts!”**

```
<div class="supercomplete">
```

```
...
```

```
</div>
```

```
<script src="supercomplete.js" />  
<link rel="stylesheet"  
      src="supercomplete.css"  
>
```

```
<script>  
var superCompleteInstance =  
    new SuperComplete ('id')  
</script>
```


Conflicts are a separate topic.

CSS classes or JavaScript constructors may also cause conflicts. Solve by thoughtful naming and selective linking

**“This will not work
in SPAs”**

Frameworks

Angular

React

Frameworks usage

Angular One in about 2000 ... 10 000 websites

React Five times less

According to some websites

SPAs are special.

Compatibility with 99,97% of the Web
is a pretty good start

SPAs are special.

Compatibility with 99,97% of the Web
is a pretty good start. SPAs support
is a feature

“HTML for markup,
CSS for appearance,
JS for behaviour —
let’s not mix them up!”

SEND


```
<input  
  type="button"  
  value="Send"  
  onclick="this.form.submit ()"  
>
```

```
<input  
  type="submit"  
  value="Send"  
>
```

[Click here](#)

Click here




```
<a  
  href=" ... "  
  onmouseover="this.style.color = 'red'"  
  onmouseout="this.style.color = ''"  
>Click here</a>
```

```
<a href=" ... ">Click here</a>
```

```
a:hover {  
  color: red  
}
```

Important behaviours
deserve declarative
APIs.

Your thing is important :-)

Use JavaScript for actual programming.

Writing boilerplate code that just needs
to be there for the things to work
is not programming

“He just can’t figure out
JavaScript”

Pascal

C++

Cocoa

asm

PHP

ObjC

C

Logo :-)

AppleScript

Win32 API

Delphi

JavaScript

Lua


Less code, more meaning

What can become declarative becomes
declarative (or state-based)

lea.verou.me:

HTML APIs: What they are design a good one

Posted on FEBRUARY 16, 2017 *by* LEA VEROU

I'm a strong believer in lowering the barrier of what it takes to create interactive experiences and improving the user experience. I recently wrote  an article over at Smashing Magazine aimed at libraries that want their libraries to be usable via HTML (i.e. without JavaScript). Sounds interesting?  [Read it here.](#)

Lowering the barrier?

Less code means less errors, less time
to figure out and more users

This isn't “for dummies”.

This is just better

This isn't "for dummies".

This is just better. As a side effect,
beginners will get it faster, too

```
<script>  
$ ('#id').superComplete ()  
</script>
```

...

```
<input type="text" id="id" />
```



```
<input type="text" id="id" />
```

...

```
<script>  
$ ( '#id' ).superComplete ()  
</script>
```

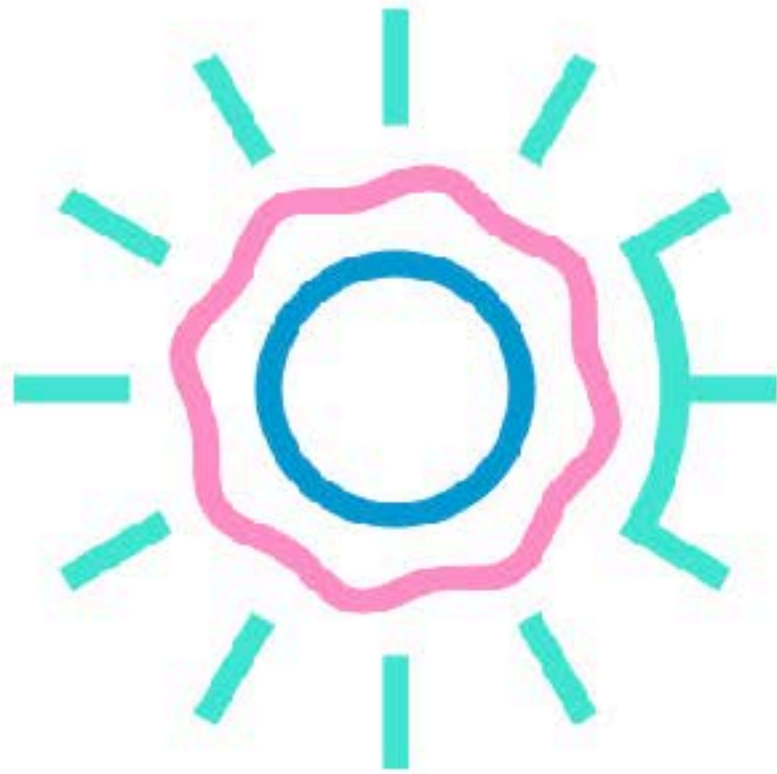
```
<input type="text" />
```

```
<input type="text" class="supercomplete" />
```

```
<input type="radio" />
```

```
<input type="radio" />
```

2. Practice



[Emmerge.js](#) for nice page loading



[Likely](#), the social buttons

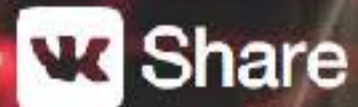
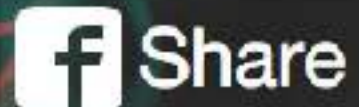
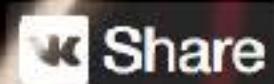
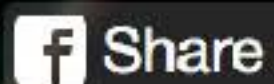
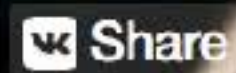
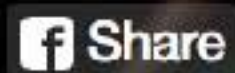
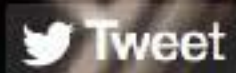
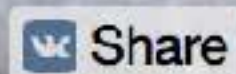
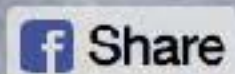
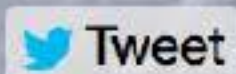
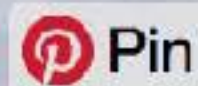
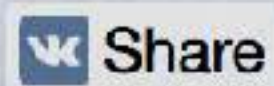
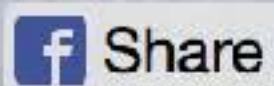
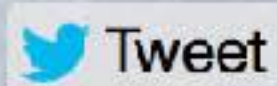
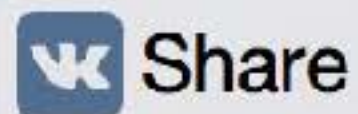
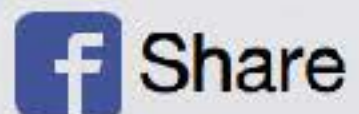


[Jouele](#), the audio player

Likely
Social sharing
buttons



maintained by
Ivan
Akulov



```
<div class="likely">
  <div class="twitter">Tweet</div>
  <div class="facebook">Share</div>
  <div class="linkedin">Link</div>
  <div class="gplus">Plus</div>
  <div class="vkontakte">Share</div>
  <div class="telegram">Send</div>
  <div class="pinterest"
    data-media="pinnable.png"
  >Pin</div>
</div>
```



```
<div class="likely">  
  <div class="twitter">Tweet</div>  
  <div class="facebook">Share</div>  
  <div class="linkedin">Link</div>  
  <div class="gplus">Plus</div>  
</div>
```

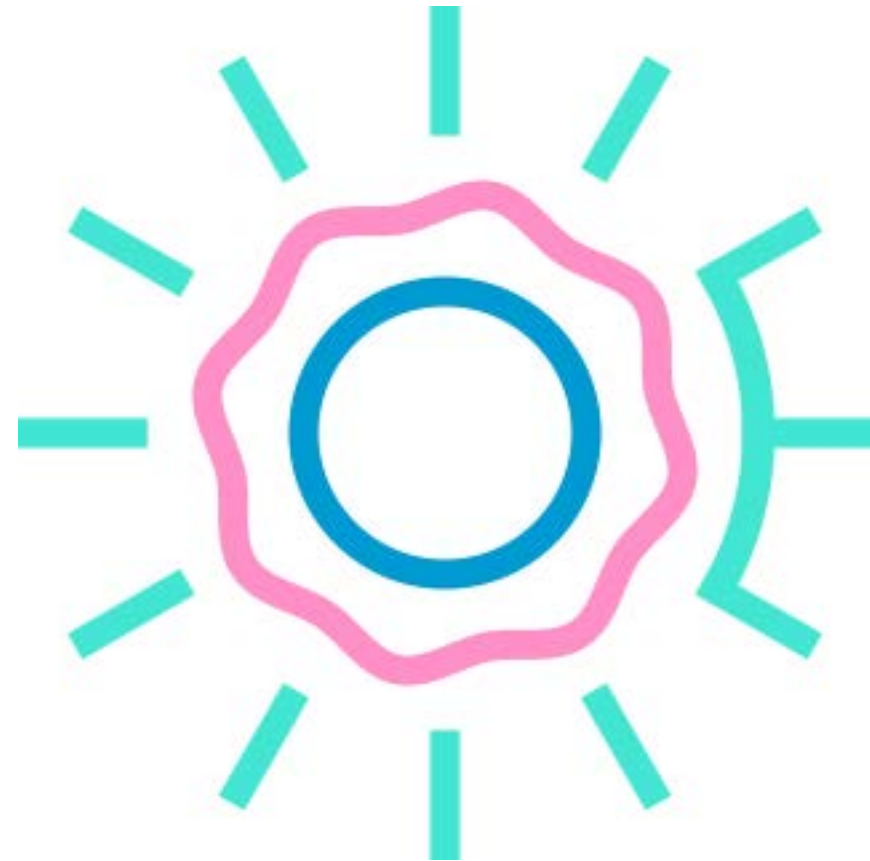
```
<div class="likely">  
  <div class="facebook">Share</div>  
  <div class="twitter">Tweet</div>  
  <div class="gplus">Plus</div>  
  <div class="linkedin">Link</div>  
</div>
```

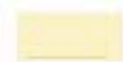
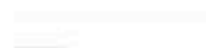
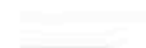
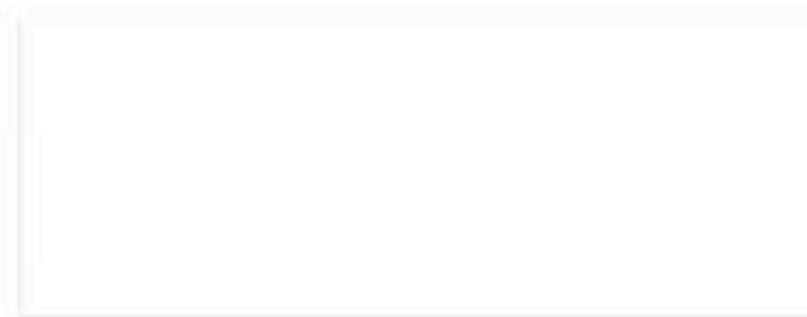
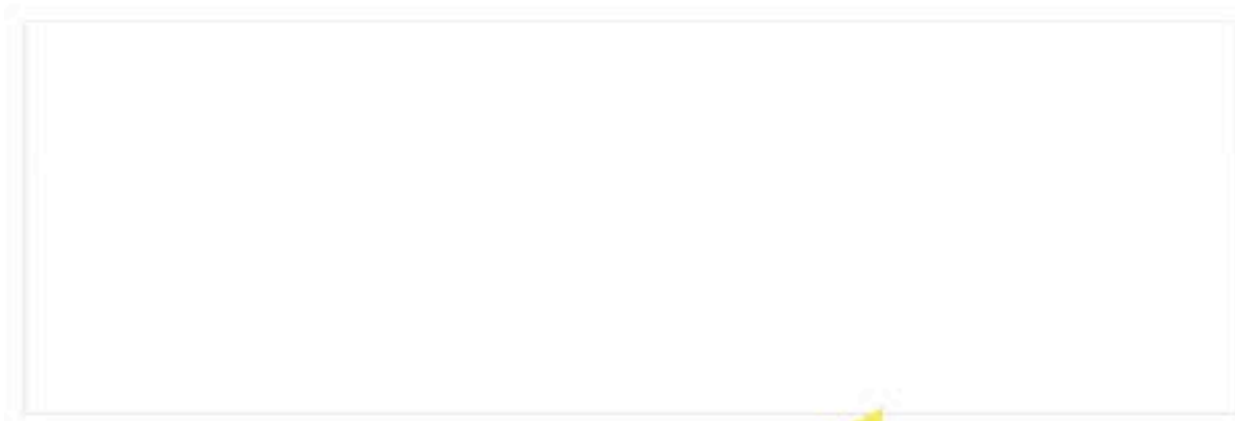
```
<div class="likely">  
  <div class="facebook">Share</div>  
  <div class="twitter">Tweet</div>  
  <div class="gplus"></div>  
  <div class="linkedin"></div>  
</div>
```



Thing, not action

Emerge
Page load
coordinator





Several lines of faint, illegible text or a list, located in the bottom right corner of the page.



Илья Берман

[Проекты](#)

[Музыка](#)

[Рисо](#)

[Блог](#)

Берлинская метрополитенская

[Кента об интерфейсе](#)

[ru](#)

[in](#)




```

```

```

```

```
  
<div class="caption">Beautiful</div>
```

```
<div class="emerge">  
    
  <div class="caption">Beautiful</div>  
</div>
```

```
<div class="emerge">  
    
  <div class="caption">Beautiful</div>  
  <!-- more images and video -->  
</div>
```

```
<div class="emerge" data-spin="true">  
    
  <div class="caption">Beautiful</div>  
  <!-- more images and video -->  
</div>
```

```
<div
  class="emerge"
  data-spin="true"
  data-effect="slide"
  data-up="20px"
>
  
  <div class="caption">Beautiful</div>
  <!-- more images and video -->
</div>
```



```
<div class="emerge" data-effect="slide"  
  data-down="20px">  
  <!-- ... -->  
</div>
```

```
<div class="emerge" data-effect="slide"  
  data-up="20px" data-continue="true">  
  <!-- ... -->  
</div>
```

```
<div class="emerge" data-spin="true">  
  <!-- ... -->  
</div>
```

```
<div class="emerge" data-spin="true">  
  <!-- ... -->  
</div>
```

Doesn't have to be
everything.

Data attributes

data-spin

data-effect

data-continue

Data attributes

data-spin

data-spin-element

data-continue

data-await

data-hold

data-effect

data-up

data-down

data-left

data-right

data-duration

data-scale

data-angle

data-origin

data-expose

data-opaque

data-style-1

data-style-2

data-emerge-event

Data attributes

```
<div class="fotorama emerge"  
  data- ...  
  data- ...  
  data-effect ... ???  
  data- ...  
  data- ...  
>  
  ...  
</div>
```

Data attributes

data-emerge-spin

data-emerge-effect

data-emerge-continue

Data attributes

```
<div class="emerge" data-effect= ... >  
  <div class="fotorama" data-effect= ... >  
    ...  
  </div>  
</div>
```

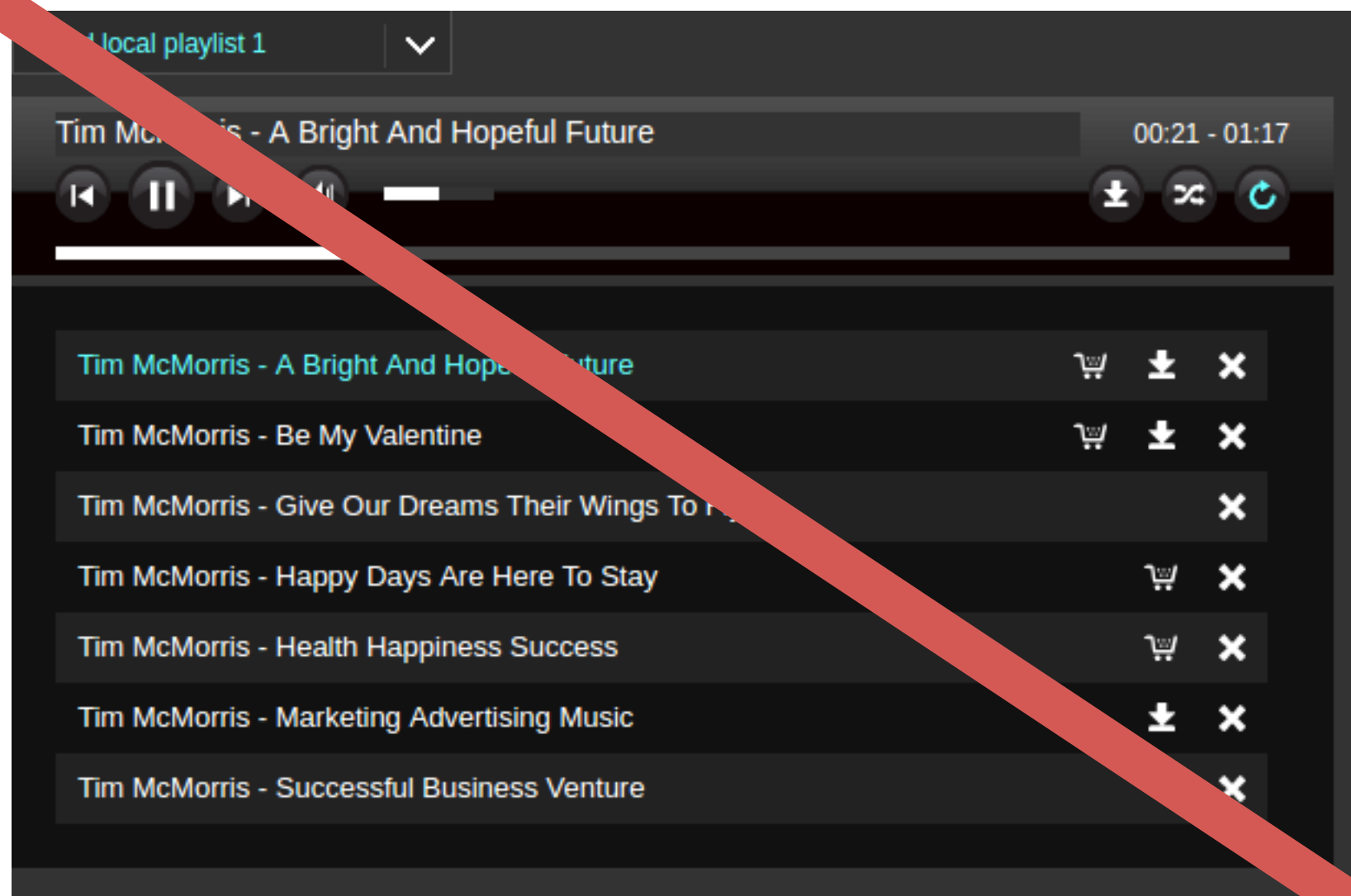

Universal → Clean

Jouele

Audio player
for the Web



maintained by
Evgeniy
Lazarev



The image shows a music player interface with a large red diagonal line crossing it out. The interface includes a track list, a search bar, and various playback controls.

Track 1

01. Yellow Claw & Tropkillaz - Assets feat. The Kemist

02. MACKLEMORE & RYAN LEWIS vs MURDER LAZER - can't hold us remix (ft swappi and 1st klase)

03. Crush ft. Camden Cox - Could This Be Real (Luminos Remix)

04. DJ SLiNK X DIRTY SOUTH JOE - CERTIFIED TRAP OUR OFFICIAL MiX

05. Knife Party - LRAD (CRNKN FESTIE RMX)

06. Sandro Silva & Quintino - Epic (Carnage & Luminos Festival Trap Remix)

07. New World Sound & Thomas Newson - Flute (Tomsie & Simeon Festival Trap Remix)

08. Sick Individuals & Axwell ft. Taylr Renee - I AM (Jacob Plant Remix)

09. Morgan Page vs. Deorro - "Carry Yee" (Morgan Page Bootleg Remix)

10. Helicopter Showdown & Kezwik ft. La Meduza - No Return

11. Faithless vs. Danny Avila vs. Justice - We Are Poseidon Insomnia (MAKJ Vs. VINAI Edit)

12. Headhunterz ft. Krewella - United Kids Of The World (Project 46 Remix)

Search for track

► The Beatles: Yesterday

0:00 2:05



Jouele

```
<a href="yesterday.mp3">The Beatles:  
Yesterday</a>
```

[The Beatles: Yesterday](#)

```
<a href="yesterday.mp3" class="jouele">The  
Beatles: Yesterday</a>
```

▶ The Beatles: Yesterday

0:00 2:05



```
<h1>The Beatles</h1>
```

```
<a href="yesterday.mp3"  
class="jouele">Yesterday</a>
```

```
<a href="letitbe.mp3"  
class="jouele">Let it be</a>
```

```
<a href="heyjude.mp3"  
class="jouele">Hey Jude</a>
```



```
<h1>The Beatles</h1>
```

```
<div class="jouele-playlist">  
  <a href="yesterday.mp3"  
    class="jouele">Yesterday</a>  
  <a href="letitbe.mp3"  
    class="jouele">Let it be</a>  
  <a href="heyjude.mp3"  
    class="jouele">Hey Jude</a>  
</div>
```

DEMO

Unreleased

How is it done?

```
<img ...  
  class="jouele-control"  
  data-type="play-pause"  
>
```

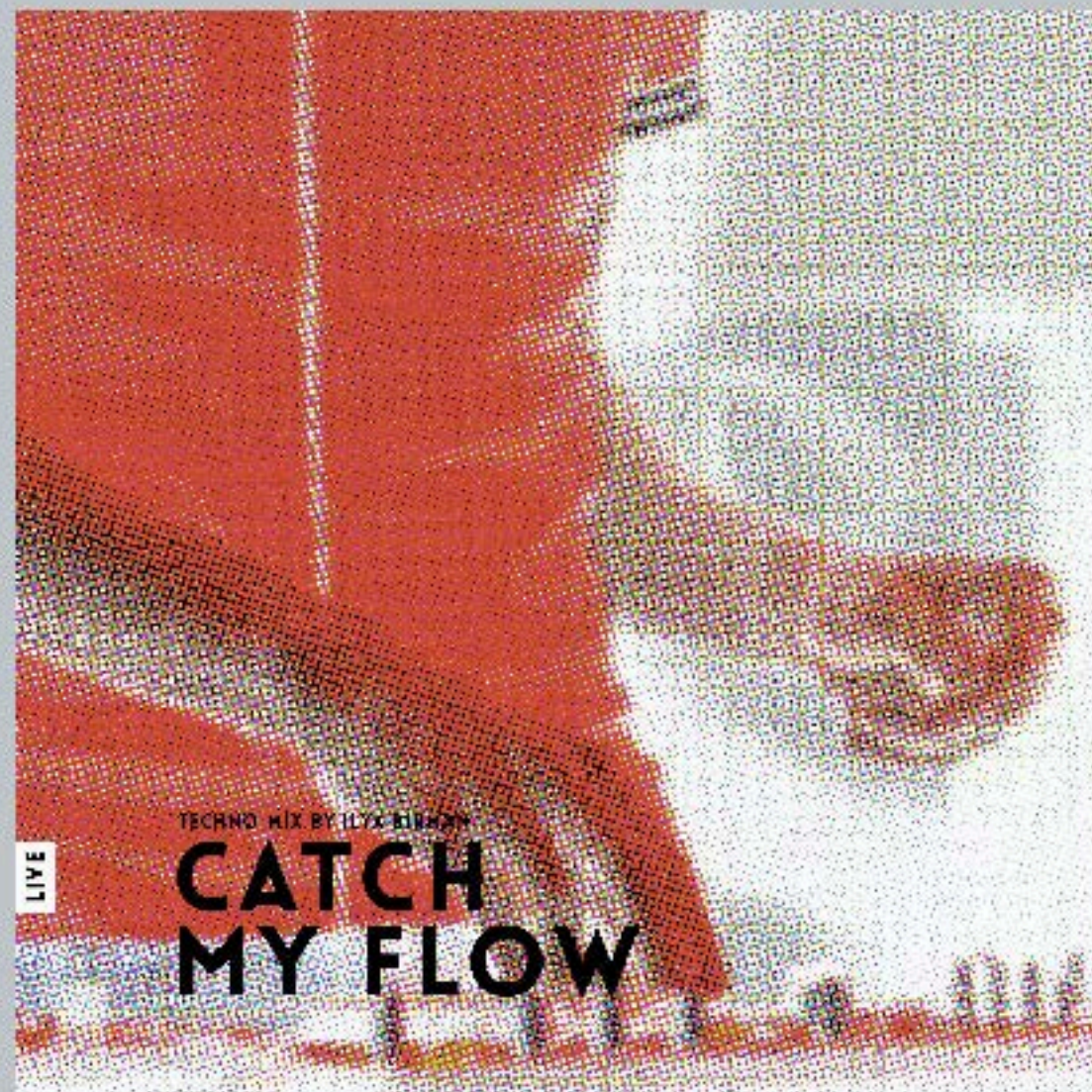
```
<tr  
  class="jouele-control"  
  data-type="seek"  
  data-to="12:34"  
> ... </tr>
```

One-way control

1. Image controls the player
2. Table rows control the player

Two-way control

1. Image controls the player
2. Table rows control the player
3. The player controls the image
4. The player controls the table rows

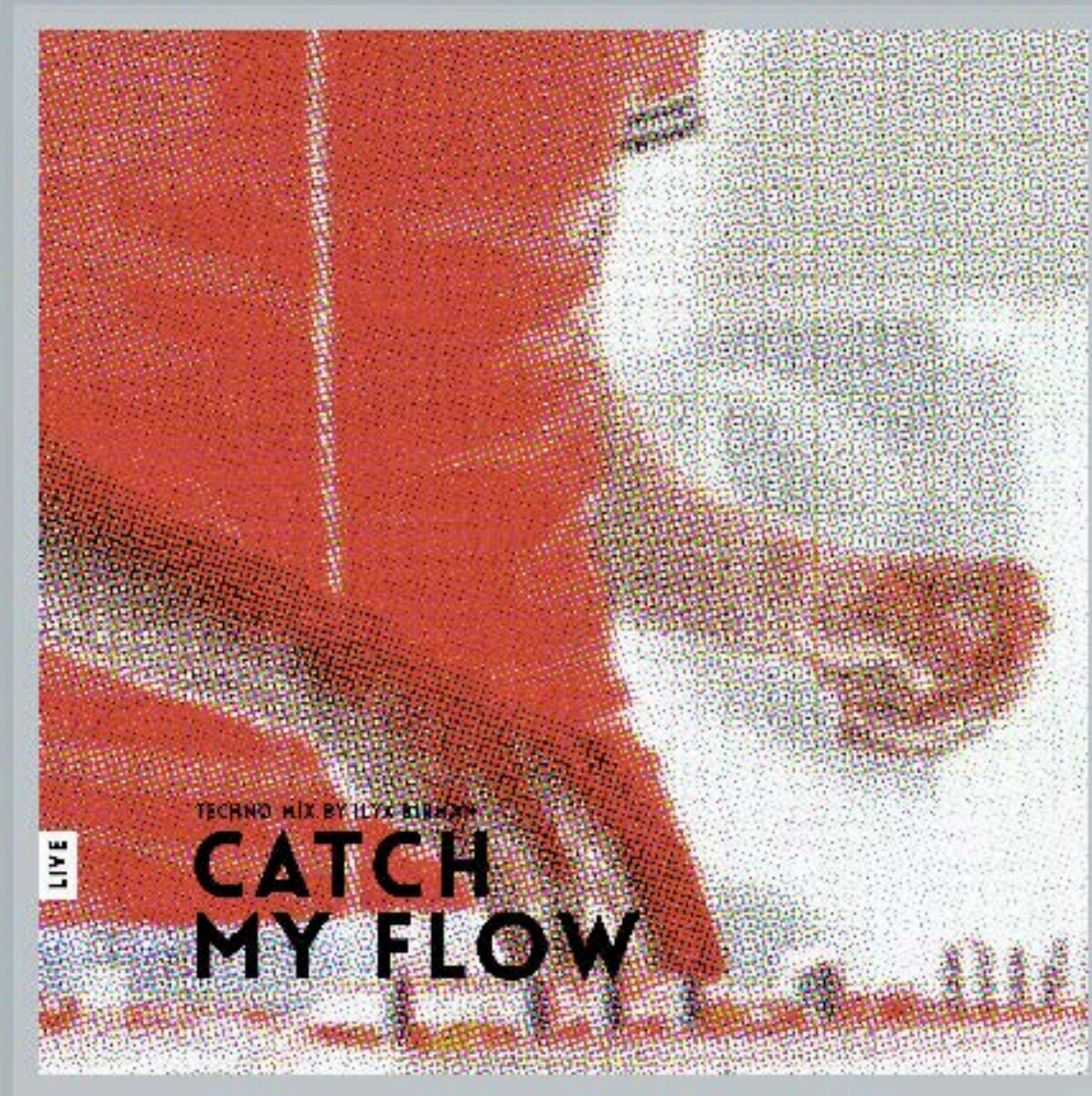


LIVE

TECHNO MIX BY ILYX BIRMAN

CATCH MY FLOW

Callback?
Event?



Abstract classes

Defined, but not implemented

Abstract classes

- .jouele-is-playing
- .jouele-is-buffering
- .jouele-is-unavailable
- ...

```
img.jouele-control.jouele-is-playing {  
  outline: rgba(255,255,255,.2) 10px solid;  
}
```

```
<tr  
  class="jouele-control"  
  data-type="seek"  
  data-to="12:34"  
> ... </tr>
```

```
<tr  
  class="jouele-control"  
  data-type="seek"  
  data-range="12:34 ... 15:26"  
> ... </tr>
```

```
.mix-playlist td.jouele-is-within {  
    background: rgba(255,255,255,.2);  
    color: #fd0093;  
}
```

Conclusion

Why

1. Code makes sense, related code is in one place, less errors, more users.
2. The code remains sensible without JavaScript (i.e. in RSS or email).

How

1. Extend the standard HTML tags when it makes sense.
2. Use simple data attributes.
3. Use abstract state classes in CSS for two-way control.
4. Leave JavaScript for the actual programming

What's next

1. Web Components
2. CSS custom properties

<likely>



Tweet



Share



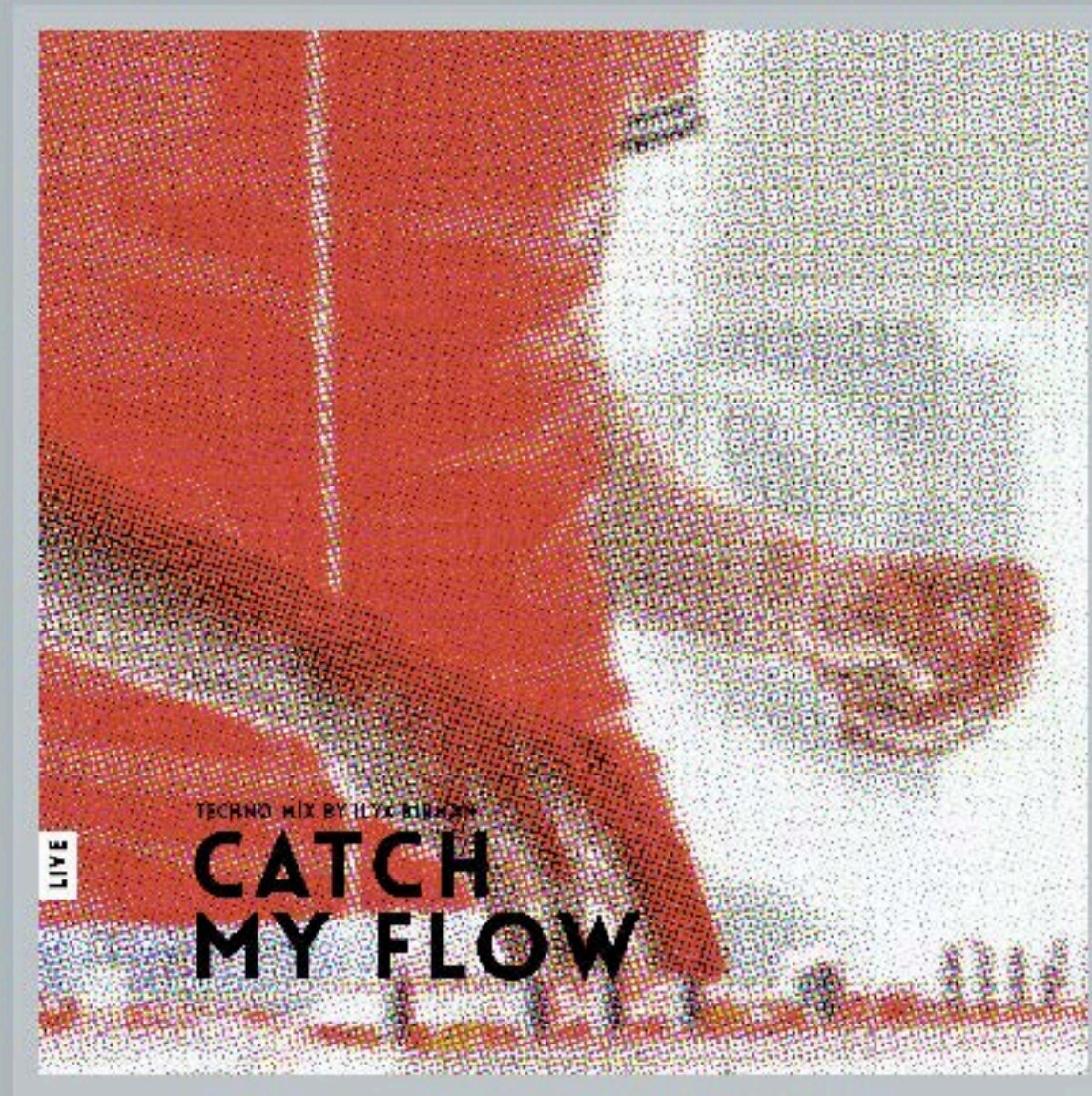
Plus



Share



Pin



<table>

...

</table>

```
.element:loading .element-contents {  
  opacity: 0;  
}
```

```
.element .element-contents {  
  opacity: 1;  
  transition: opacity 1s ease-out;  
}
```

```
.element:loading .element-stub {  
  ...  
}
```

```
.element .element-contents {  
  --opacity-loading: 0;  
  --transition-loaded: opacity 1s ease-out;  
  opacity: 1;  
}
```

```
.element .element-stub {  
  --opacity-loading: 1;  
  opacity: 0;  
}
```

What if it was part of HTML and CSS?

Choose what makes sense for your product

Thanks!

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