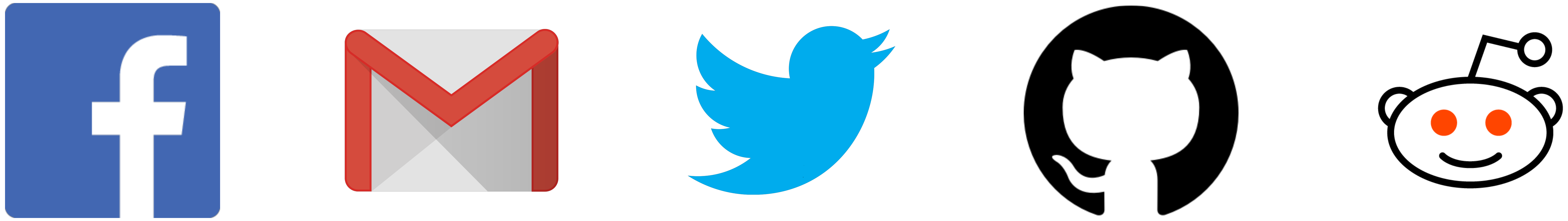
Theodo

Take the *goRe* out of the Djan*goRe*act stack

Developing, packaging and integrating JS apps with Django

/n6g7 /n4ng5l nathang@theodo.co.uk

Single page applications are the new norm



Django alone isn't enough anymore 😕

How do I use a JS app alongside Django? 🤔

No standard setup for a Django+Javascript site

What are the benefits?

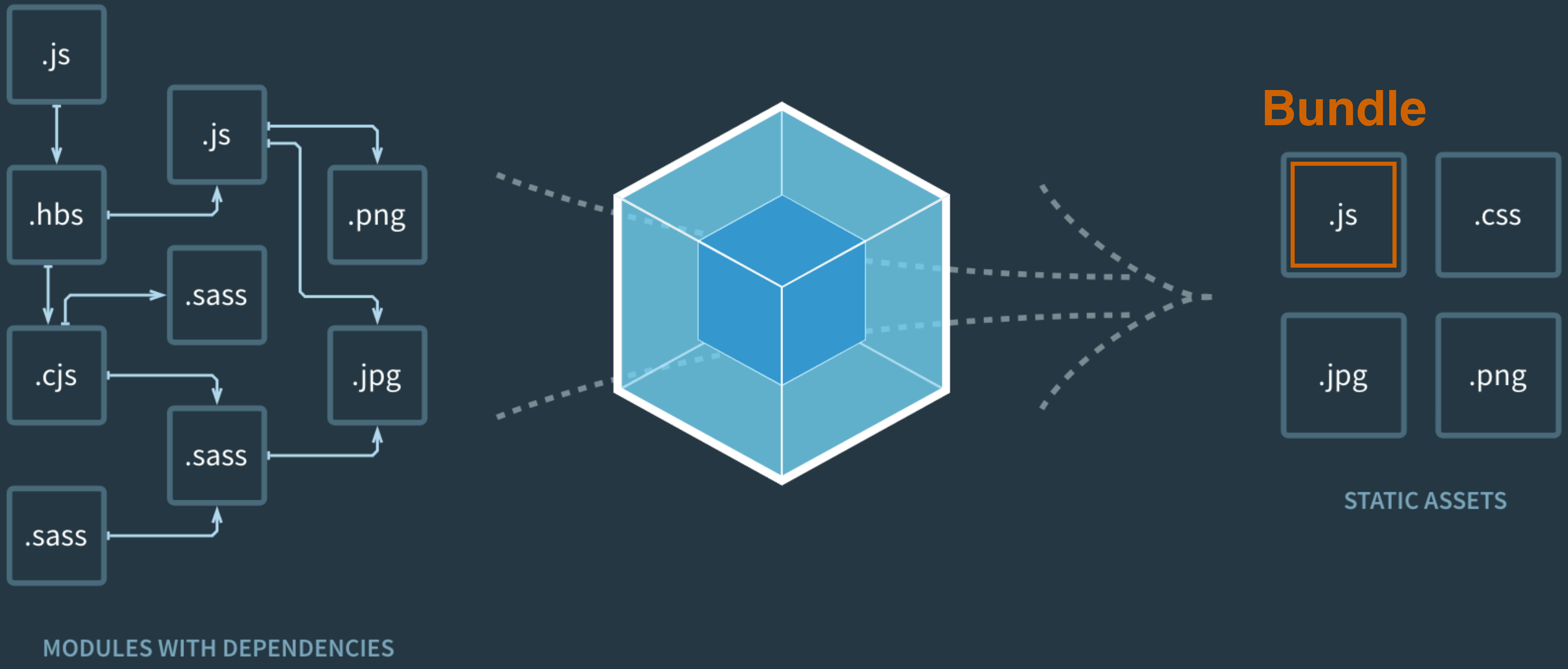
Plan

1. Setting up a development environment
2. Deploying to production
3. Leveraging Django in the frontend: form validation

1

Setting up a development environment

webpack



.js

.js

.hbs

.png

.sass

.cjs

.jpg

.sass

.sass

MODULES WITH DEPENDENCIES

Bundle

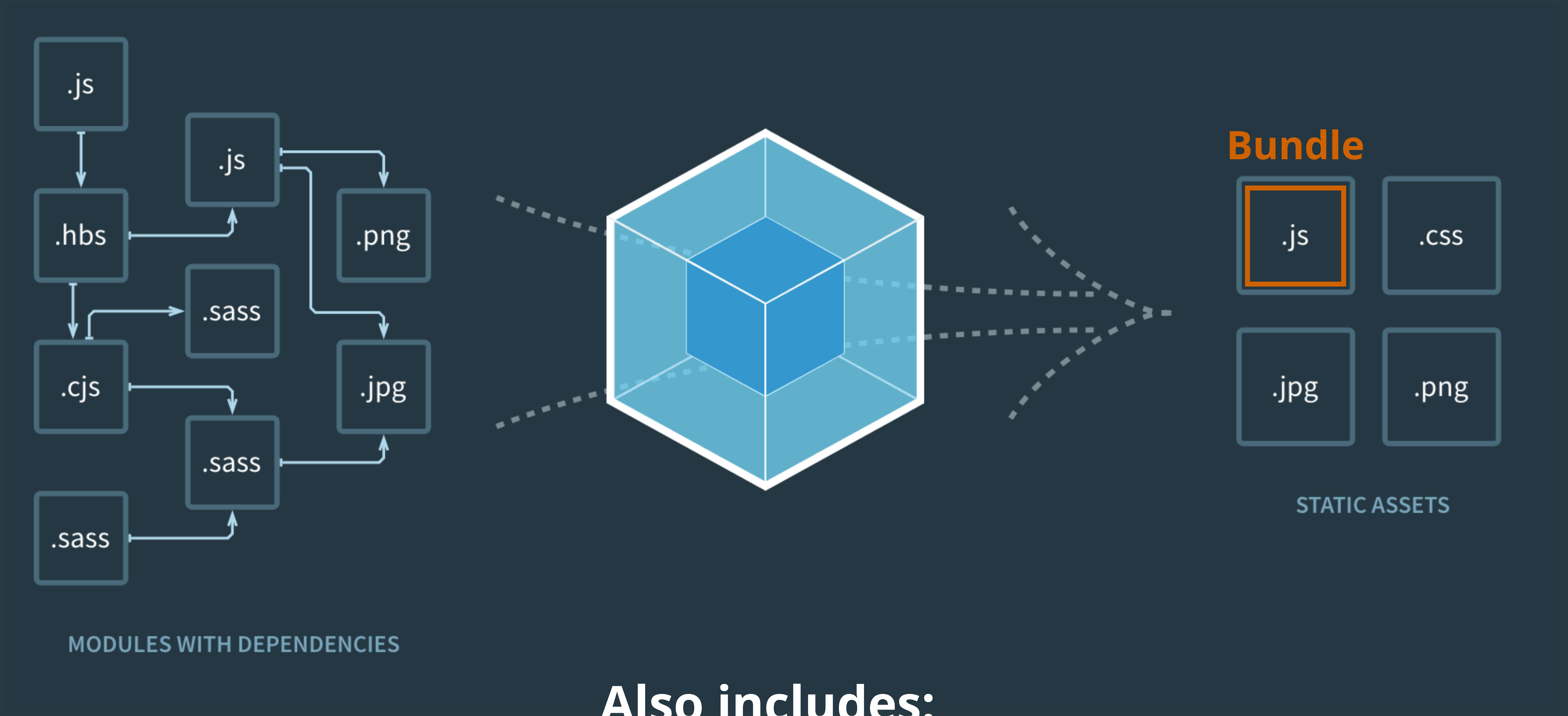
.js

.css

.jpg

.png

STATIC ASSETS

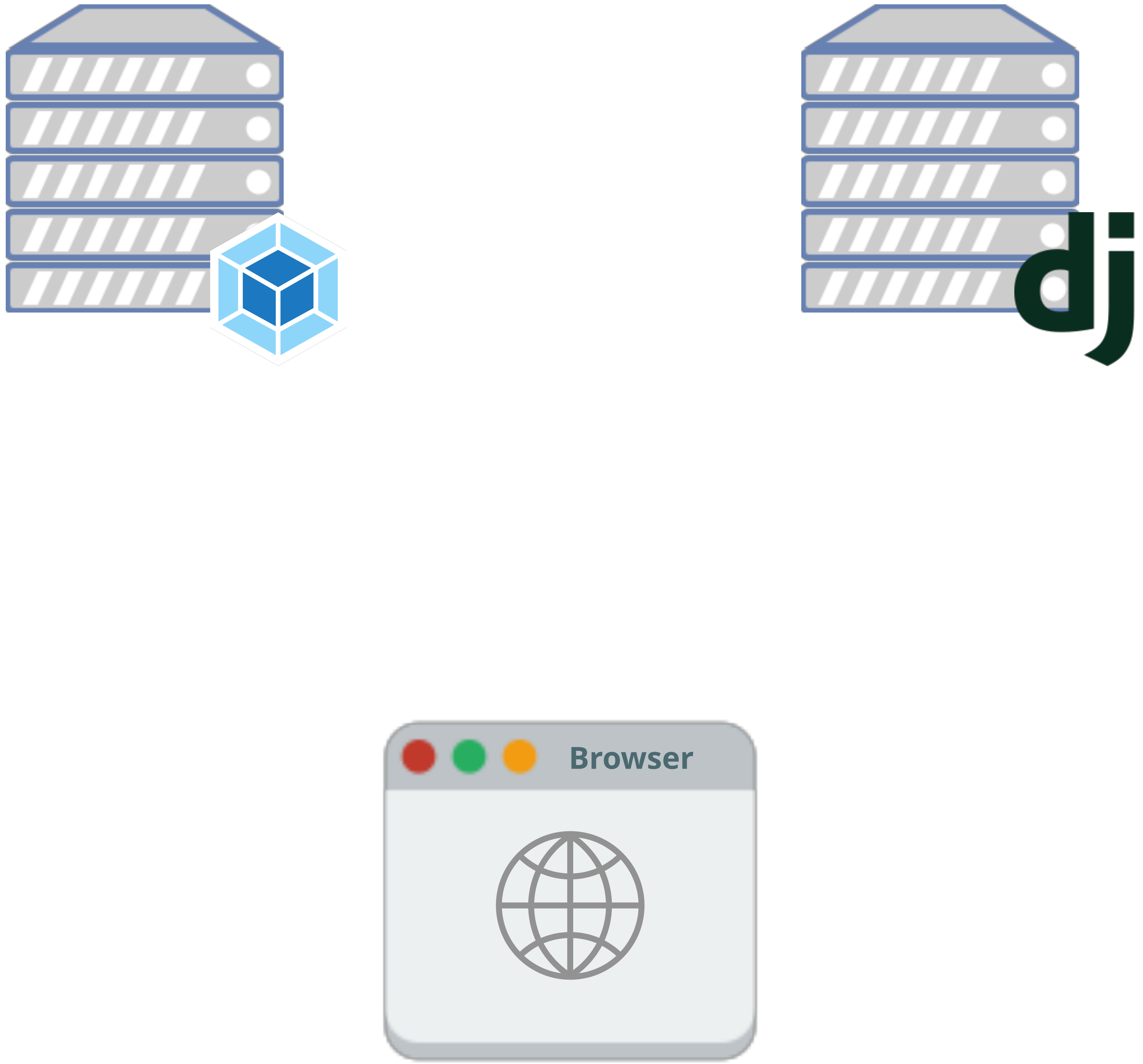


Also includes:

development server

hot reloading

dj

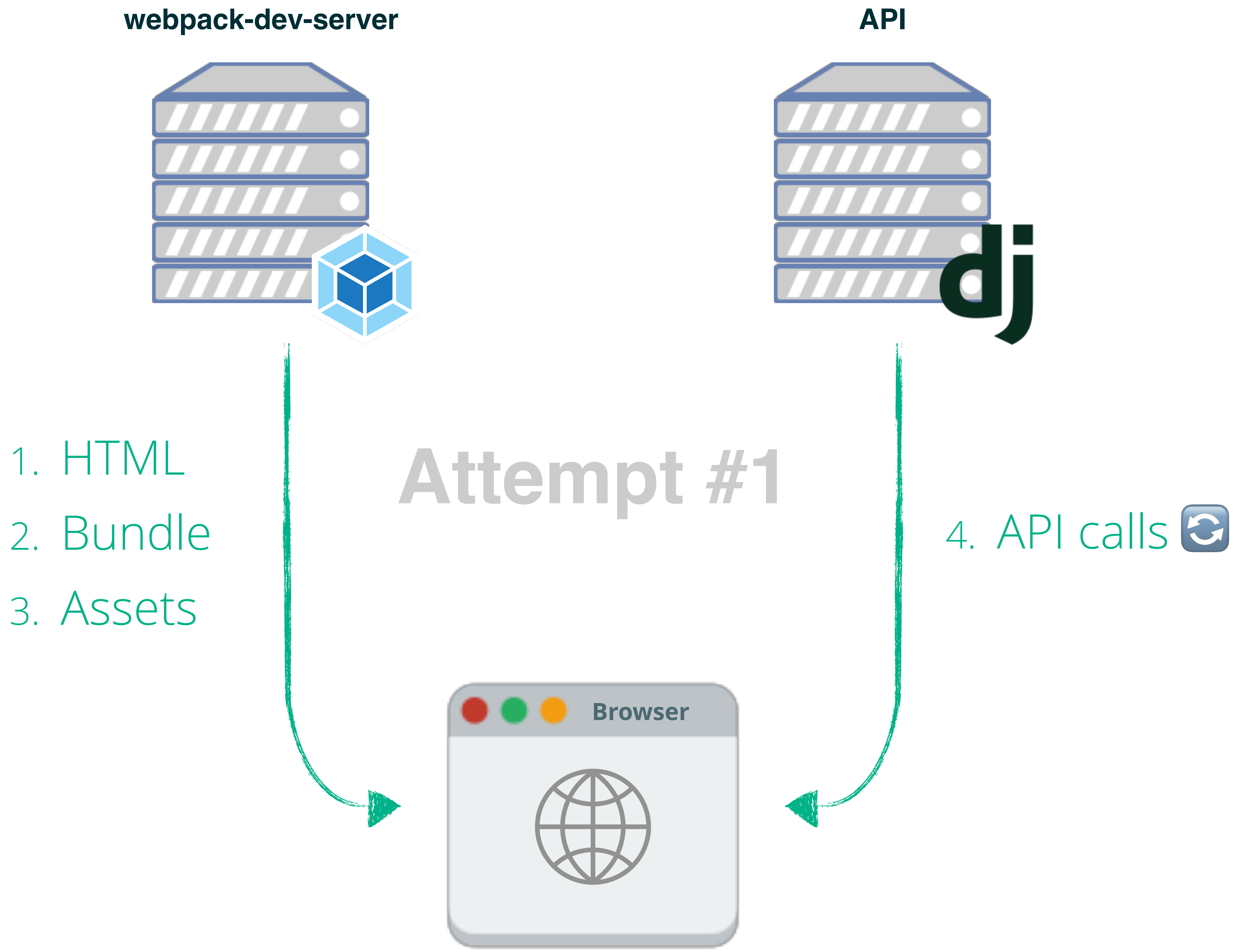

Browser

Problem #1

How do I run Django and Webpack side-by-side in dev?

Attempt #1

Attempt #1



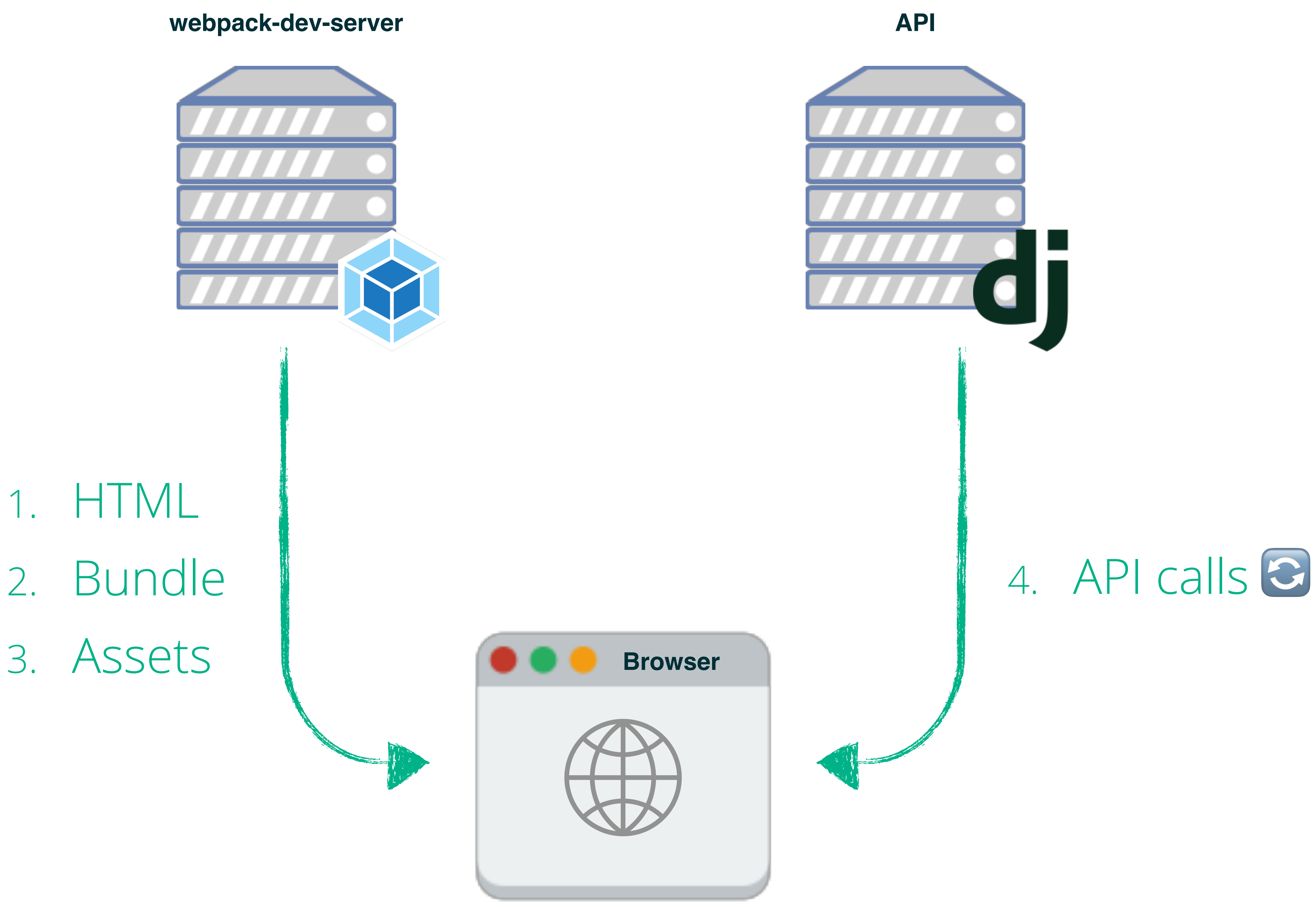
webpack-dev-server

API

1. HTML
2. Bundle
3. Assets

4. API calls 🔄

Attempt #1



webpack-dev-server

API

1. HTML
2. Bundle
3. Assets

4. API calls 🔄

Browser

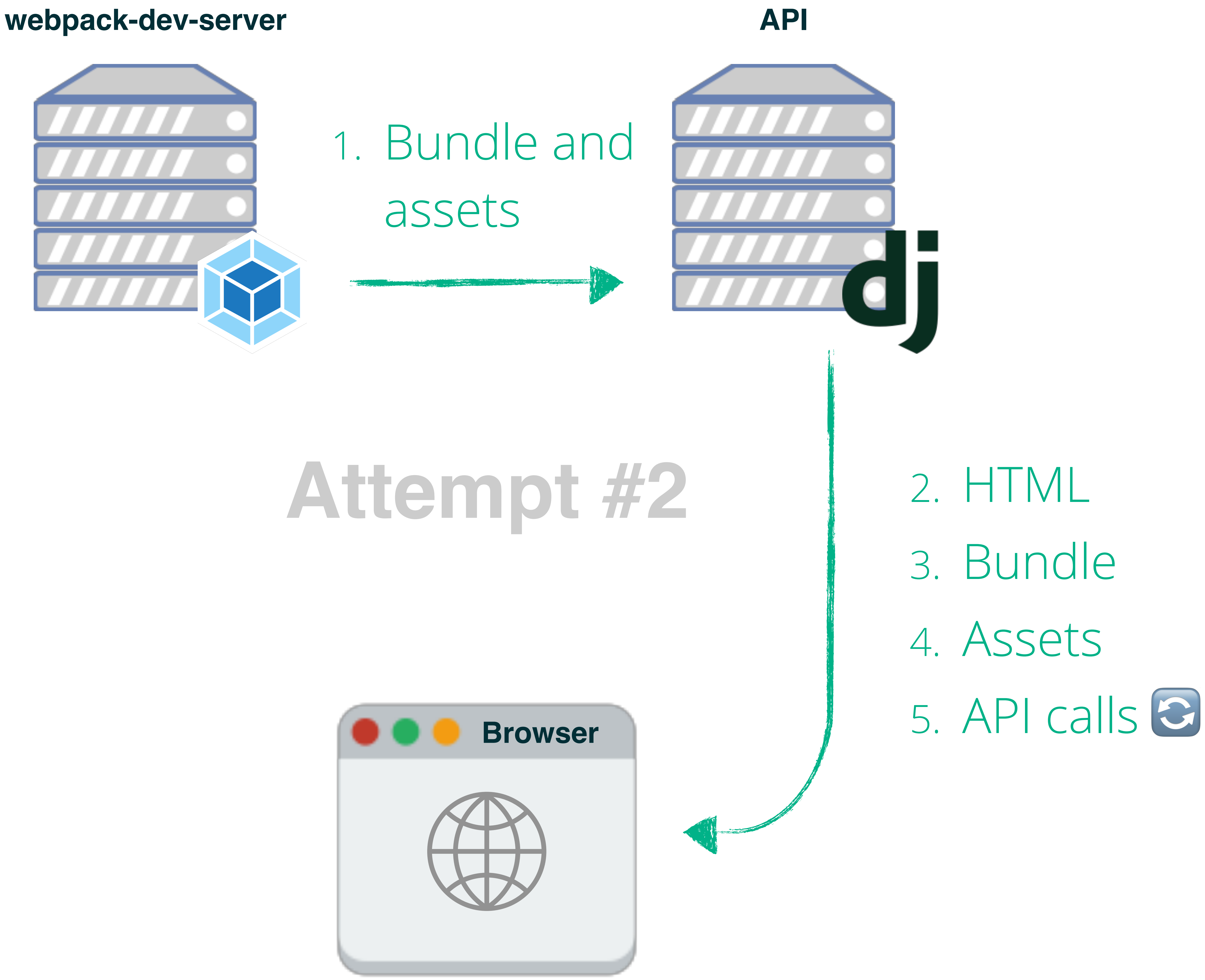
❌ HTML in production?

❌ CORS errors in dev!

👎

Attempt #2

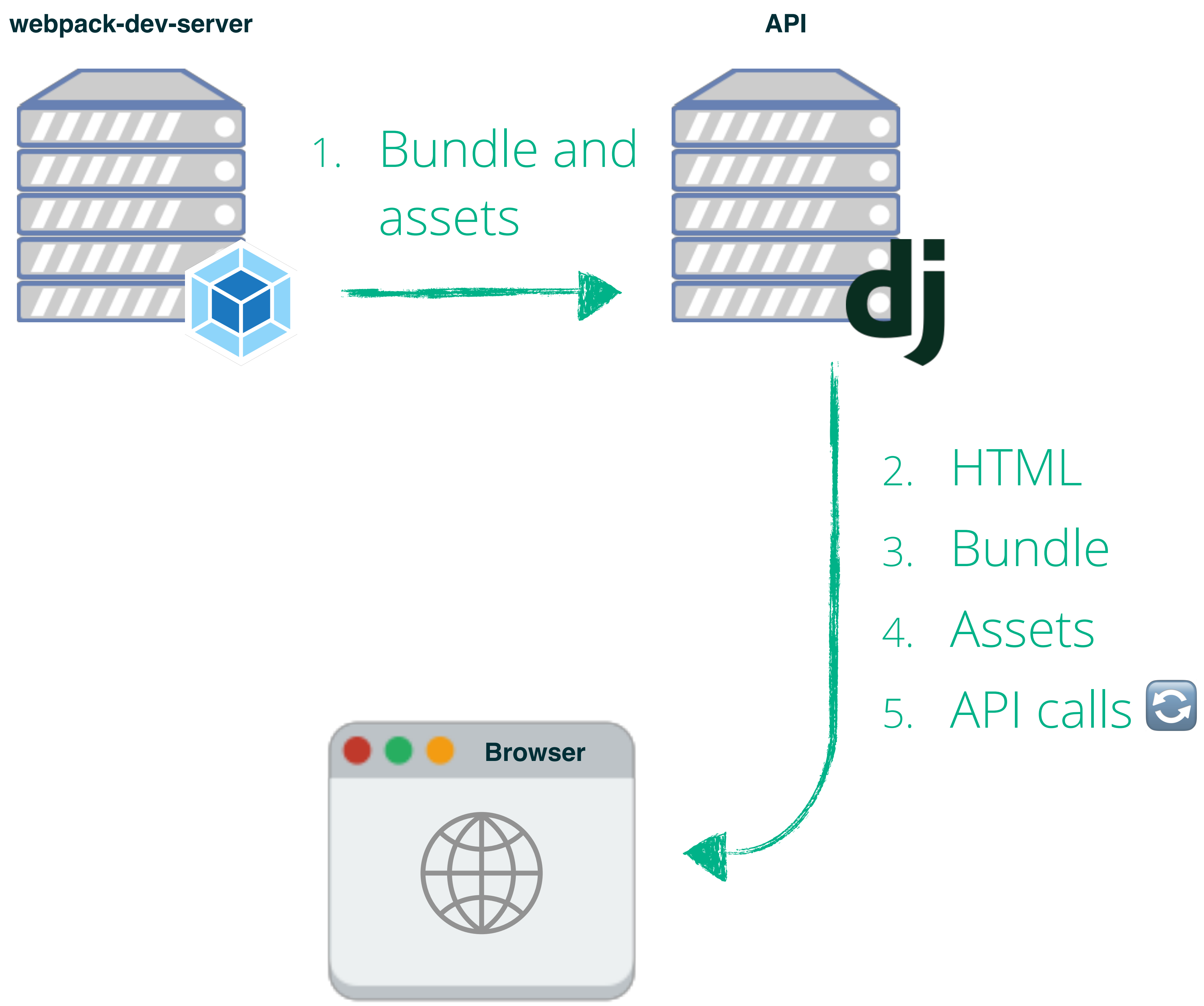
Attempt #2



1. Bundle and assets

2. HTML
3. Bundle
4. Assets
5. API calls 🔄

Attempt #2



✅ HTML in production

✅ No CORS errors

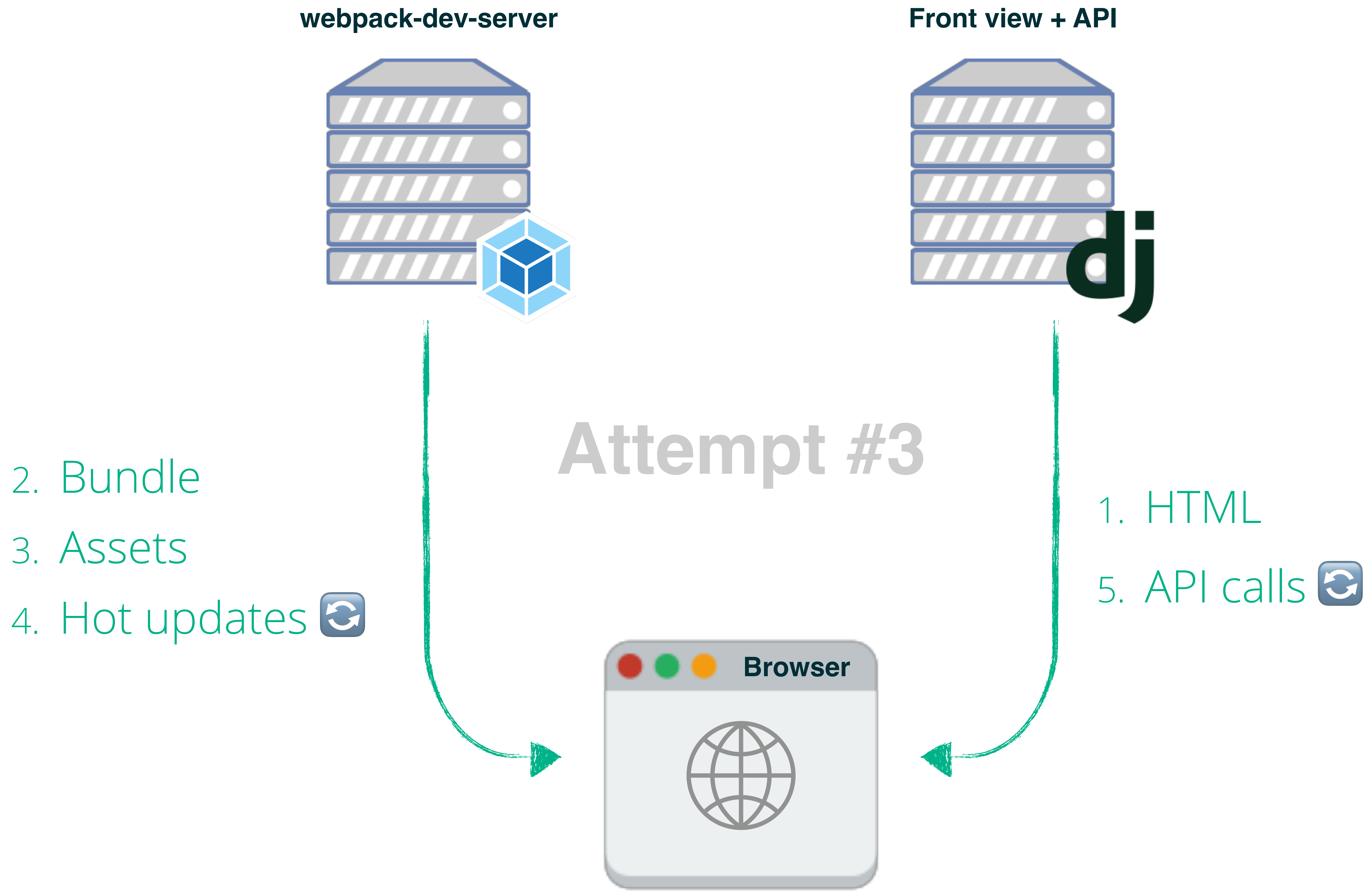
👍

Problem #1

Hot reloading

Attempt #3

Attempt #3



webpack-dev-server

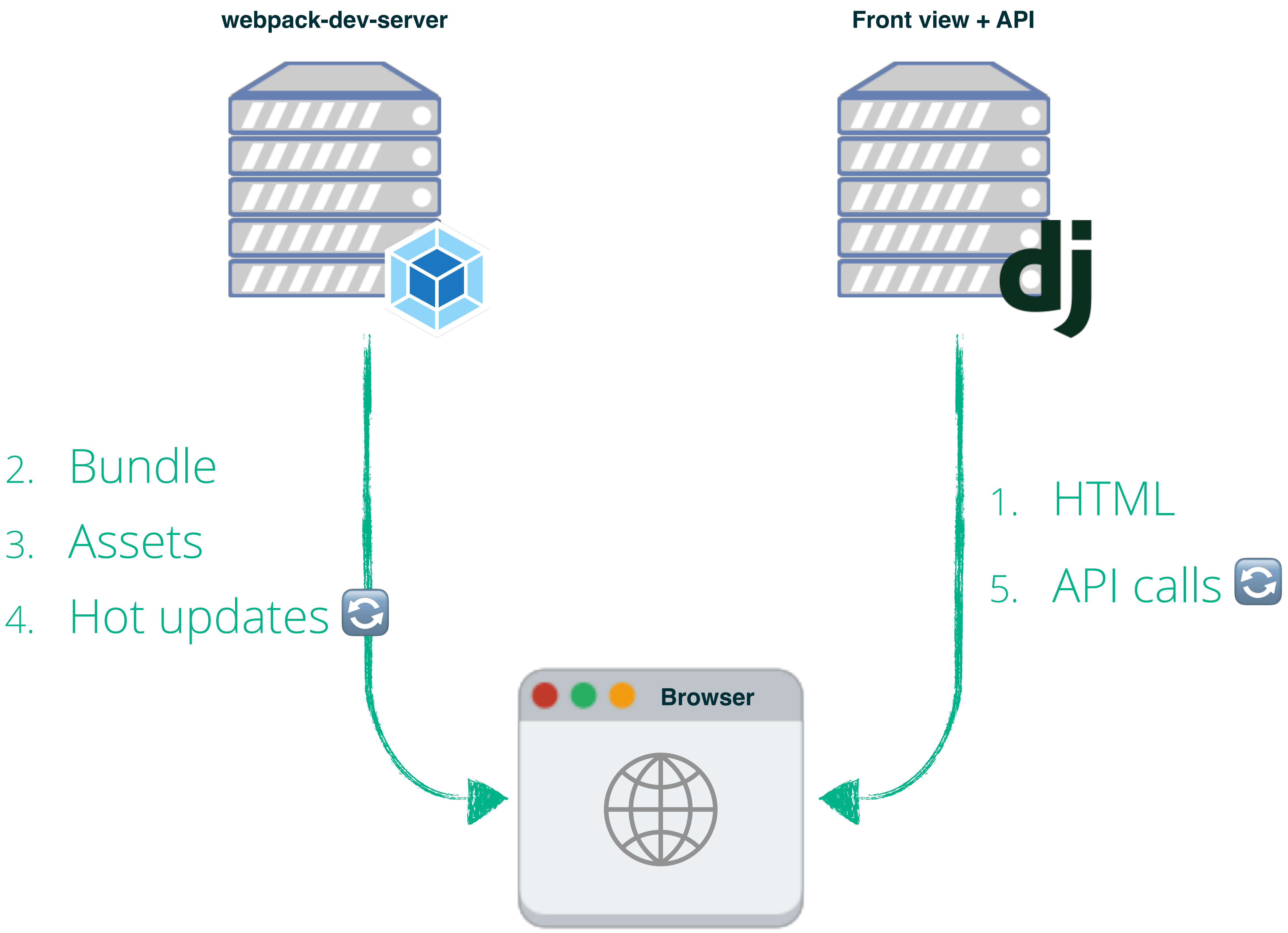
Front view + API

2. Bundle
3. Assets
4. Hot updates 🔄

1. HTML
5. API calls 🔄

Browser

Attempt #3



webpack-dev-server

Front view + API

2. Bundle
3. Assets
4. Hot updates 🔄

1. HTML
5. API calls 🔄

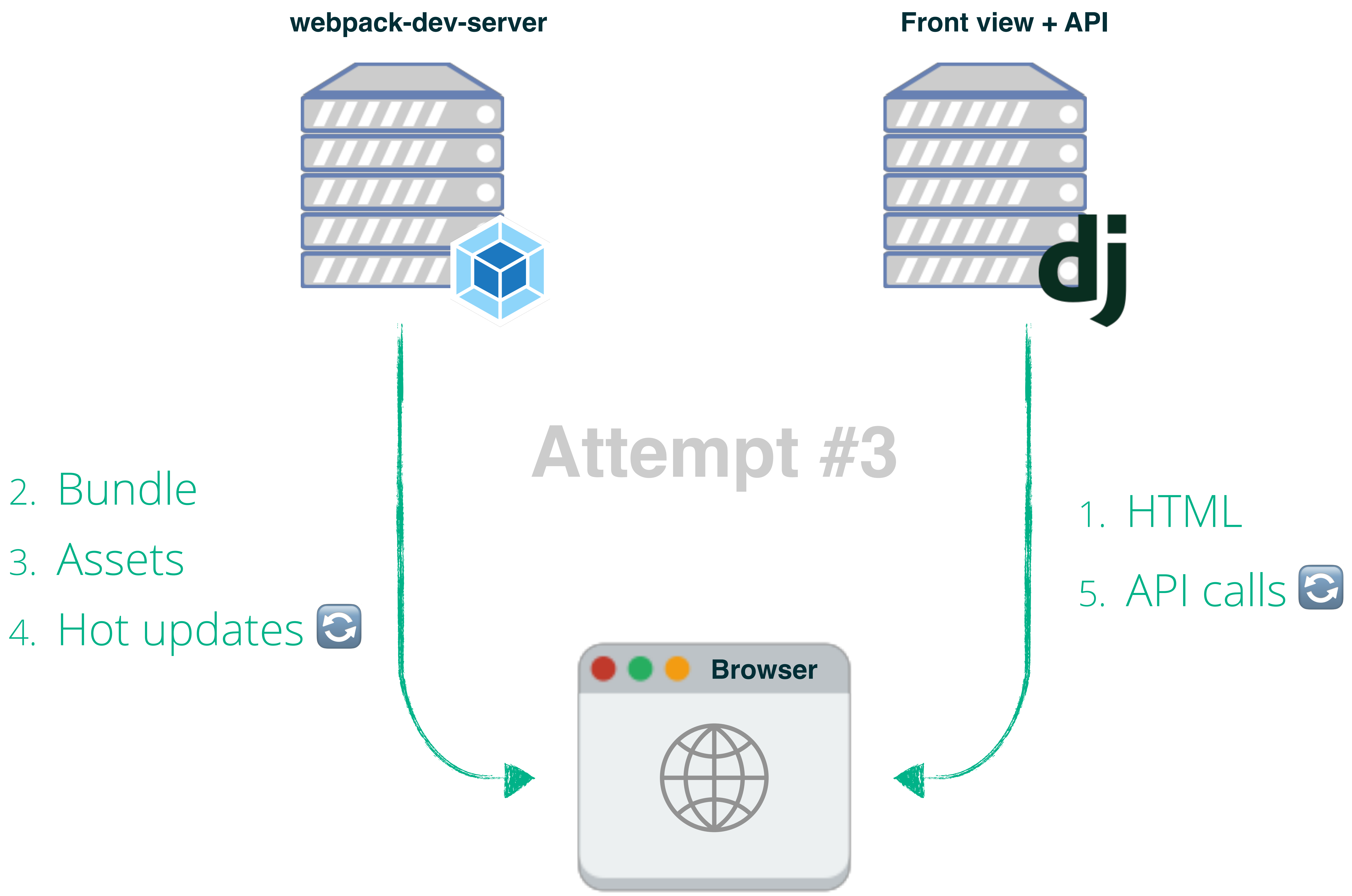
Browser

✅ Hot reloading works

👍

Some code

Attempt #3



webpack-dev-server

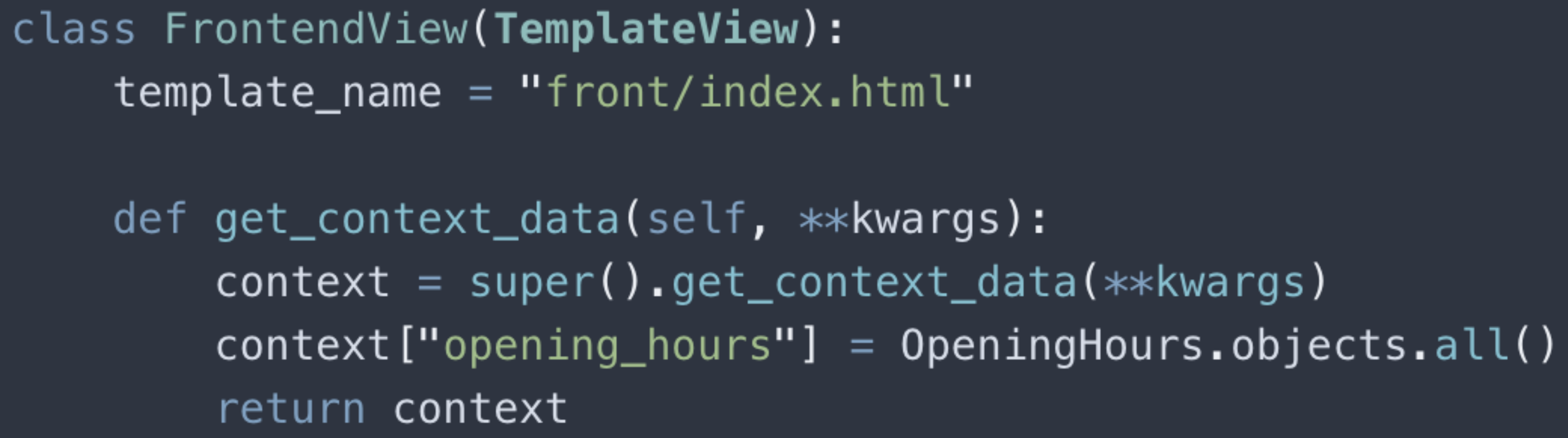
2. Bundle
3. Assets
4. Hot updates 🔄

Front view + API

1. HTML
5. API calls 🔄

Browser

./front/views.py



```python
class FrontendView(TemplateView):
    template_name = "front/index.html"

    def get_context_data(self, **kwargs):
        context = super().get_context_data(**kwargs)
        context["opening_hours"] = OpeningHours.objects.all()
        return context
```

./front/templates/front/index.html

```
<body>
    <!-- [...] -->
    {% include "snippets/ga.html" with tracking_id=ga_tracking_id %}
    <!-- [...] -->
    <script>
        var openingHours = [
            {% for item in opening_hours %}
                {
                    day: '{{item.day}}',
                    openingTime: '{{item.opening_time}}',
                    order: '{{item.order}}',
                },
            {% endfor %}
        ]
    </script>
    <script src="http://localhost:3000/js/bundle.js"></script>
</body>
```

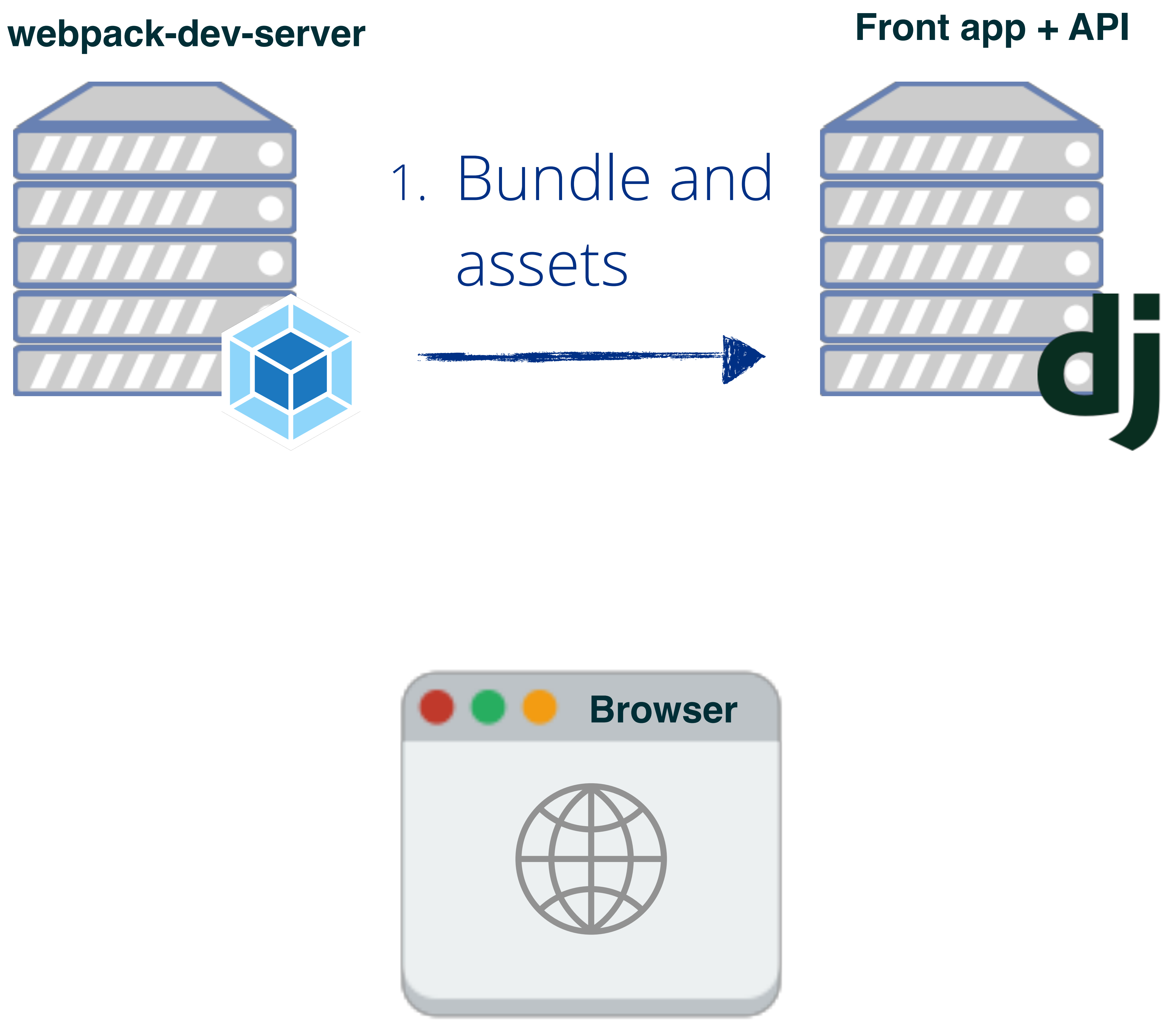
./project/urls.py

```
from django.contrib import admin
from django.urls import include, path, re_path

from front.views import FrontendView

urlpatterns = [
    path('admin/', admin.site.urls),
    # ...
    re_path(r'^[a-zA-Z0-9/-]*$', FrontendView.as_view(), name='app'),
]
```

2

Deploying to production

dev prod



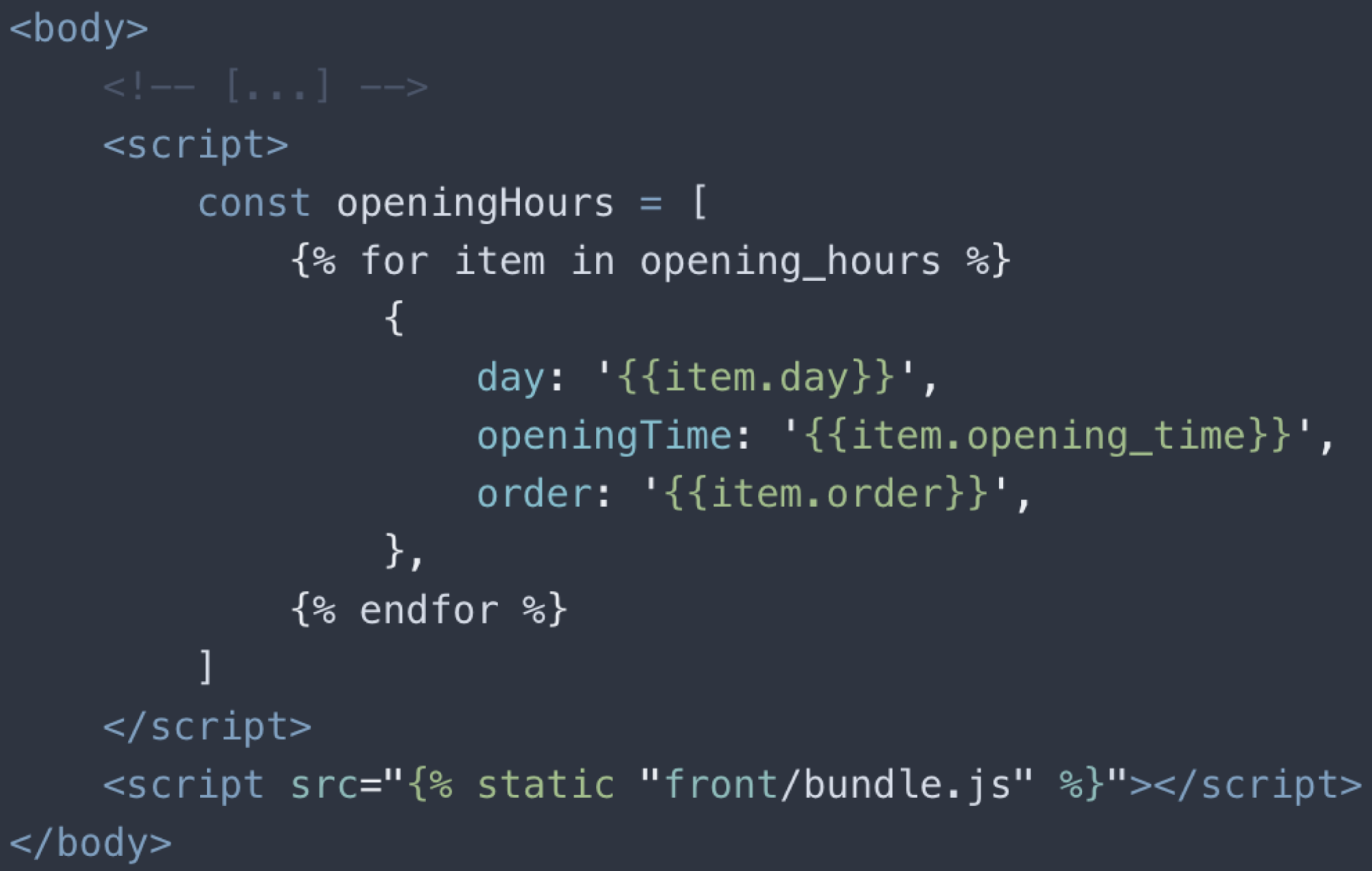
webpack-dev-server

Front app + API

1. Bundle and assets

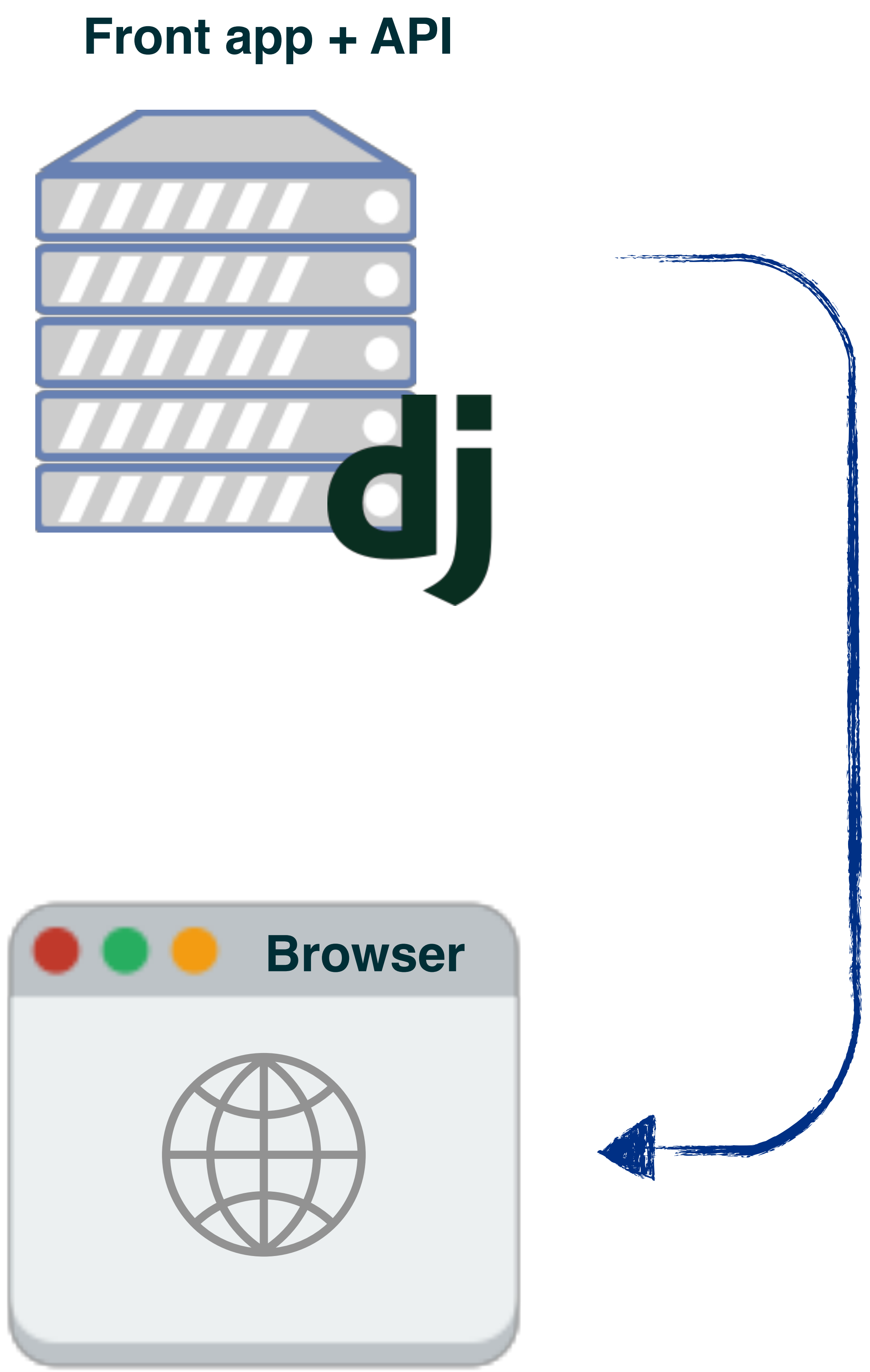
Browser

./front/templates/front/index.html



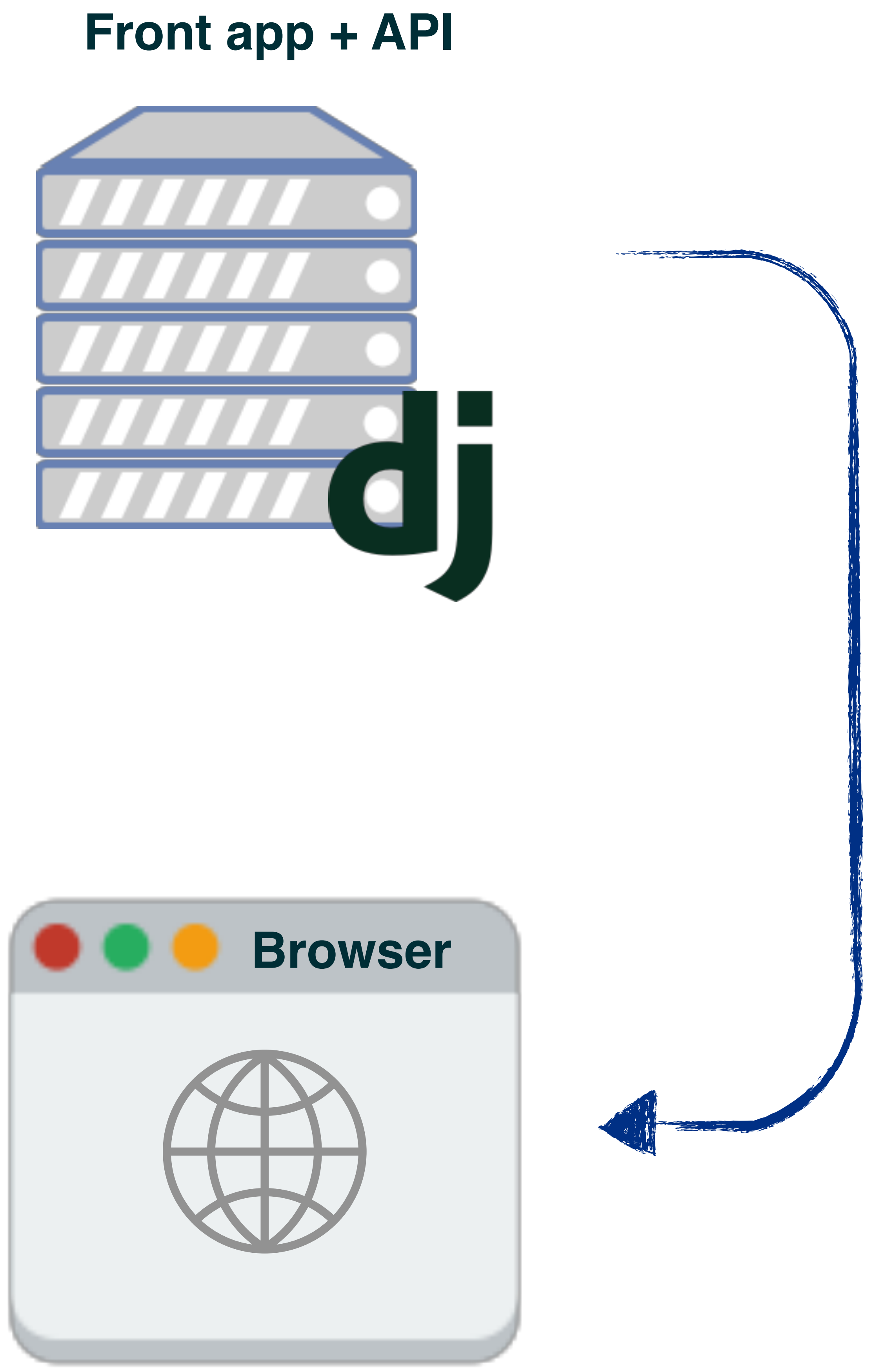
```
<body>
    <!-- [...] -->
    <script>
        const openingHours = [
            {% for item in opening_hours %}
                {
                    day: '{{item.day}}',
                    openingTime: '{{item.opening_time}}',
                    order: '{{item.order}}',
                },
            {% endfor %}
        ]
    </script>
    <script src="{% static "front/bundle.js" %}"></script>
</body>
```

dev prod



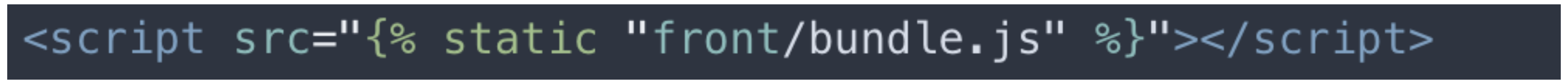
1. HTML
2. Bundle
3. Assets
4. API calls 🔄

dev prod



1. HTML
2. Bundle
3. Assets
4. API calls 🔄

One moving piece



```
<script src="{% static "front/bundle.js" %}"></script>
```

dev ≃ prod 🎉

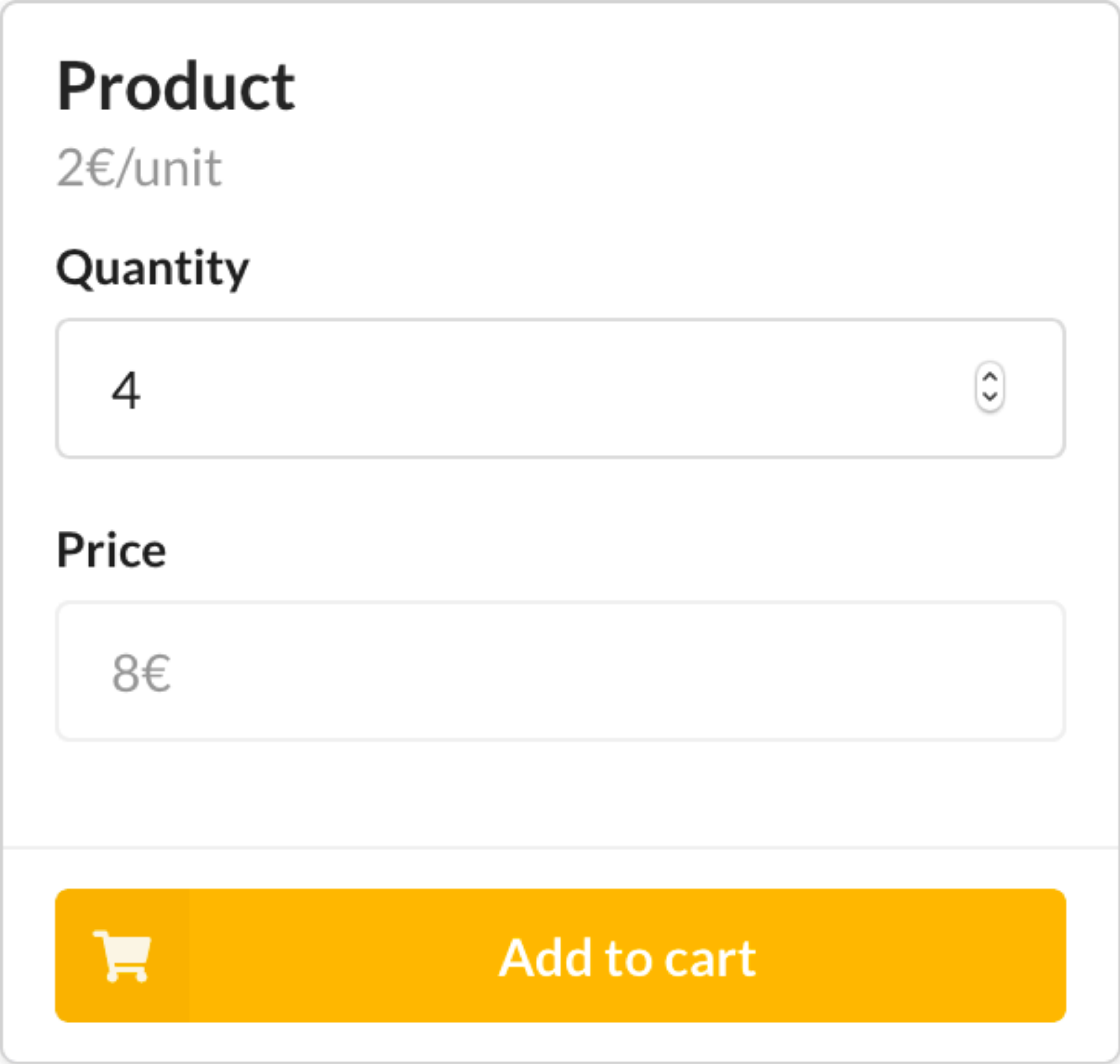
Not necessarily webpack✨

3

Leveraging Django in the frontend

Asynchronous form validation

An example



Product

2€/unit

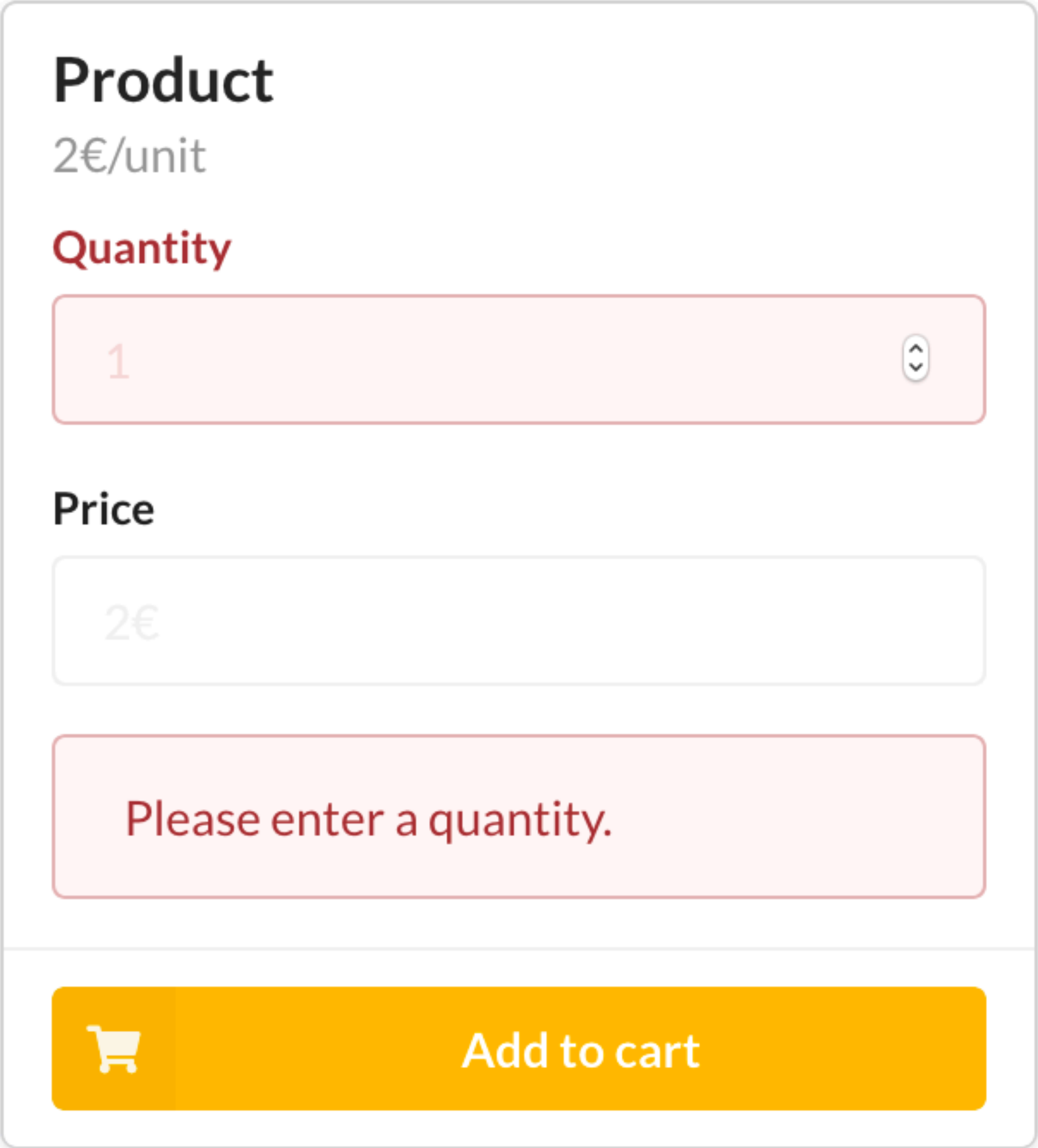
Quantity

4

Price

8€

Frontend validation



Product

2€/unit

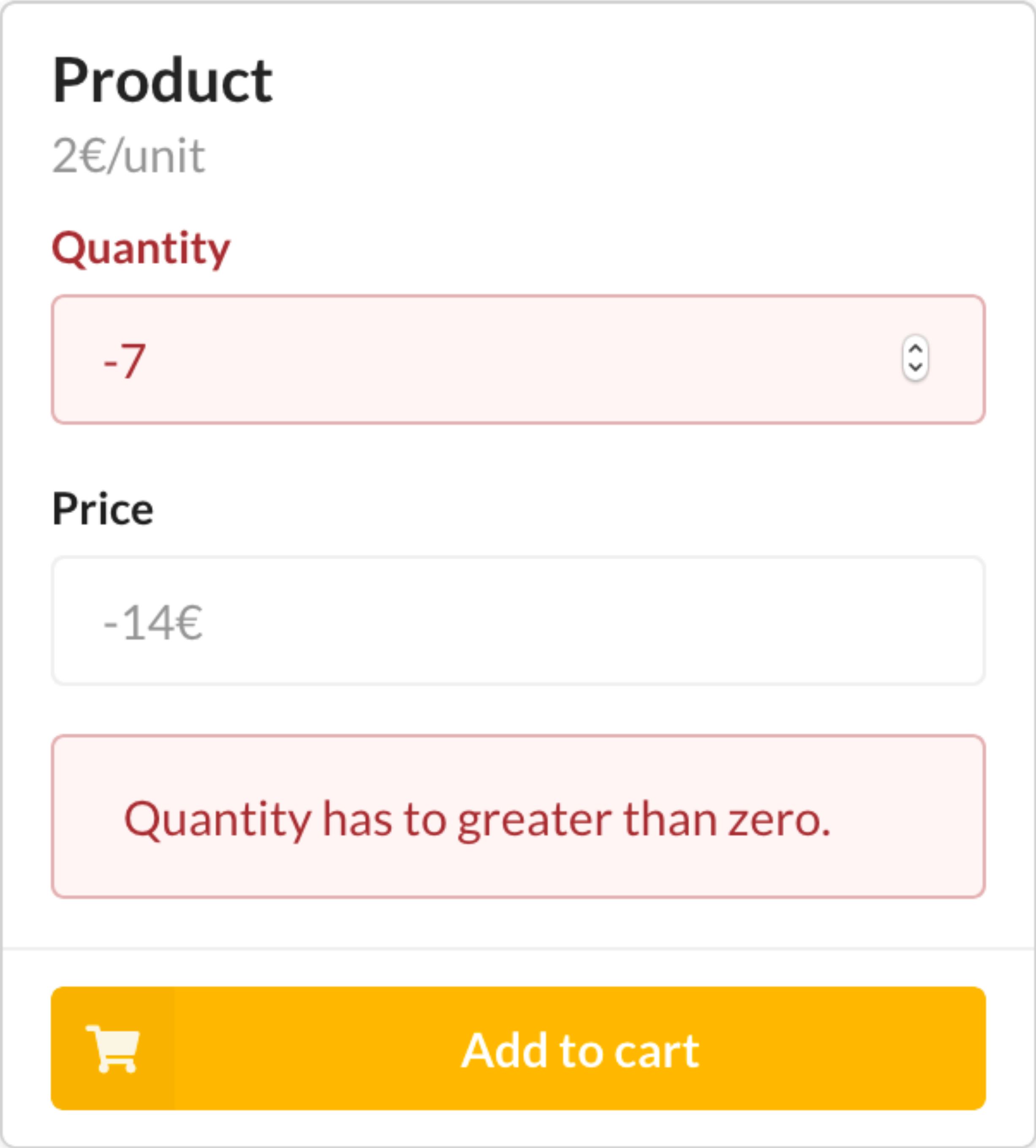
Quantity

1

Price

2€

Please enter a quantity.



Product

2€/unit

Quantity

-7

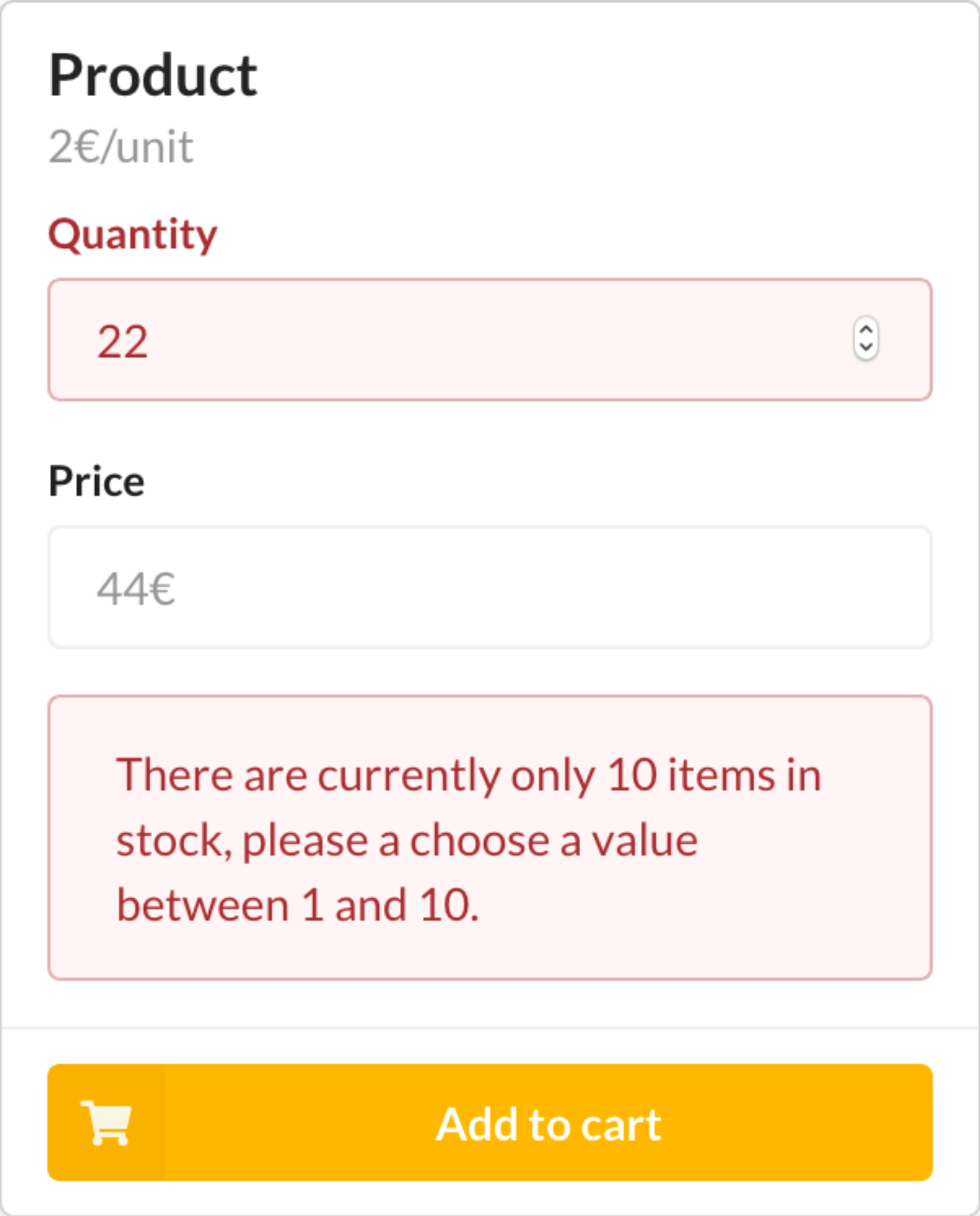
Price

-14€

Quantity has to greater than zero.

Self consistency

Backend validation



Product

2€/unit

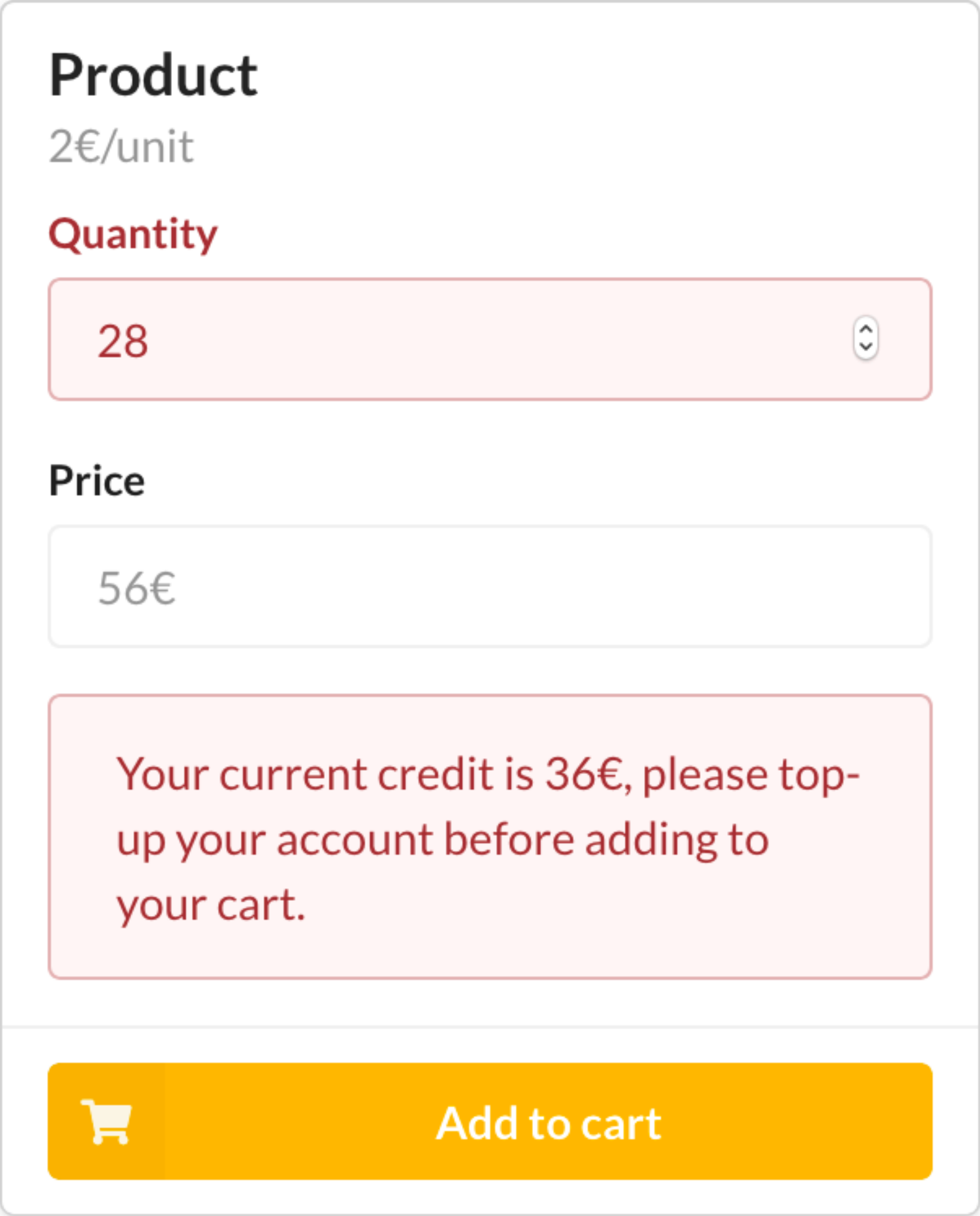
Quantity

22

Price

44€

There are currently only 10 items in stock, please a choose a value between 1 and 10.



Product

2€/unit

Quantity

28

Price

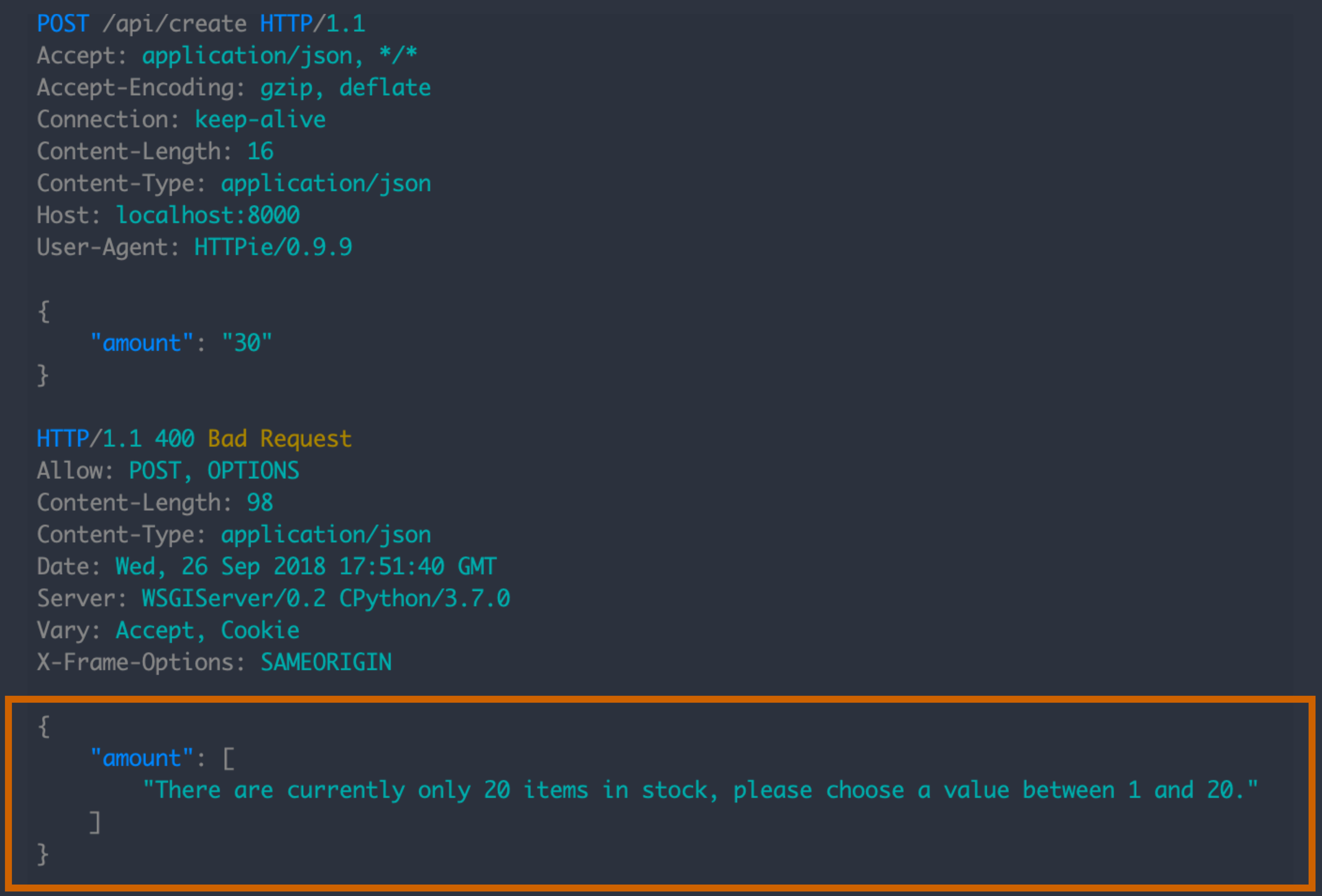
56€

Your current credit is 36€, please top-up your account before adding to your cart.

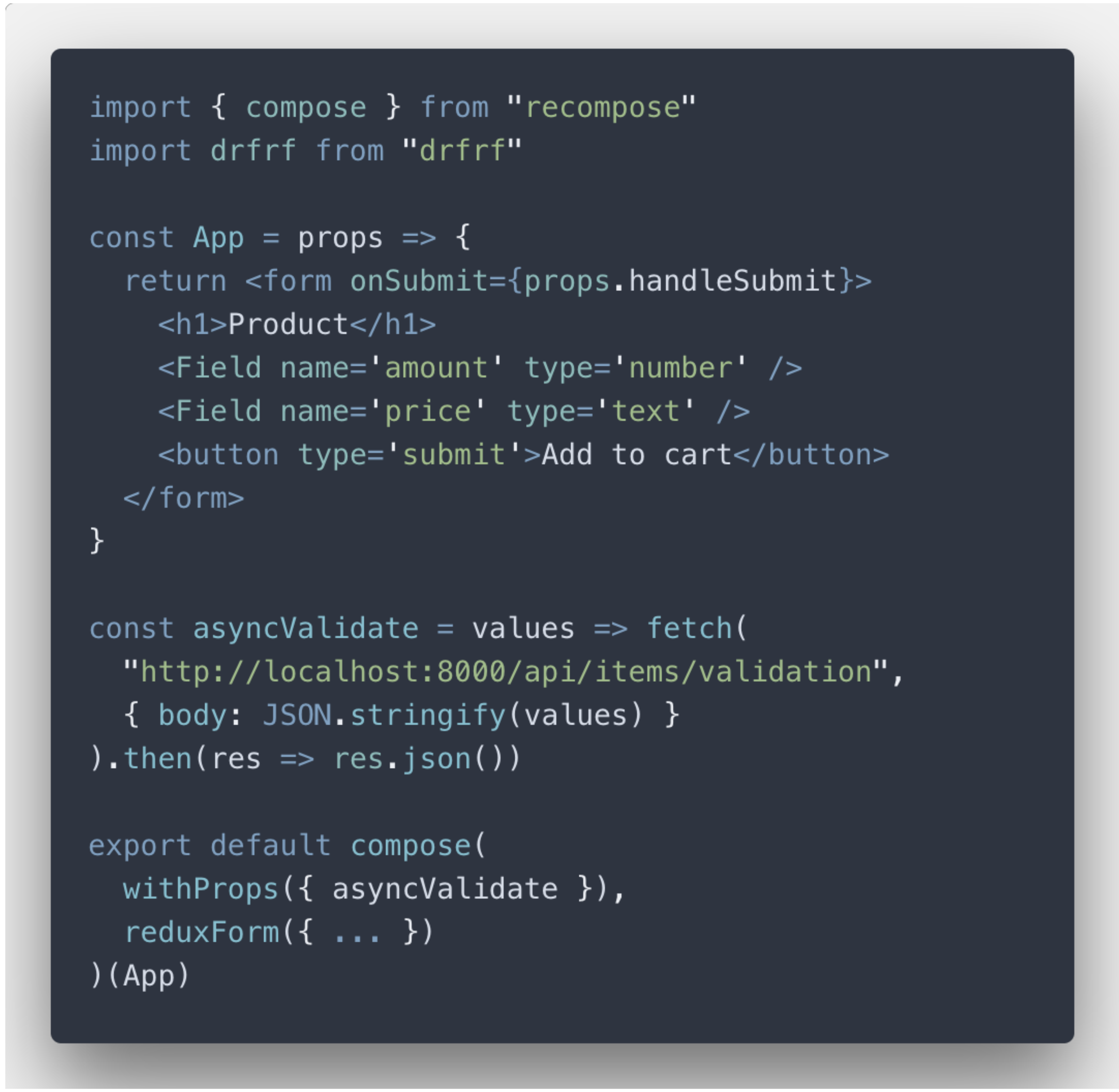
Compatibility with pre-existing data

& self-consistency 👍

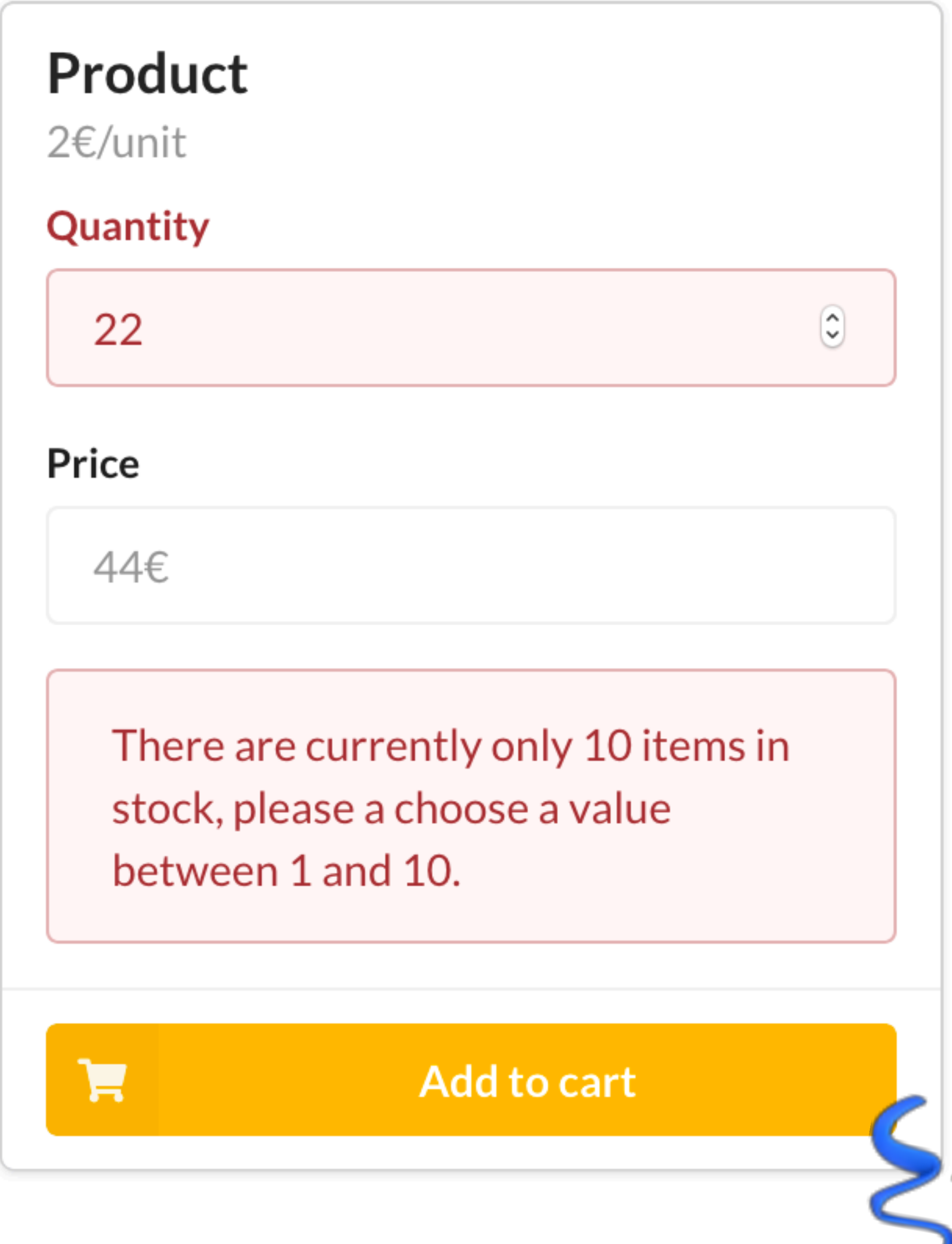
Django errors in the frontend?



```
POST /api/create HTTP/1.1
Accept: application/json, */*
Accept-Encoding: gzip, deflate
Connection: keep-alive
Content-Length: 16
Content-Type: application/json
Host: localhost:8000
User-Agent: HTTPie/0.9.9

{
    "amount": "30"
}

HTTP/1.1 400 Bad Request
Allow: POST, OPTIONS
Content-Length: 98
Content-Type: application/json
Date: Wed, 26 Sep 2018 17:51:40 GMT
Server: WSGIServer/0.2 CPython/3.7.0
Vary: Accept, Cookie
X-Frame-Options: SAMEORIGIN

{
    "amount": [
        "There are currently only 20 items in stock, please choose a value between 1 and 20."
    ]
}
```



```
import { compose } from "recompose"
import drfrf from "drfrf"

const App = props => {
  return <form onSubmit={props.handleSubmit}>
    <h1>Product</h1>
    <Field name='amount' type='number' />
    <Field name='price' type='text' />
    <button type='submit'>Add to cart</button>
  </form>
}

const asyncValidate = values => fetch(
  "http://localhost:8000/api/items/validation",
  { body: JSON.stringify(values) }
).then(res => res.json())

export default compose(
  withProps({ asyncValidate }),
  reduxForm({ ... })
)(App)
```



Product

2€/unit

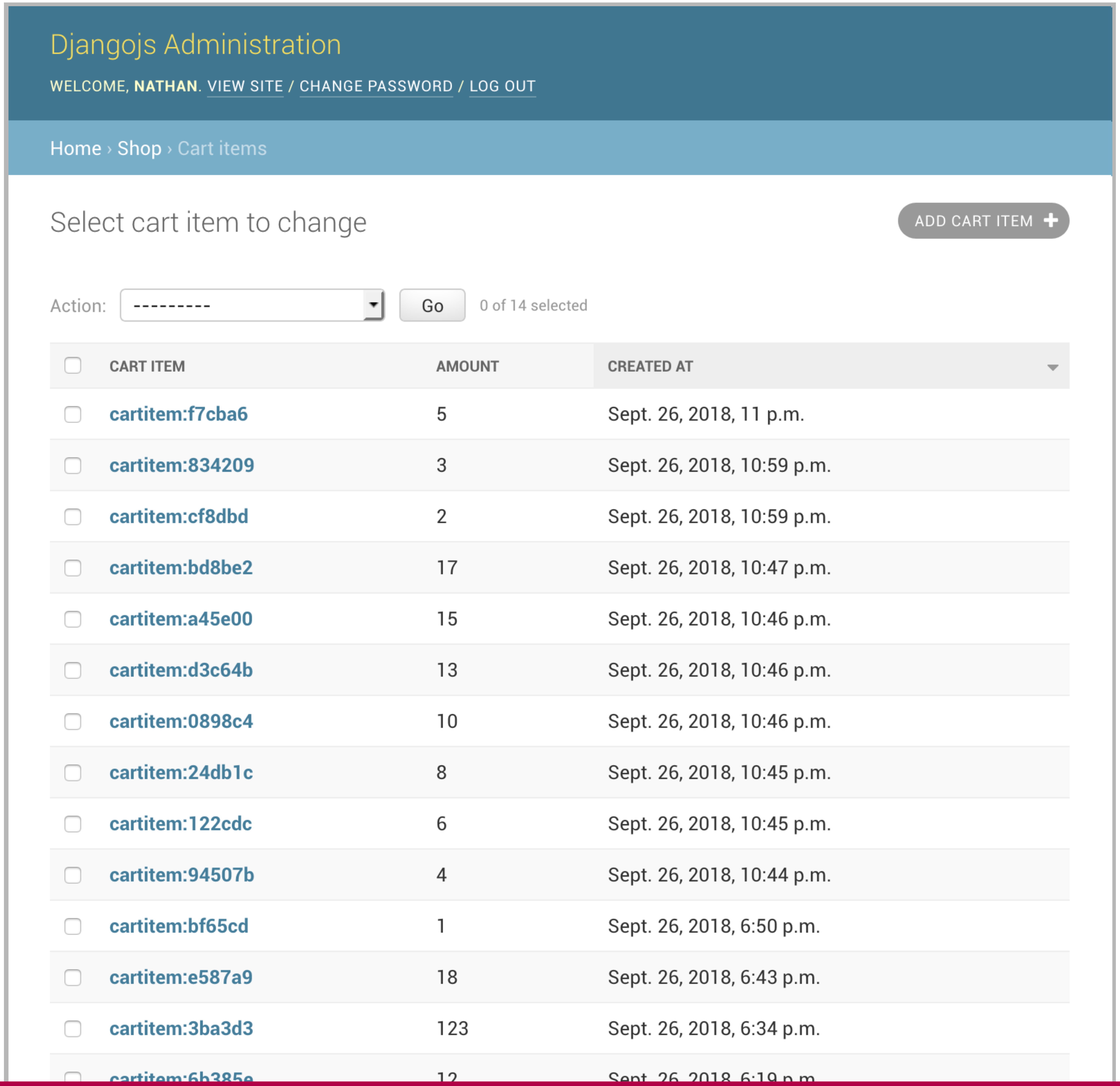
Quantity

22

Price

44€

There are currently only 10 items in stock, please a choose a value between 1 and 10.



Djangojs Administration

WELCOME, **NATHAN**. VIEW SITE / CHANGE PASSWORD / LOG OUT

Home › Shop › Cart items

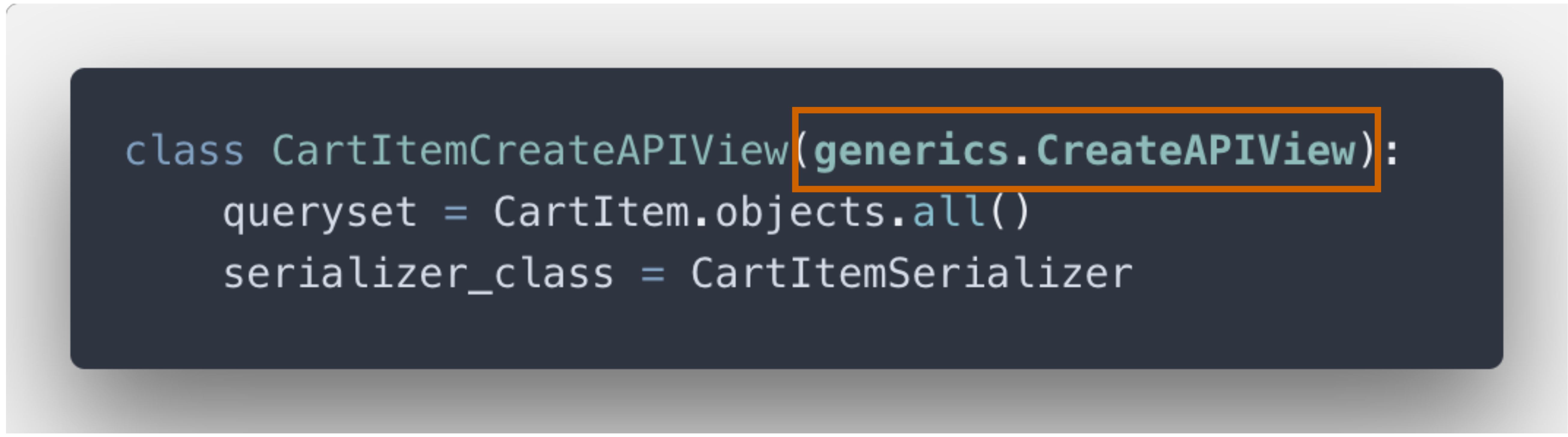
Select cart item to change

Action: --------- 0 of 14 selected

□	CART ITEM	AMOUNT	CREATED AT
□	cartitem:f7cba6	5	Sept. 26, 2018, 11 p.m.
□	cartitem:834209	3	Sept. 26, 2018, 10:59 p.m.
□	cartitem:cf8dbd	2	Sept. 26, 2018, 10:59 p.m.
□	cartitem:bd8be2	17	Sept. 26, 2018, 10:47 p.m.
□	cartitem:a45e00	15	Sept. 26, 2018, 10:46 p.m.
□	cartitem:d3c64b	13	Sept. 26, 2018, 10:46 p.m.
□	cartitem:0898c4	10	Sept. 26, 2018, 10:46 p.m.
□	cartitem:24db1c	8	Sept. 26, 2018, 10:45 p.m.
□	cartitem:122cdc	6	Sept. 26, 2018, 10:45 p.m.
□	cartitem:94507b	4	Sept. 26, 2018, 10:44 p.m.
□	cartitem:bf65cd	1	Sept. 26, 2018, 6:50 p.m.
□	cartitem:e587a9	18	Sept. 26, 2018, 6:43 p.m.
□	cartitem:3ba3d3	123	Sept. 26, 2018, 6:34 p.m.
□	cartitem:6b385e	12	Sept. 26, 2018, 6:19 p.m.

Live validation saves **before submit**!

What’s happening?

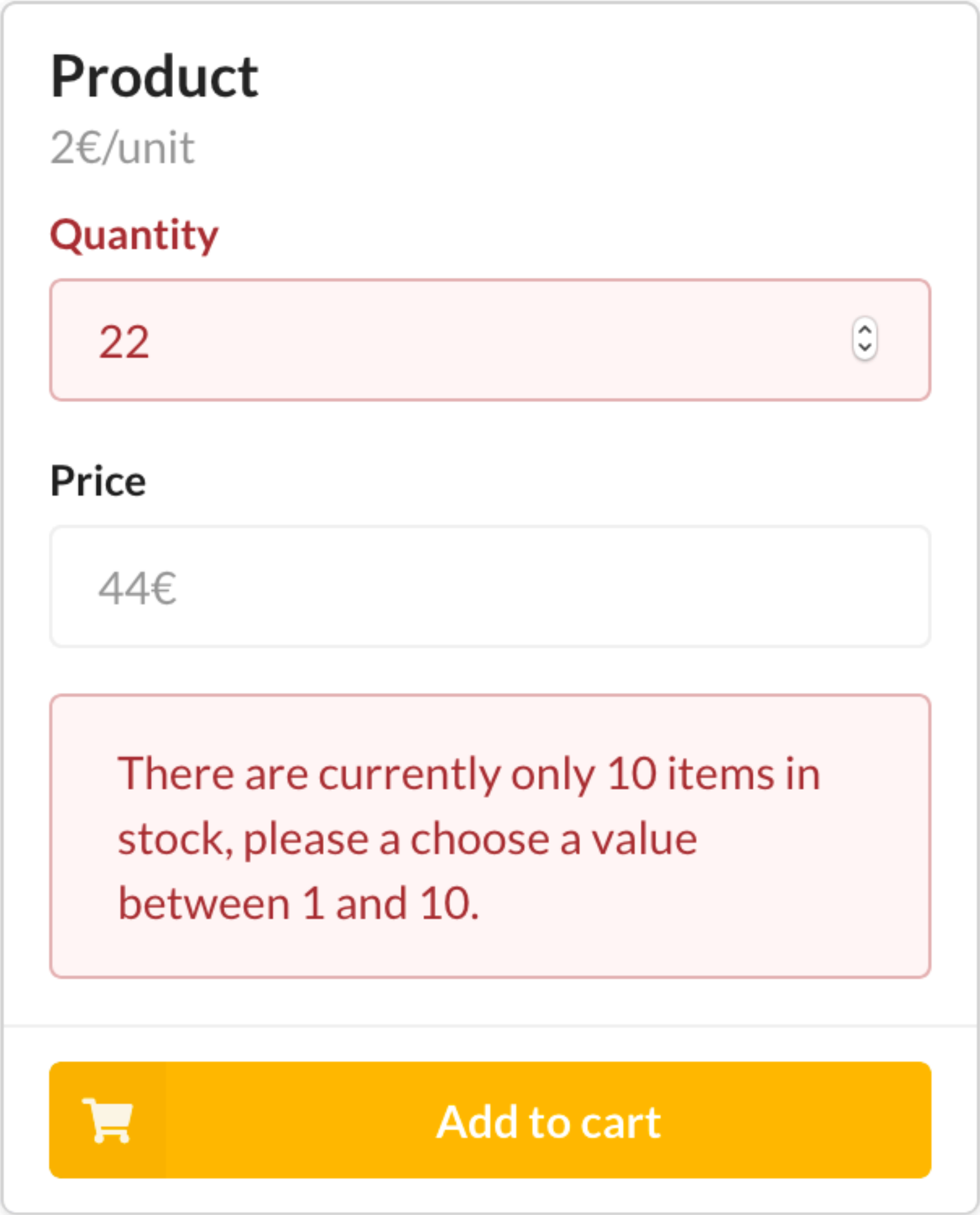


```
class CartItemCreateAPIView(generics.CreateAPIView):
    queryset = CartItem.objects.all()
    serializer_class = CartItemSerializer
```

CreateAPIView creates new instances at each validation call

We need a custom view

```python
class ValidateAPIView(GenericAPIView):
    def post(self, request, *args, **kwargs):
        return self.validate(request, *args, **kwargs)

    def validate(self, request, *args, **kwargs):
        serializer = self.get_serializer(data=request.data)
        serializer.is_valid(raise_exception=True)

        return Response({}, status=status.HTTP_200_OK)
```



Product

2€/unit

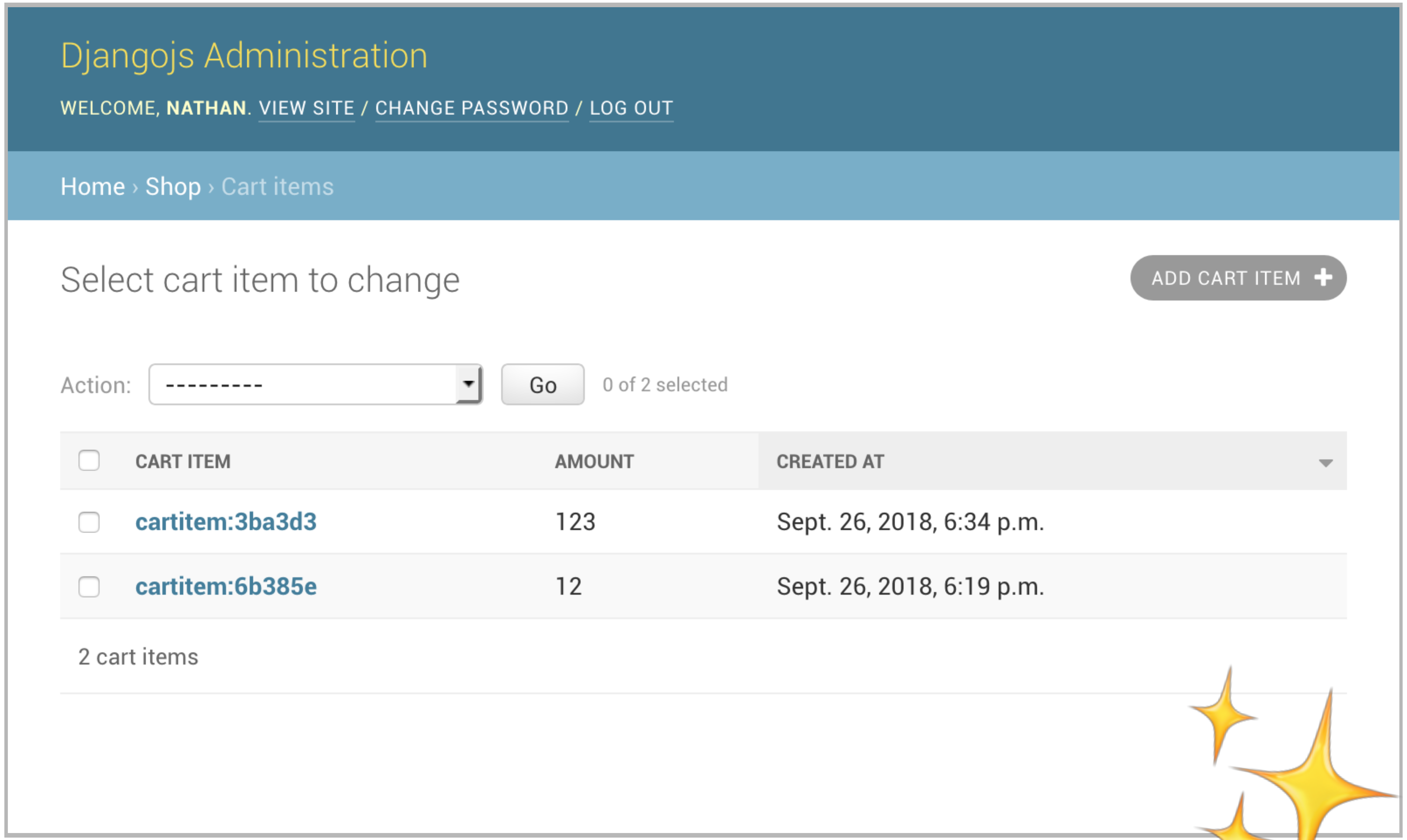
Quantity

22

Price

44€

There are currently only 10 items in stock, please a choose a value between 1 and 10.



Djangojs Administration

WELCOME, **NATHAN**. VIEW SITE / CHANGE PASSWORD / LOG OUT

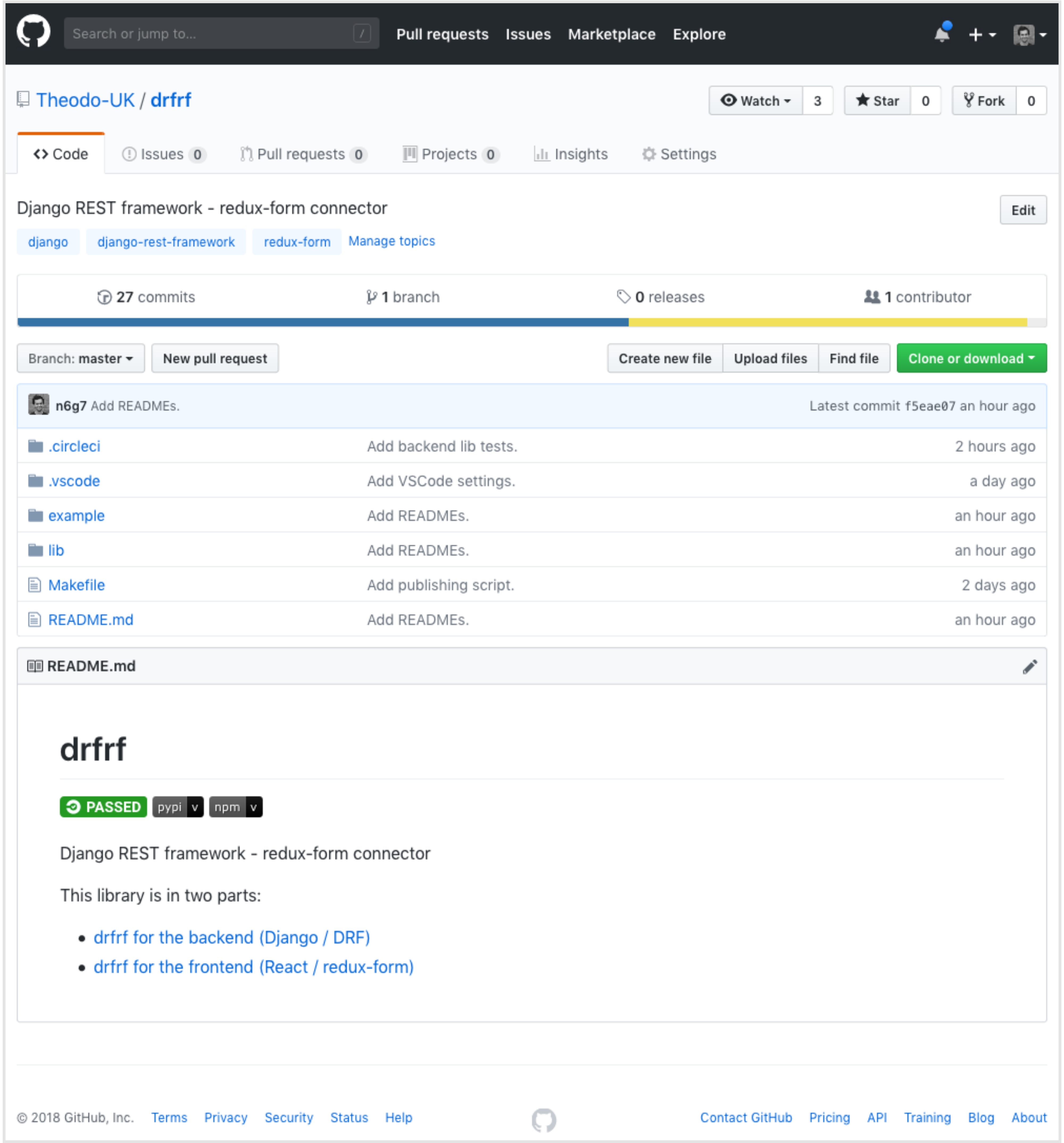
Home › Shop › Cart items

Select cart item to change

Action: ---------- Go 0 of 2 selected

□	CART ITEM	AMOUNT	CREATED AT
□	cartitem:3ba3d3	123	Sept. 26, 2018, 6:34 p.m.
□	cartitem:6b385e	12	Sept. 26, 2018, 6:19 p.m.

2 cart items



Theodo-UK / drfrf

Django REST framework - redux-form connector

django django-rest-framework redux-form Manage topics

27 commits | 1 branch | 0 releases | 1 contributor

n6g7 Add READMEs. Latest commit f5eae07 an hour ago

.circleci	Add backend lib tests.	2 hours ago
.vscode	Add VSCode settings.	a day ago
example	Add READMEs.	an hour ago
lib	Add READMEs.	an hour ago
Makefile	Add publishing script.	2 days ago
README.md	Add READMEs.	an hour ago

README.md

drfrf

PASSED pypi v npm v

Django REST framework - redux-form connector

This library is in two parts:

- drfrf for the backend (Django / DRF)
- drfrf for the frontend (React / redux-form)

© 2018 GitHub, Inc. Terms Privacy Security Status Help Contact GitHub Pricing API Training Blog About

Theodo-UK / drfrf

DRF mixins for:

- Creation validation
- Update validation

Redux-form helper

Thank you!

/n6g7 /n4ng5l nathang@theodo.co.uk