

Django Workshop

#Bornhack 2018

Víðir Valberg Guðmundsson @vvalbergg

Benjamin Bach @benjaoming

...and You!

@vvalbergg

Works at LetsGoFleetSystems.com

Been using Django since 2009

@benjaoming

Works at Learning Equality / Fair Allocation of Infotech Resources

Been using Django since 2007

maintains django-wiki, django-money and django-nyt

RTFD

Django Girls tutorial:

<http://tutorial.djangogirls.org/en/>

Official docs tutorial 1:

<https://docs.djangoproject.com/en/2.1/intro/tutorial01/>

Program *) **)

1. Blah blah theory (~20m)
2. Enough talk: Example project (~30m)
3. Your own stuff (>1h)
 - i. ...hack bornhack.dk
 - ii. ...or do your own thing

*) Remember: It's a crash course

****)** You don't have to know everything about Django to use Django

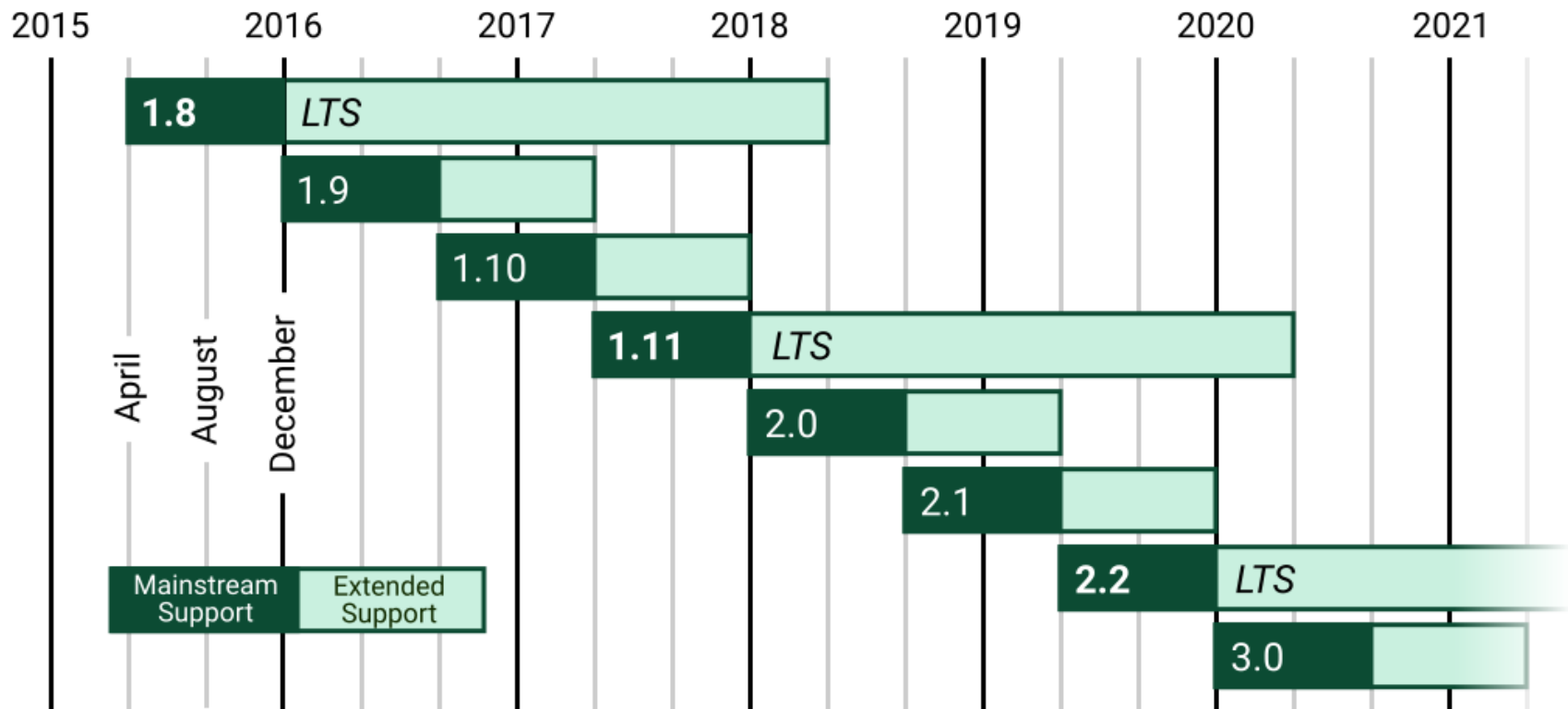
Framework ceasefire

	Cool language	App ecosystem	Awesome
<i>Django</i>	✓	✓	✓
<i>Rails</i>	✓	✓	✓
<i>Flask</i>	✓	✓	✓

What is even Django!?

- Started at a US Newspaper (Lawrence Journal)
- Released in 2005
 - 100+ releases, 65 CVE bulletins
 - LTS release cycle introduced
- Important bullets:
 - Rapid development
 - Reusability and pluggability
 - Don't Repeat Yourself (DRY)
 - Convention over configuration (sane defaults)
 - Batteries included (!=bloat)

Release roadmap



...and it's Python 2+3

Ethos

Django scales.

Disqus, Instagram, Knight Foundation, MacArthur Foundation, Mozilla, National Geographic, Open Knowledge Foundation, Pinterest, Open Stack, The Washington Times, bornhack.dk

Django community

Djangocph, DjangoGirls, DjangoCon US, DjangoCon Europe... and
(kind of) ReadTheDocs + Github

Architecture

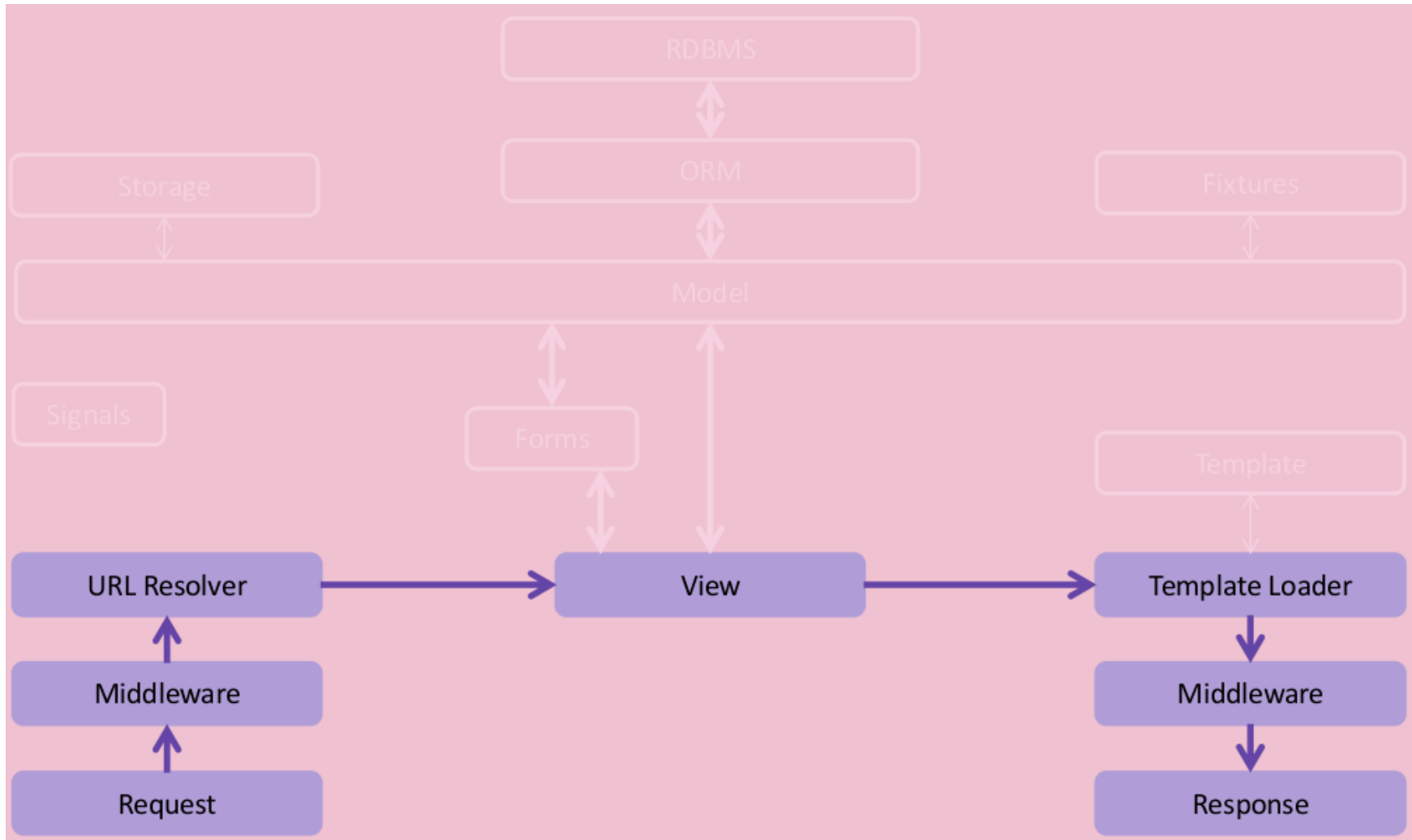
The framework

- Views
 - URL dispatcher
- Models
 - ORM
 - Backends for everything*
- Templates
 - Django template language
 - Jinja2
- Forms
- Migrations

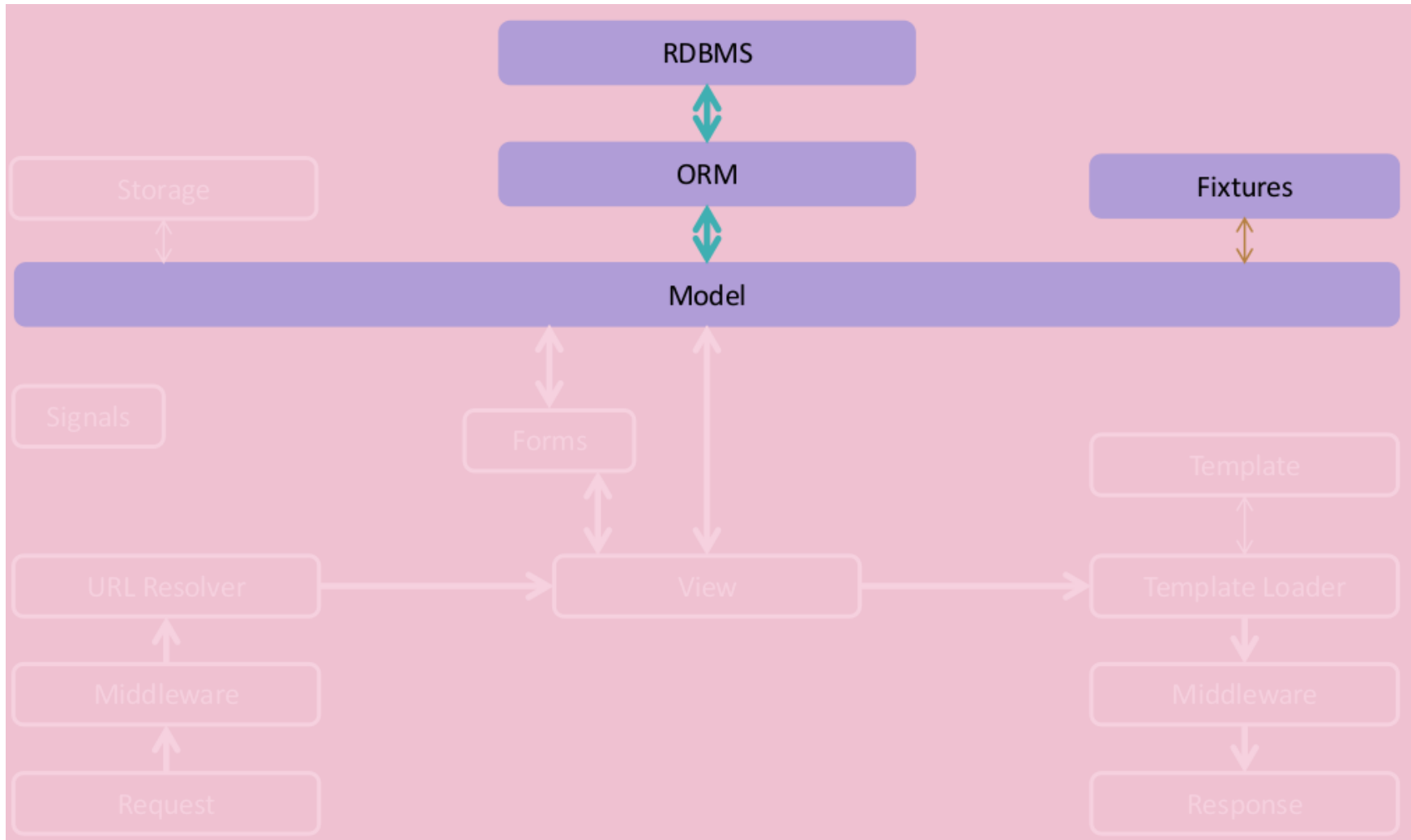
Terminology

- Project
- Application aka. "app"

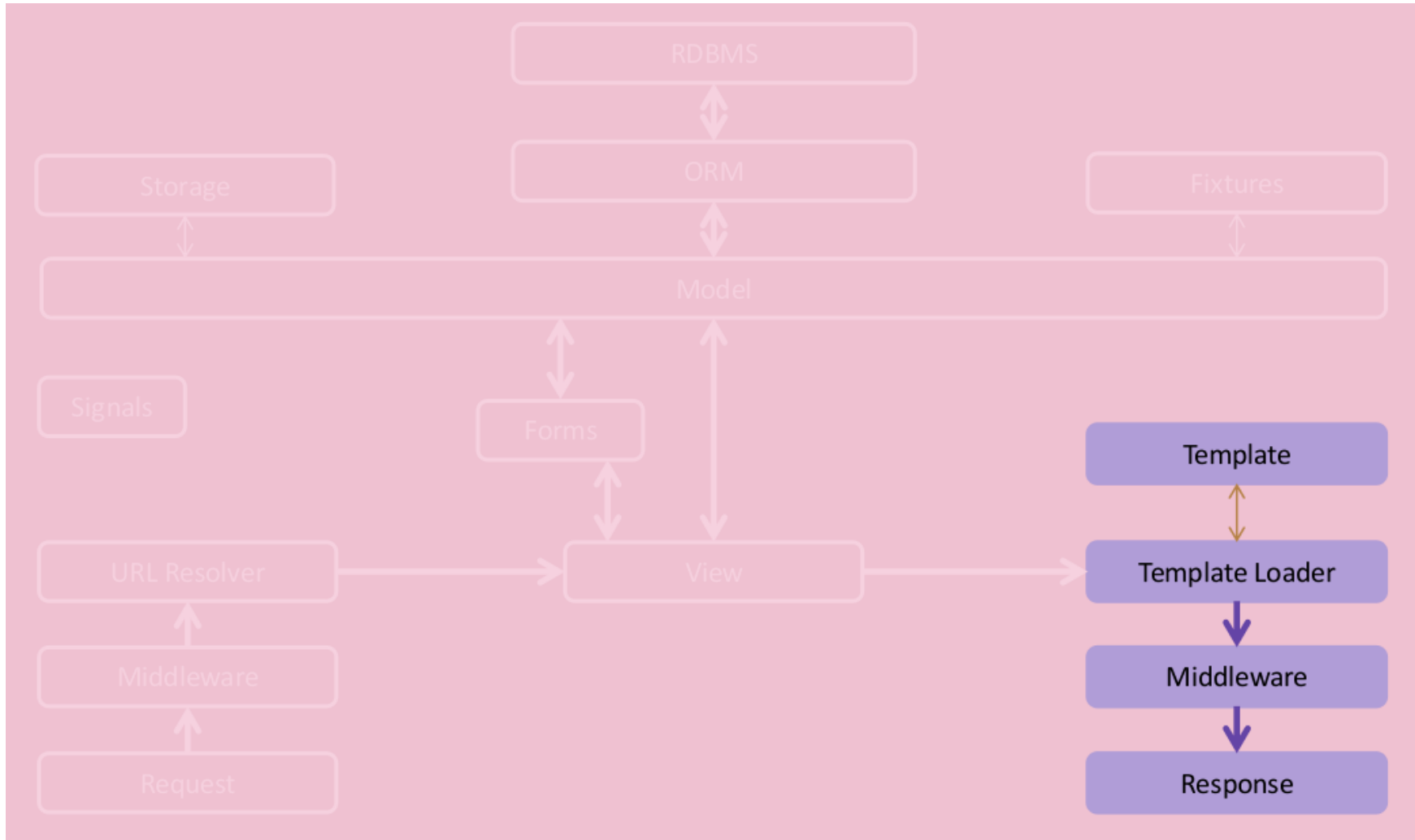
Architecture: Request->Response (1/3)



Architecture: ORM & Database (2/3)



Architecture: Templates (3/3)



Kind of like this...

```
→ django-admin startproject example_project
```

```
→ cd example_project
```

```
→ python manage.py runserver
```

```
Performing system checks...
```

```
System check identified no issues (0 silenced).
```

```
You have 13 unapplied migration(s). Your project may not work properly.  
Run 'python manage.py migrate' to apply them.
```

```
August 30, 2016 - 12:19:05
```

```
Django version 1.10, using settings 'example_project.settings'
```

```
Starting development server at http://127.0.0.1:8000/
```

```
Quit the server with CONTROL-C.
```

Request -> Response (views)

example_project/myapp/views.py

```
def my_view(request):  
    return HttpResponse("Hello world")
```

example_project/urls.py

```
urlpatterns = [  
    url(r'my-view', my_view),  
]
```

Models

```
class MyModel(models.Model):  
    field = models.IntegerField(default=42)
```

- ORM querysets
- Field types mapped to database
- Migrations
- Fat models, skinny views

Templates (1/2)

```
def my_view(request):  
    template = "path/to/template.html"  
    context = Context({'object': 'value'})  
    return render_to_response(template, context)
```

Templates (2/2)

project/myapp/templates/path/to/template.html

```
<html>
  <body>
    <p>Hello world</p>
    <p>{{ object }}</p>
  </body>
</html>
```

Forms (1/2)

```
class MyForm(forms.Form):  
    field = forms.IntegerField()
```

```
def view(request):  
    if request.method == 'POST':  
        form = MyForm(request.POST)  
        if form.is_valid():  
            # do something  
            return HttpResponseRedirect("/url")  
    else:  
        form = MyForm()  
    context = Context({'form': form})  
    return render_to_response("page.html", context)
```

Forms (2/2)

```
<html>
  <body>
    <form method="POST">
      {{ csrf_token }}
      {{ form }}
      <button type="submit">Send it</button>
    </form>
  </body>
</html>
```


Migrations

Data models change over time. Full stop.

What is a migration?

Day 1:

```
class MyModel(models.Model):  
    my_field = models.IntegerField()
```

Day 2:

```
class MyModel(models.Model):  
    my_field = models.IntegerField()  
    another_field = models.CharField(max_length=123)
```

Handling the schema change

```
python manage.py makemigrations  
python manage.py migrate
```

Getting ready for hands on!

Everybody got Python?

Everybody got pip?

Okay let's go...

Btw.

Try out the Django shell

```
python manage.py shell
```

So, for now...

- Hack bornhack.dk
- Do your own project

Hack **Bornhack.dk**

We encourage everyone to fork the site on Github and make PRs.

<https://github.com/bornhack/bornhack-website>