

Combining Model, View, and Template



Reindert-Jan Ekker

@rjekker <https://nl.linkedin.com/in/rjekker>



Overview



The Model-Template-View pattern

Add templates

Make components work together

- Call model from view
- Call template from view
- View parameters in URLs
- 404 errors



Demo



Template

- Generate HTML
- Call template from view
- Pass data from view to template



Django Templates

django

Templates

- Components that *display* data to the user

Templates generate text files

- We use it to create HTML

Templates are text files

- With placeholders for variables
- And logic: if, for, filters, etc.



```
<html><head><title>{{name}}'s Page</title></head>
<body>
    <h1>Hi I'm {{name}}!</h1>
    I'm {{age}} years old.
</body></html>
```

A Django Template Example

`{{ var }}` looks up `var` in the *template context*

Other text is copied to HTML output

This creates *dynamic* HTML page



```
def home(request):  
    return render(request, "website/welcome.html",  
                   { 'name': "Bob", 'age': 35 })
```

Calling a Template

render: pass *request* and name of template file

Third argument: dict with data passed to the template

Templates should be in folder **/templates** inside app

Don't forget the **return** keyword



Demo



Completing the MTV pattern

- Retrieve model data
- Display it using template

Meeting detail page

- Retrieve meeting object
- Pass it to template
- Take id parameter from URL
- 404 error when not found



Model-Template-View

Model

Data

Model classes

Mapped to DB table

Template

Presentation

Generates HTML

View

Behaviour

Python function

Mapped to URL

Model

View

Controller



Web Browser



127.0.0.1/meetings/1

HTTP GET
/meetings/1

Meeting with ...

On February 5th
Starting at 11:00
In conference room

Server

```
# Find mapping in urls.py  
path('meetings/<int:id>',  
      detail),
```



```
def detail(request, id):  
    m = get_object_or_404(...)
```



Retrieving Model Data

Model classes have a .objects attribute

That let you retrieve data

Get all objects

```
meetings = Meeting.objects.all()
```

Get object count

```
num_meetings = Meeting.objects.count()
```

Get a specific object

```
Meeting= Meeting.objects.get(pk=5)
```



Get or 404

```
from django.shortcuts import get_object_or_404
```

```
from .models import Meeting
```

```
def detail(request, id):  
    meeting = get_object_or_404(Meeting, pk=id)
```



```
urlpatterns = [  
    path( '/example/<int:x>', my_view)  
]
```

Parameters in URLs

`<int:x>` will match a number in the url

This number will be assigned to the view parameter `x`

`/example/5` : `x` will be `5`

If URL contains no number: 404



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