Django 2: View & Template

IN608: Intermediate Application Development Concepts

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Last Session's Content

- Django
  - Overview
  - Pipenv
  - Installation
  - Creating a project
  - Development server
  - Creating an app
- MVC vs. MVT
- Route
- Model
- Admin Site

Today’s Content

- View
- Template

View

View

- Type of web page in your app which serves a function & has a template
- Each view is represented by a Python function or method (class-based views)
- A view is chosen by examining the requested URL
  - Django uses a URLconf to get from a URL to a view
  - A URLconf maps URL patterns to views
- Resource: https://docs.djangoproject.com/en/3.0/topics/http/views/#writing-views

View

- `polls/urls.py`
- When someone request a page, for example, `/polls/2/`, Django will load the `mvt.urls` Python module - pointed to by the `ROOT_URLCONF` setting
- It finds the variable name `urlpatterns` & traverses the patterns in order
- After finding a match at `polls/`, it strips off the matching text `polls/` & sends `2/` to the `polls.url` URLconf for further processing
- Results in a call to the `detail()` view
- Namespacing URL names
  - Larger Django projects may have more than one app
  - How does Django differentiate between them?
  - Add an `app_name` to set the application namespace

```
from django.urls import path
from . import views

app_name = 'polls'

urlpatterns = [
    path('', views.index, name='index'), # /polls/
    path('<int:question_id>/', views.detail, name='detail'), # /polls/2/
]
```

View

- Let’s assume, we have created three `Question` objects in Django admin site

View

- `polls/views.py`
- `Question.objects.order_by('-pub_date')` - get all `Question` objects & order by `pub_date` (desc)
- `render()`
  - Combine a given template with a given context dictionary
  - Return an `HttpResponse` object with that rendered text
- `get_object_or_404()`
  - Call `get()` on a given model manager
  - Raise `Http404` instead of the model's `DoesNotExist` exception
- Resources:
  - https://docs.djangoproject.com/en/3.0/topics/db/queries
  - https://docs.djangoproject.com/en/3.0/topics/http/shortcuts/#render
  - https://docs.djangoproject.com/en/3.0/topics/http/shortcuts/#get-object-or-404

```
from django.shortcuts import get_object_or_404, render
from .models import Question

def index(request):
    latest_question_list = Question.objects.order_by('-pub_date')
    context = {'latest_question_list': latest_question_list}
    return render(request, 'polls/index.html', context)

def detail(request, question_id):
    question = get_object_or_404(Question, pk=question_id)
    context = {'question': question}
    return render(request, 'polls/detail.html', context)
```

Template

Template

- What is a template?
  - A text file, i.e., HTML, XML, CSV, etc.
  - Contains variables which get replaced with values when the template is evaluated
  - Contains tag which control the logic of the template
  - It should look very similar to EJS template language you saw in the Fundamentals of Web Development course
- In the `polls/` directory, create a directory called `templates/`
- In the `templates/` directory, create a directory called `polls/`
- In the `polls/` directory, create two `.html` files called `index` & `detail`
- Resource: https://docs.djangoproject.com/en/3.0/ref/templates/language
- App structure:

```
polls/
    __init__.py
    admin.py
    apps.py
    migrations/
        __init__.py
    models.py
    templates/
        polls/
            index.html
            detail.html
    tests.py
    views.py
```

Template

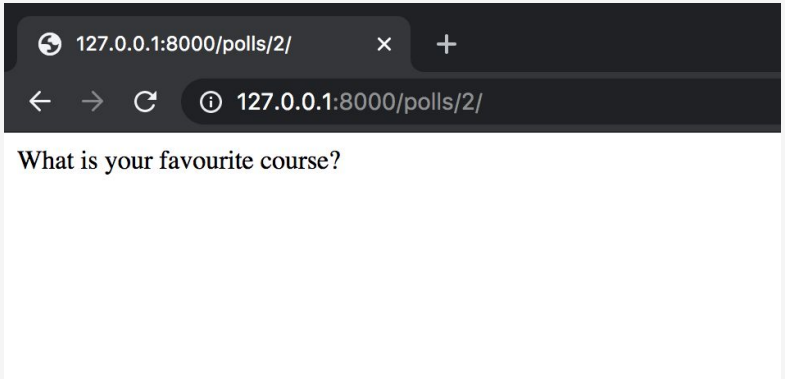
- `polls/templates/polls/index.html`
- If `latest_question_list` is not empty, loop through `latest_question_list` & display each `Question` object's `question_text` as a link
- Run the development server & navigate to http://127.0.0.1:8000/polls

```
{% if latest_question_list %}
    <ul>
    {% for question in latest_question_list %}
        <li><a href="{% url 'polls:detail' question.id %}">{{ question }}</a></li>
    {% endfor %}
    </ul>
{% else %}
    <p>No polls are available.</p>
{% endif %}
```

Template

- `polls/templates/polls/detail.html`
- Display `Question` object's `question_text`
- Click the **What is your favourite course?** link
- `Question` object's id is 2

```
{{ question }}
```



Practical

Programming Activity

- Checkout to master - `git checkout master`
- Create a new branch called 08-practical - `git checkout -b 08-practical`
- Copy 08-practical.ipynb from the course materials repository into your practicals repository
- Open up the Anaconda Prompt (it should be install on all lab computers) & `cd` to your practicals repository
- Run the following command: `jupyter notebook`