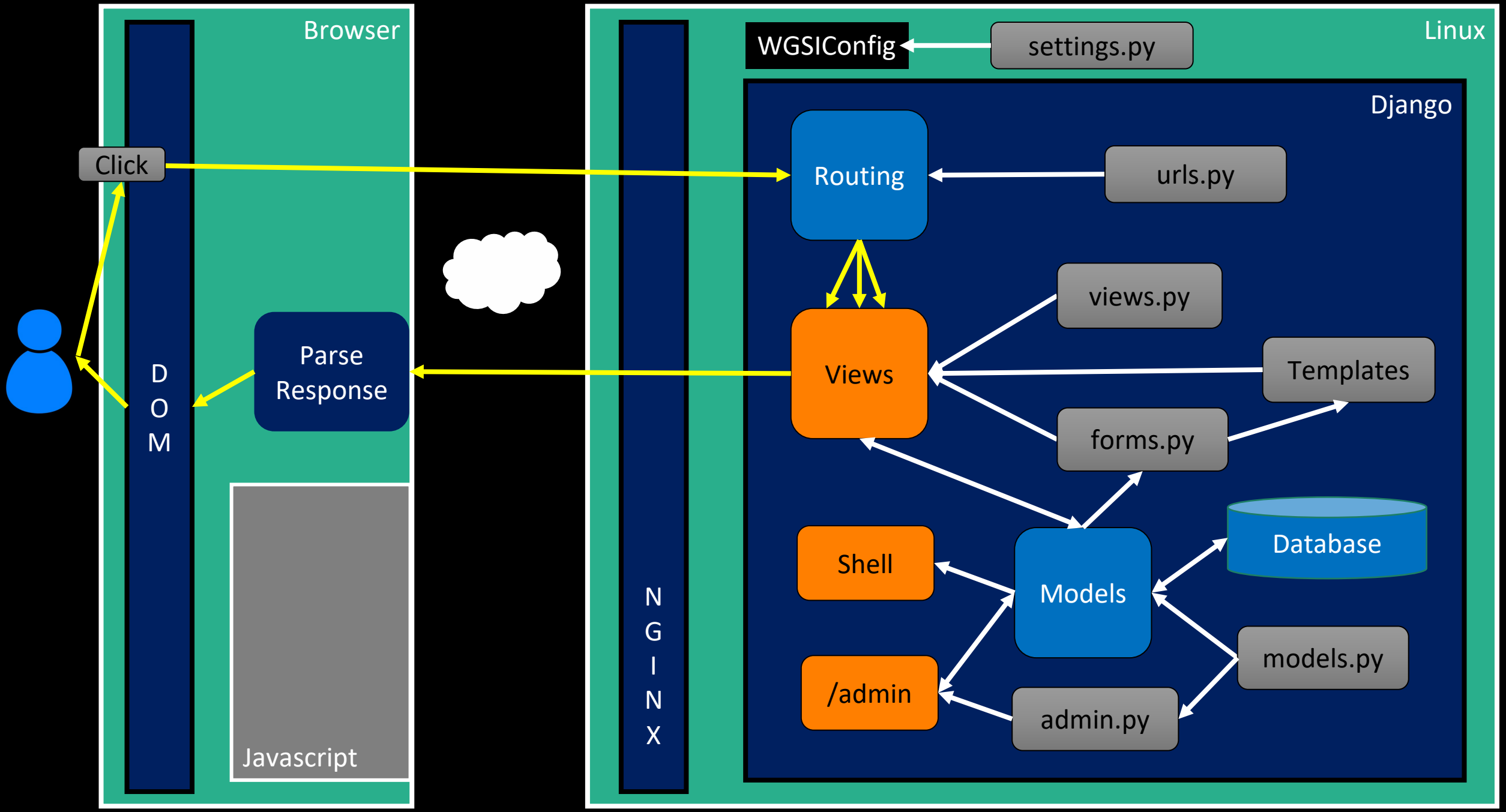
Table of Contents

This slide deck consists of slides used in 7 lecture videos in Week 2. Below is a list of shortcut hyperlinks for you to jump into specific sections.

Charles Severance
www.dj4e.com

Views and Templates


Browser
Linux
WGSIConfig
settings.py
Django
Click
Routing
urls.py
views.py
Templates
Views
Parse
Response
forms.py
D
O
M
N
G
I
N
X
Shell
Models
Database
models.py
/admin
admin.py
Javascript

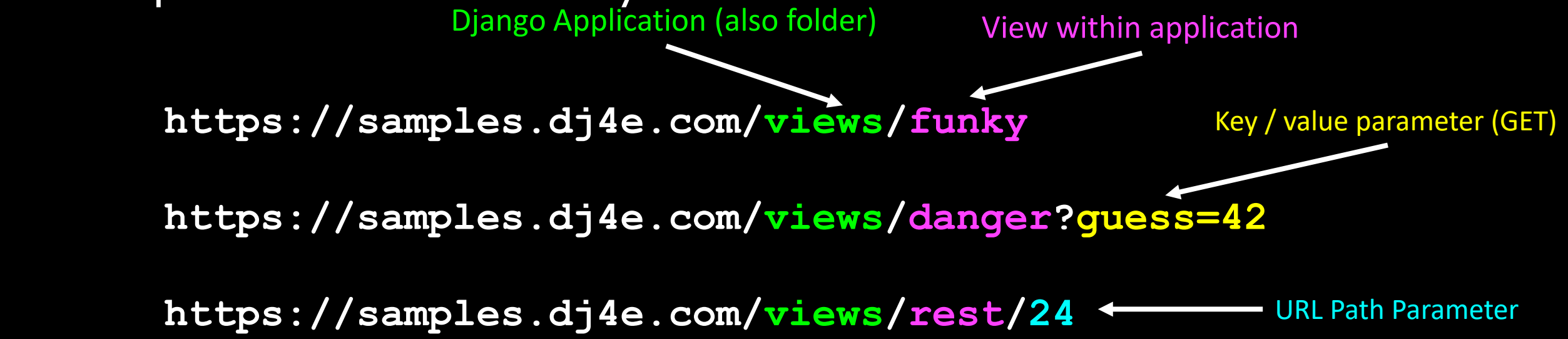
Views are the core of our application

- Django looks at the incoming request URL and uses urls.py to select a view
- The view from views.py
  - Handle any incoming data in the request and copy it to the database through the model
  - Retrieve data to put on the page from the database though the model
  - Produce the HTML that will become the response and return it to the browser

`https://samples.dj4e.com/`

Reading the URL

- When Django receives an HTTP request it parses it, uses some of the URL for routing purposes and passes parts of the URL to your code



URL Dispatcher

A clean, elegant URL scheme is an important detail in a high-quality Web application. Django lets you design URLs however you want, with no framework limitations.

To design URLs for an app, you create a Python module informally called a URLconf (URL configuration). This module is pure Python code and is a mapping between URL path expressions to Python functions (your views).

This mapping can be as short or as long as needed. It can reference other mappings. And, because it’s pure Python code, it can be constructed dynamically.

https://docs.djangoproject.com/en/3.0/topics/http/urls/

Three patterns for views (in urls.py)

- Requests are routed to a pre-defined class from Django itself
- Requests are routed to a function in views.py that takes the http request as a parameter and returns a response
- Requests are routed to a class in views.py that has get() and post() methods that take the http request as a parameter and return a response

views/urls.py

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

# https://docs.djangoproject.com/en/3.0/topics/http/urls/
app_name='views'
urlpatterns = [
    # pre-defined class from Django
    path('', TemplateView.as_view(template_name='views/main.html')),
    # function from views.py
    path('funky', views.funky),
    path('danger', views.danger),
    path('game', views.game),
    path('rest/<int:guess>', views.rest),
    path('bounce', views.bounce),
    # our class from views.py
    path('main', views.MainView.as_view()),
    path('remain/<slug:guess>', views.RestMainView.as_view()),
]
```

Viewing the Views

```
path('', TemplateView.as_view(template_name='views/main.html'))
```

views/urls.py

views/templates/views/main.html

```
<html><body><p>This is the views main.html sample</p>
<p>
<ul>
    <li>This page is coming from a file in views/templates/main.html</li>
    <li><a href="funky">Use a view function</a></li>
        ...
</ul>
</p>
<p>This sample code is available at
<a href="https://github.com/csev/dj4e-samples" target="_blank">
https://github.com/csev/dj4e-samples</a>
</p>
</body></html>
```

Request and Response Objects

Django uses request and response objects to pass information throughout your Django application.

When a page is requested by a browser, Django creates an **HttpRequest** object that contains metadata about the request.

Then Django loads the appropriate view, passing the **HttpRequest** as the first argument to the view function. Each view is responsible for returning an **HttpResponse** object.

The Application Programming Interfaces (APIs) for **HttpRequest** and **HttpResponse** objects, are defined in the **django.http** module.

https://docs.djangoproject.com/en/3.0/ref/request-response/

class HttpRequest

Attributes
All attributes should be considered read-only, unless stated otherwise.

HttpRequest.scheme
A string representing the scheme of the request (http or https usually).

HttpRequest.body

The raw HTTP request body as a bytestring. This is useful for processing data in different ways than conventional HTML forms: binary images, XML payload etc. For processing conventional form data, use HttpRequest.POST.

https://docs.djangoproject.com/en/3.0/ref/request-response/#django.http.HttpRequest

class HttpResponse

In contrast to HttpRequest objects, which are created automatically by Django, HttpResponse objects are your responsibility.

Each view you write is responsible for instantiating, populating, and returning an HttpResponse.

Passing strings

Typical usage is to pass the contents of the page, as a string or bytestring, to the HttpResponse constructor.

https://docs.djangoproject.com/en/3.0/ref/request-response/#django.http.HttpResponse

Views

https://samples.dj4e.com/views/funky

```
path('funky', views.funky),
```

```
from django.http import HttpResponse
from django.http import HttpResponseRedirect

# Create your views here.

def funky(request):
    response = """<html><body><p>This is the funky function sample</p>
    <p>This sample code is available at
    <a href="https://github.com/csev/dj4e-samples">
    https://github.com/csev/dj4e-samples</a></p>
    </body></html>"""
    return HttpResponse(response)
```

https://samples.dj4e.com/views/danger?guess=42

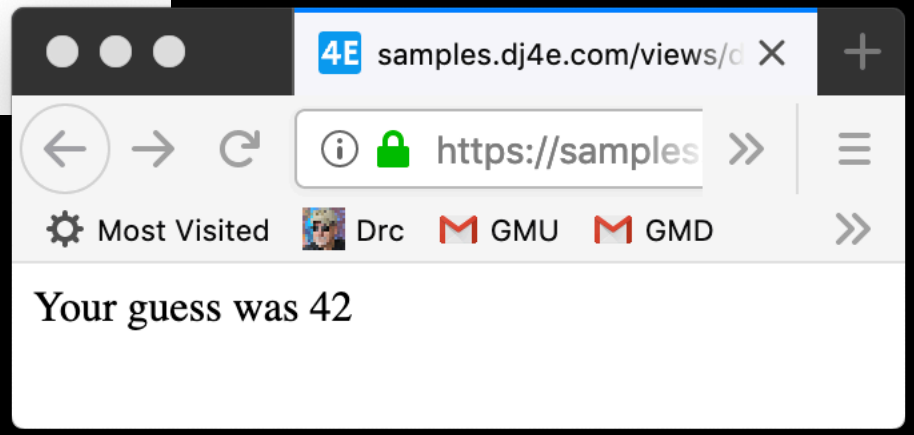
Views

```
path('danger', views.danger),
```

views/urls.py

```
from django.http import HttpResponse
from django.http import HttpResponseRedirect

# Create your views here.

def danger(request) :
    response = """<html><body>
    <p>Your guess was """+request.GET['guess']+"""</p>
    </body></html>"""
    return HttpResponse(response)
```

views/views.py



Danger – What Danger?

I use the django.http.escape() function whenever I sense danger…

Why is that view named danger?

- It is dangerous to take data from the user and include it in the HTTP Response without "escaping" the output.
- HTML + JavaScript is a programming language and you don't want your users "sending code" to other user's browsers

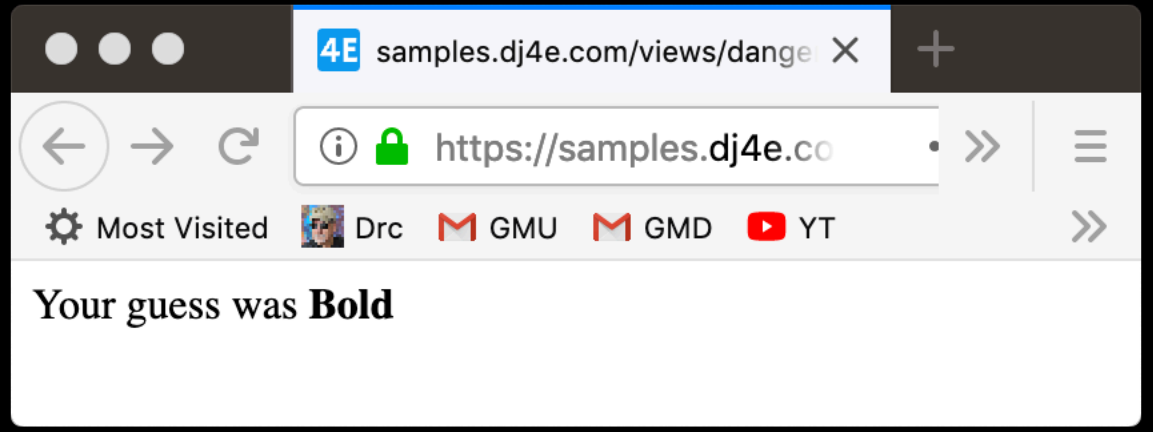
- Cross-Site Scripting (XSS)
  - https://en.wikipedia.org/wiki/Cross-site_scripting
  - https://en.wikipedia.org/wiki/List_of_XML_and_HTML_character_entity_references

https://samples.dj4e.com/views/danger?guess=%3Cb%3EBold%3C%2Fb%3E

```
def danger(request) :
    response = """<html><body>
    <p>Your guess was """+request.GET['guess']+"""</p>
    </body></html>"""
    return HttpResponse(response)
```

Response Source

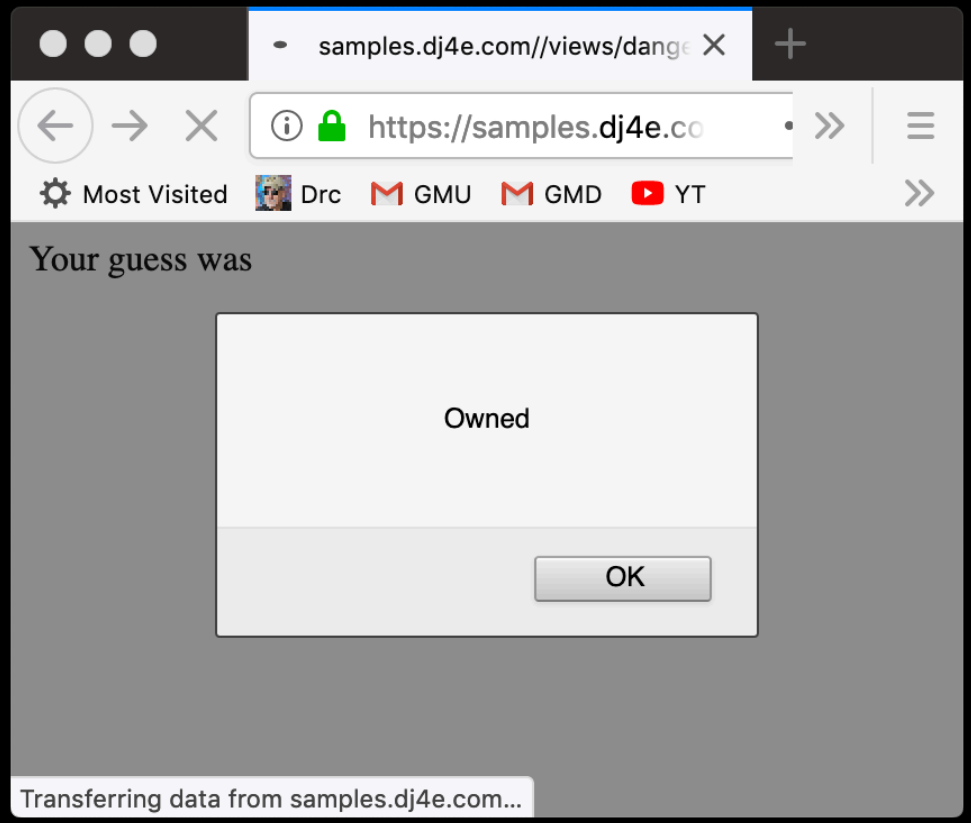
```
<html><body>
<p>Your guess was <b>Bold</b></p>
</body></html>
```



https://samples.dj4e.com/views/danger?guess=%3Cscript%3Ealert%28%27Owned%27%29%3B%3C%2Fscript%3E

Response Source

```
<html><body>
<p>Your guess was
<script>alert('Owned');</script></p>
</body></html>
```

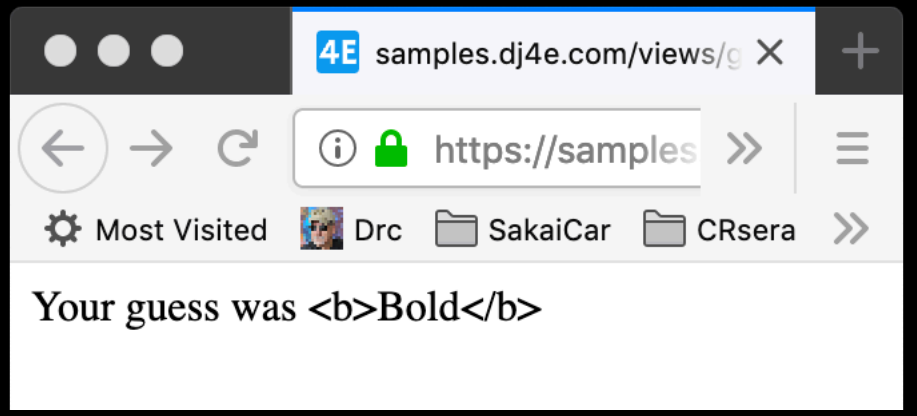


https://samples.dj4e.com/views/game?guess=%3Cb%3EBold%3C%2Fb%3E

HTML entities

```
from django.utils.html import escape

def game(request) :
    response = """<html><body>
    <p>Your guess was """+escape(request.GET['guess'])+"""</p>
    </body></html>"""
    return HttpResponse(response)
```

```
<html><body>
    <p>Your guess was &lt;b&gt;Bold&lt;/b&gt;</p>
    </body></html>
```



Parsing the URL after the Application and View

https://samples.dj4e.com/views/rest/41

```
urlpatterns = [
    path('rest/<int:guess>', views.rest),
]
```

<type:parameter-name>

```
from django.http import HttpResponse
from django.utils.html import escape

def rest(request, guess) :
    response = """<html><body>
    <p>Your guess was """+escape(guess)+"""</p>
    </body></html>"""
    return HttpResponse(response)
```

Class Views – Inheritance

```
path('main', views.MainView.as_view()),
```

```
from django.http import HttpResponse
from django.utils.html import escape
from django.views import View

class MainView(View) :
    def get(self, request):
        response = """<html><body><p>Hello world MainView in HTML</p>
        <p>This sample code is available at
        <a href="https://github.com/csev/dj4e-samples">
        https://github.com/csev/dj4e-samples</a></p>
        </body></html>"""
        return HttpResponse(response)
```

https://www.py4e.com/lessons/Objects

Parameters to Class Views

https://samples.dj4e.com/views/remain/abc123-42-xyzzy

```
path('remain/<slug:guess>', views.RestMainView.as_view()),
```

```
from django.http import HttpResponse
from django.utils.html import escape
from django.views import View

class RestMainView(View) :
    def get(self, request, guess):
        response = """<html><body>
        <p>Your guess was """+escape(guess)+"""</p>
        </body></html>"""
        return HttpResponse(response)
```

https://www.py4e.com/lessons/Objects

HTTP Status Codes

- http://www.dr-chuck.com/page1.htm - 200 OK
- http://www.dj4e.com/nowhere.htm - 404 Not Found
- 500 Server Error
- http://www.drchuck.com/ - 302 Found / Moved

  Also known as “redirect”

https://en.wikipedia.org/wiki/List_of_HTTP_status_codes

HTTP Location Header

- You can send a "Redirect" response instead of a page response to communicate a "Location:" header to the browser
- The location header includes a URL that the browser is supposed to forward itself to.
- It was originally used for web sites that moved from one URL to another.

http://en.wikipedia.org/wiki/URL_redirection

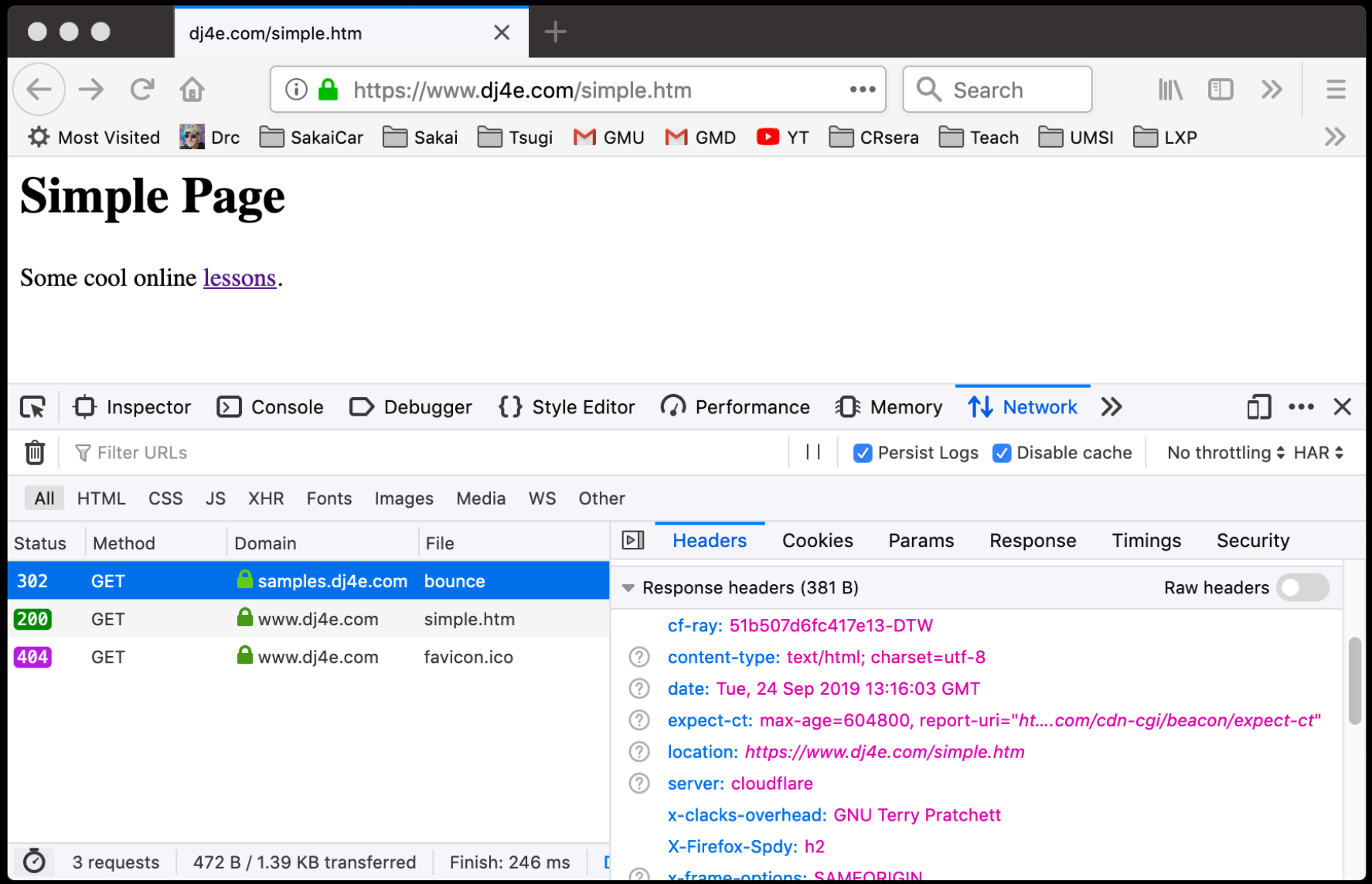
Sending a Redirect from a View

https://samples.dj4e.com/views/bounce

```
path('bounce', views.bounce)
```

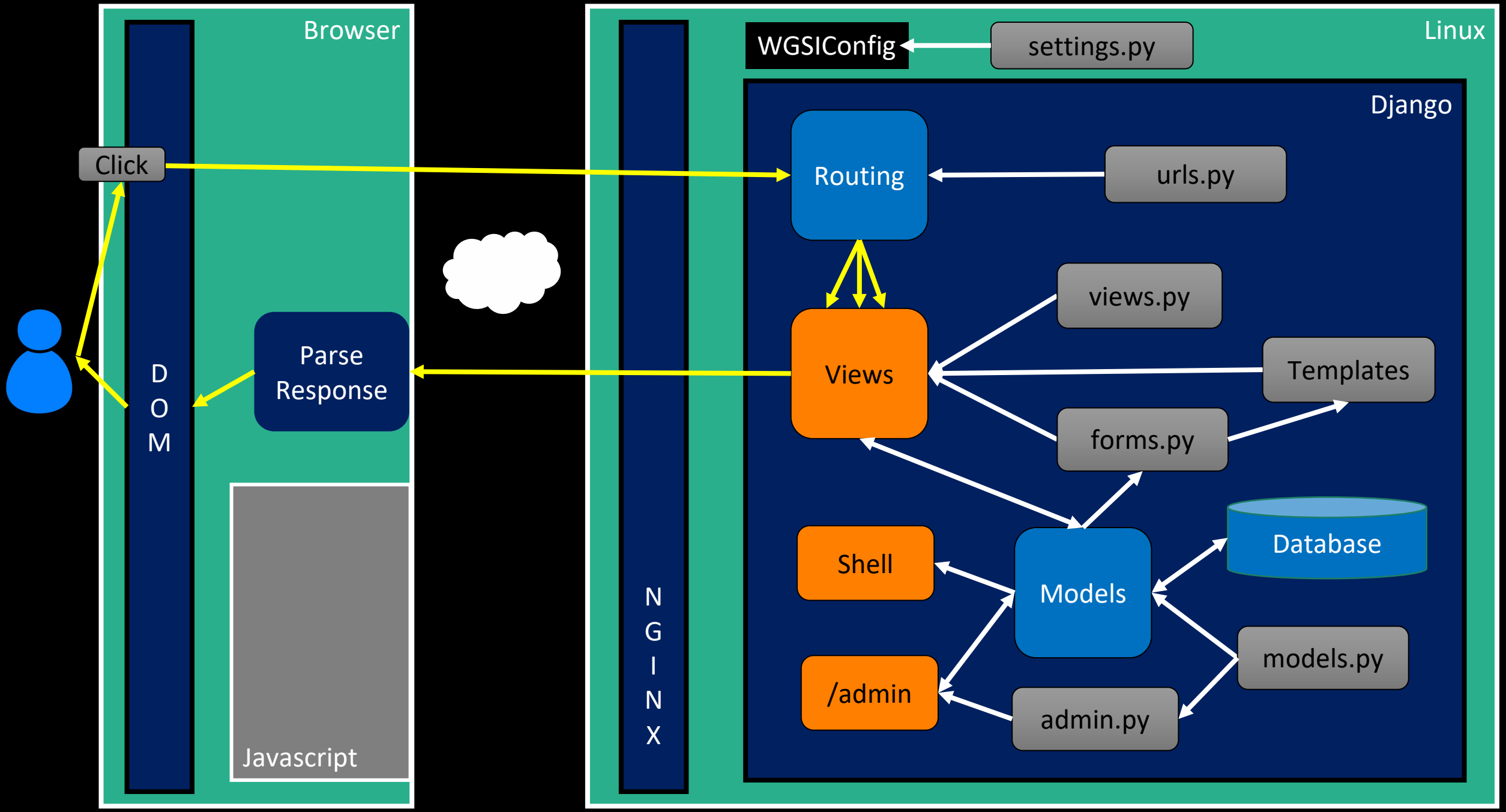
```
from django.http import HttpResponse
from django.http import HttpResponseRedirect

# This is a command to the browser
def bounce(request) :
    return HttpResponseRedirect('https://www.dj4e.com/simple.htm')
```

https://docs.djangoproject.com/en/3.0/ref/request-response/#django.http.HttpResponseRedirect


dj4e.com/simple.htm
https://www.dj4e.com/simple.htm
Search
Most Visited
Drc
SakaiCar
Sakai
Tsugi
GMU
GMD
YT
CRsera
Teach
UMSI
LXP
Simple Page
Some cool online lessons.
Inspector
Console
Debugger
Style Editor
Performance
Memory
Network
Filter URLs
Persist Logs
Disable cache
No throttling
HAR
All
HTML
CSS
JS
XHR
Fonts
Images
Media
WS
Other
Status
Method
Domain
File
302
GET
samples.dj4e.com
bounce
200
GET
www.dj4e.com
simple.htm
404
GET
www.dj4e.com
favicon.ico
Headers
Cookies
Params
Response
Timings
Security
Response headers (381 B)
Raw headers
cf-ray: 51b507d6fc417e13-DTW
content-type: text/html; charset=utf-8
date: Tue, 24 Sep 2019 13:16:03 GMT
expect-ct: max-age=604800, report-uri="ht....com/cdn-cgi/beacon/expect-ct"
location: https://www.dj4e.com/simple.htm
server: cloudflare
x-clacks-overhead: GNU Terry Pratchett
X-Firefox-Spdy: h2
3 requests
472 B / 1.39 KB transferred
Finish: 246 ms

Templates to Organize HTML

https://github.com/csev/dj4e-samples/tree/master/tmpl


Browser
Linux
WGSIConfig
settings.py
Django
Click
Routing
urls.py
views.py
Templates
Views
Parse
Response
forms.py
D
O
M
N
G
I
N
X
Shell
Models
Database
models.py
/admin
admin.py
Javascript

Templates

Being a web framework, Django needs a convenient way to generate HTML dynamically. The most common approach relies on templates. A template contains the static parts of the desired HTML output as well as some special syntax describing how dynamic content will be inserted.

A Django project can be configured with one or several template engines (or even zero if you don’t use templates). Django ships built-in backends for its own template system, creatively called the Django template language (DTL), and for the popular alternative Jinja2.

A template is simply a text file. It can generate any text-based format (HTML, XML, CSV, etc.). A template contains **variables**, which get replaced with values when the template is evaluated, and **tags**, which control the logic of the template.

https://docs.djangoproject.com/en/3.0/topics/templates/

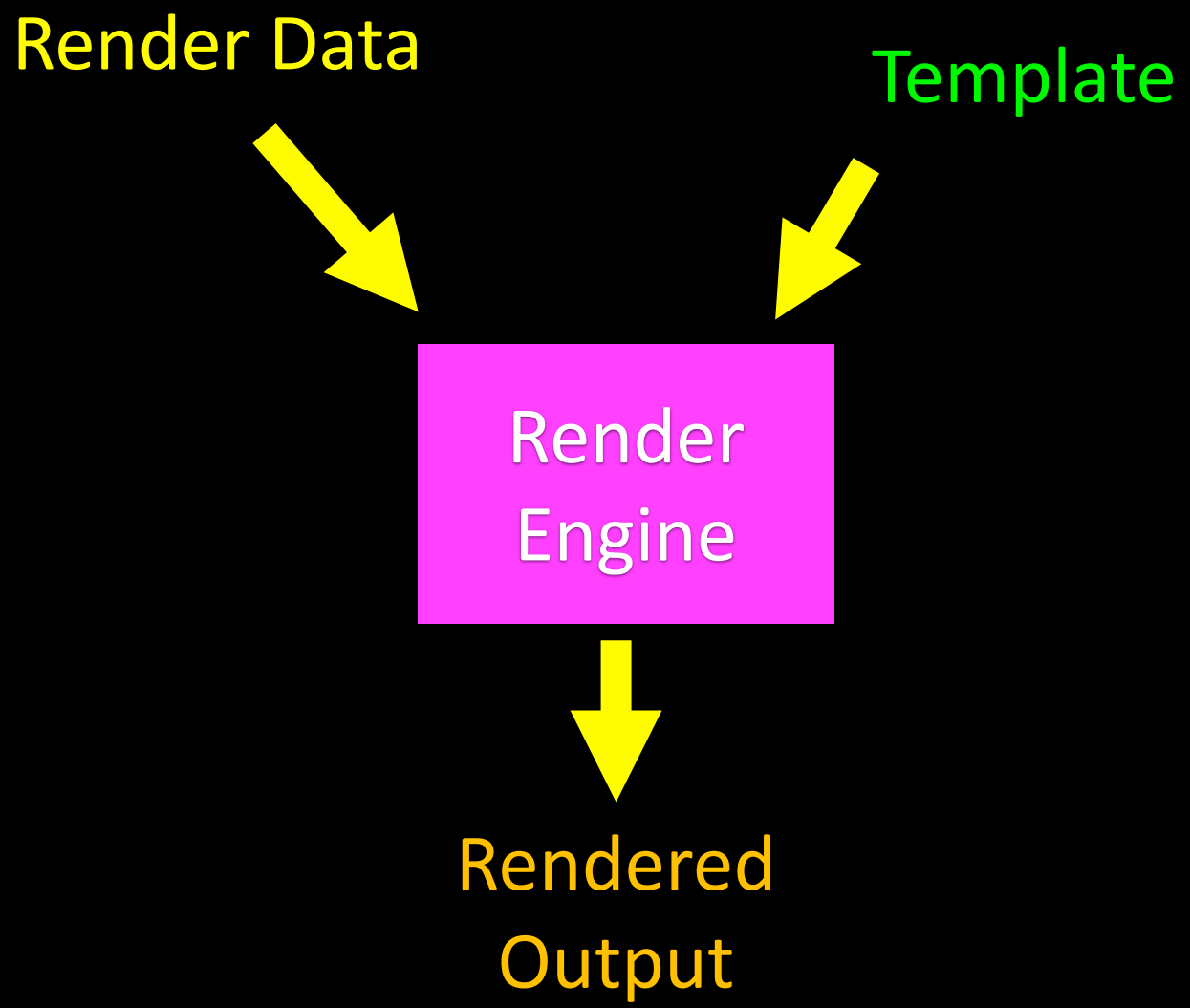
What is a Template?

- Concatenation and escaping can get tiresome and lead to very obtuse looking view code

```
from django.http import HttpResponse
from django.utils.html import escape
from django.views import View

class RestMainView(View) :
    def get(self, request, guess):
        response = """<html><body>
        <p>Your guess was """+escape(guess)+"""</p>
        </body></html>"""
        return HttpResponse(response)
```

https://samples.dj4e.com/views/rest/24

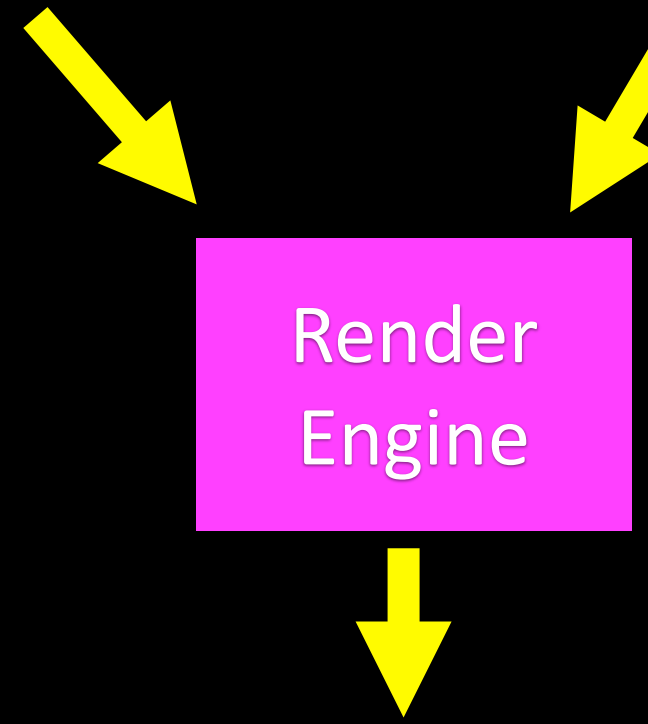
Template Render Process



Template Render Process

```
{ 'dat' : 'Fun > Stuff' }
```

```
<h1>Hi!</h1>
<pre>
{{ dat }}
</pre>
```




```
<h1>Hi!</h1>
<pre>
Fun &gt; Stuff
</pre>
```

URL -> View -> Template

https://samples.dj4e.com/tmpl/game/200

```
path('game/<slug:guess>', views.GameView.as_view())
```

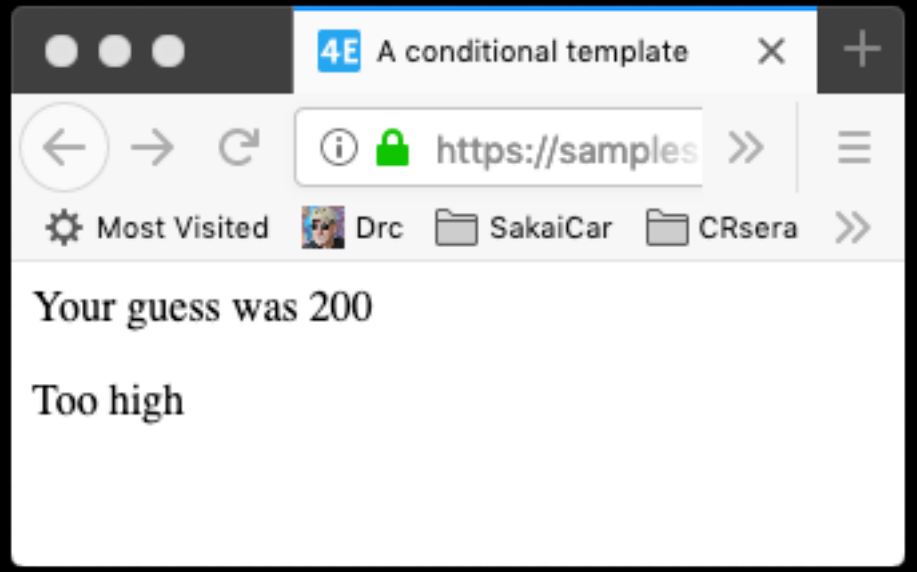
```
from django.shortcuts import render
from django.views import View

class GameView(View) :
    def get(self, request, guess) :
        x = {'guess' : int(guess) }
        return render(request, 'tmpl/cond.html', x)
```

https://samples.dj4e.com/tmpl/game/200

dj4e-samples/tmpl/templates/tmpl/cond.html

```
<html>
<head>
    <title>A conditional template</title>
</head>
<body>
    <p>Your guess was {{ guess }}</p>
    {% if guess < 42 %}
        <p>Too low</p>
    {% elif guess > 42 %}
        <p>Too high</p>
    {% else %}
        <p>Just right</p>
    {% endif %}
</body>
</html>
```

```
from django.views import View

class GameView(View) :
    def get(self, request, guess) :
        x = {'guess' : int(guess) }
        return render(request, 'tmpl/cond.html', x)
```



Where are Templates?

- A Django project is made up of one or more applications in folders

```
dj4e-samples$ ls
LICENSE.md          form                pics
README.md           forums              requirements.txt
autos               getpost             rest
bookmany            gview               route
bookone             hello               scripts
crispy              home                session
db.sqlite3          manage.py           tmpl
dj4e-samples        many                tracks
favs                menu                users
favsql              myarts              views
```

Templates in Folders

- It is common to reuse the "name" of a template file in several applications
- We use a technique called "namespace" so that each application can load its own templates without template name collision

```
dj4e-samples$ ls */templates/*/detail.html favs/templates/favs/detail.html
favsql/templates/favsql/detail.html
forums/templates/forums/detail.html
pics/templates/pics/detail.html
dj4e-samples$
```

https://en.wikipedia.org/wiki/Namespace
https://docs.djangoproject.com/en/3.0/topics/http/urls/#url-namespaces

Templates in Name Spaces

- For the namespace to work, we need to put templates in a path that includes the application name twice. Weird but necessary. ☹

```
dj4e-samples$ ls */templates/*/detail.html favs/templates/favs/detail.html
favsql/templates/favsql/detail.html
forums/templates/forums/detail.html
pics/templates/pics/detail.html
dj4e-samples$
```

https://en.wikipedia.org/wiki/Namespace
https://docs.djangoproject.com/en/3.0/topics/http/urls/#url-namespaces

Django template language (DTL)

https://docs.djangoproject.com/en/3.0/ref/templates/language/

Template Tags / Code

Substitution

```
{{ zap }}
{{ zap|safe }}
```

Calling code

```
{% url 'cat-detail' cat.id %}
{% author.get_absolute_url %}
```

Logic

```
{% if zap > 100 %}
{% endif %}
```

Blocks

```
{% block content %}
{% endblock %}
```

https://samples.dj4e.com/tmpl/simple

```
from django.shortcuts import render

def simple(request):
    return render(request, 'tmpl/simple.html')
```

dj4e-samples/tmpl/templates/tmpl/simple.html

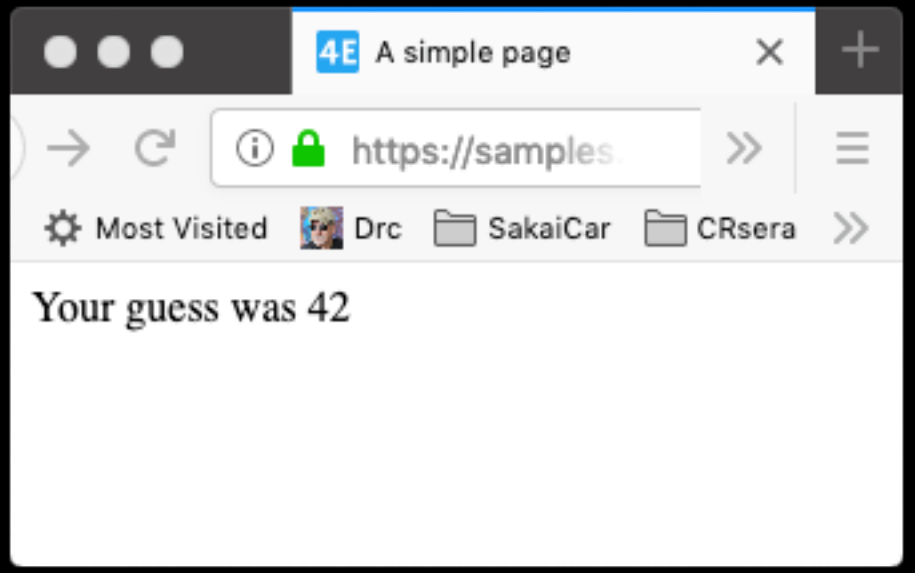
```
<html>
<head>
    <title>A simple page</title>
</head>
<body>
    <h1>This is pretty simple</h1>
</body>
</html>
```

https://samples.dj4e.com/tmpl/guess

```
def guess(request) :
    context = {'zap' : '42' }
    return render(request, 'tmpl/guess.html', context)
```

dj4e-samples/tmpl/templates/tmpl/guess.html

```
<html>
<head>
    <title>A simple page</title>
</head>
<body>
    <p>Your guess was {{ zap }}</p>
</body>
</html>
```

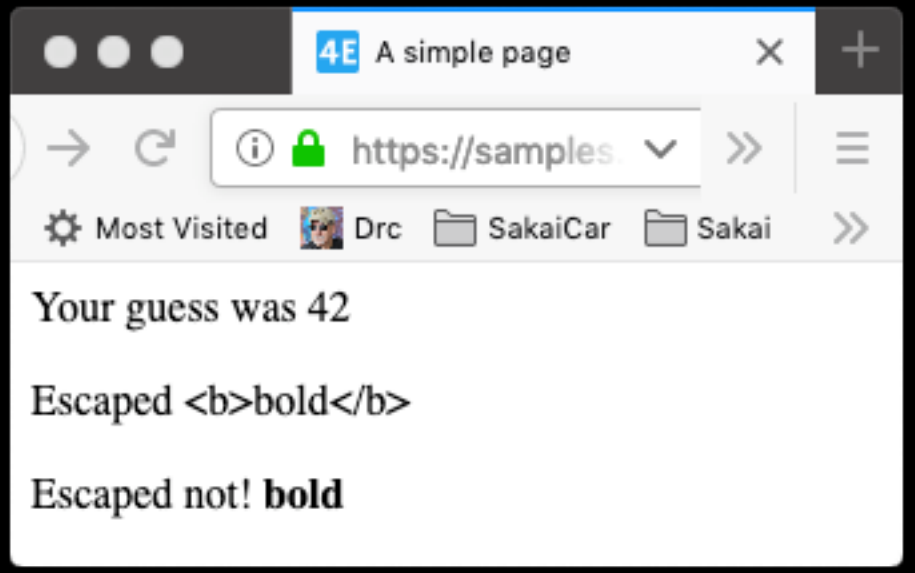


https://samples.dj4e.com/tmpl/special

```
def special(request) :
    context = {'txt' : '<b>bold</b>',
               'zap' : '42' }
    return render(request, 'tmpl/special.html', context)
```

dj4e-samples/tmpl/templates/tmpl/special.html

```
<body>
   <p>Your guess was {{ zap }}</p>
    <p>Escaped {{ txt }}</p>
    <p>Escaped not! {{ txt|safe }}</p>
</body>
```

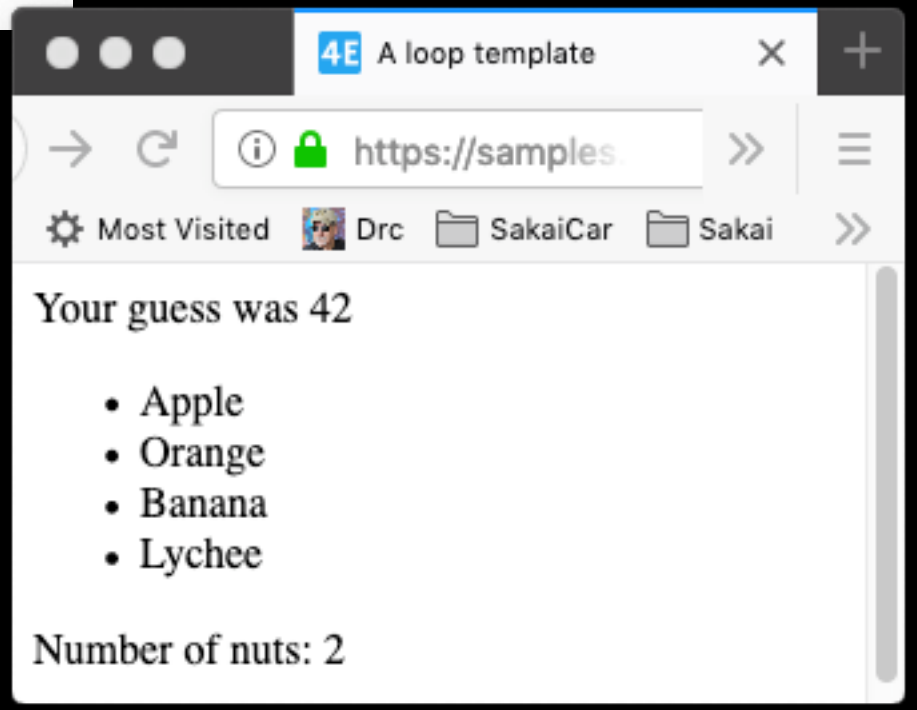


https://samples.dj4e.com/tmpl/loop

```
def loop(request) :
    f = ['Apple', 'Orange', 'Banana', 'Lychee']
    n = ['peanut', 'cashew']
    x = {'fruits' : f, 'nuts' : n, 'zap' : '42' }
    return render(request, 'tmpl/loop.html', x)
```

dj4e-samples/tmpl/templates/tmpl/loop.html

```
<ul>
{% for x in fruits  %}
<li>{{ x }}</li>
{% endfor %}
</ul>
{% if nuts %}
    <p>Number of nuts: {{ nuts|length }}</p>
{% else %}
    <p>No nuts.</p>
{% endif %}
```

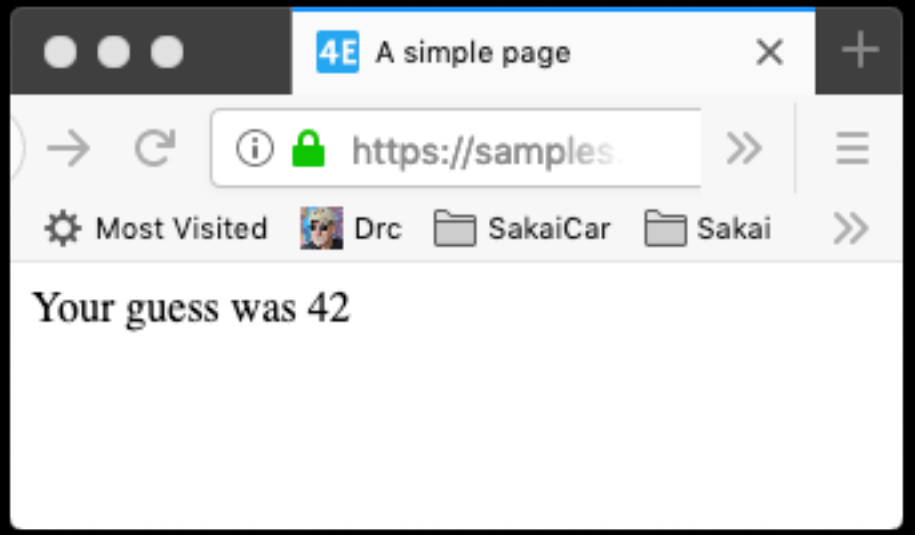


https://samples.dj4e.com/tmpl/nested

```
def nested(request) :
    x = {'outer' : { 'inner' : '42' } }
    return render(request, 'tmpl/nested.html', x)
```

dj4e-samples/tmpl/templates/tmpl/nested.html

```
<body>
    <p>Your guess was {{ outer.inner }}</p>
</body>
```



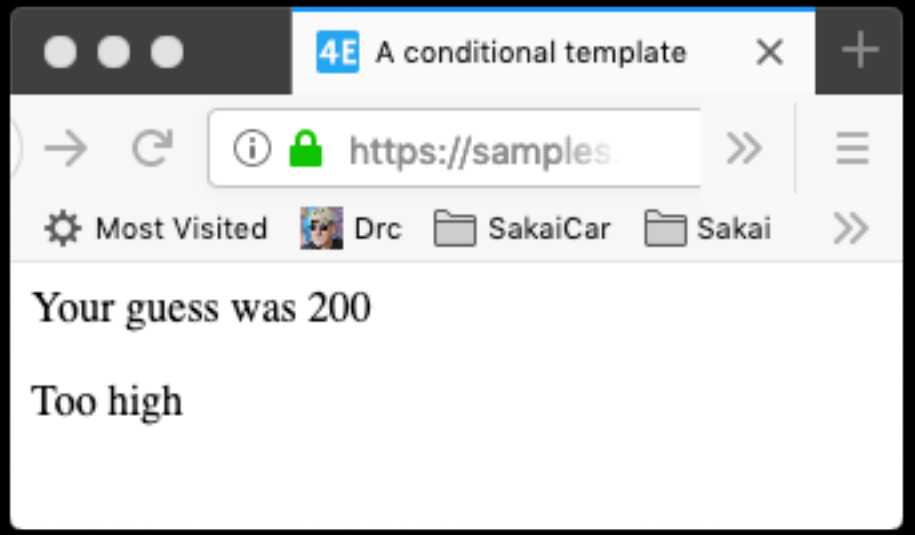
https://samples.dj4e.com/tmpl/game/200

```
path('game/<slug:guess>', views.GameView.as_view())
```

```
class GameView(View) :
    def get(self, request, guess) :
        x = {'guess' : int(guess) }
        return render(request, 'tmpl/cond.html', x)
```

dj4e-samples/tmpl/templates/tmpl/cond.html

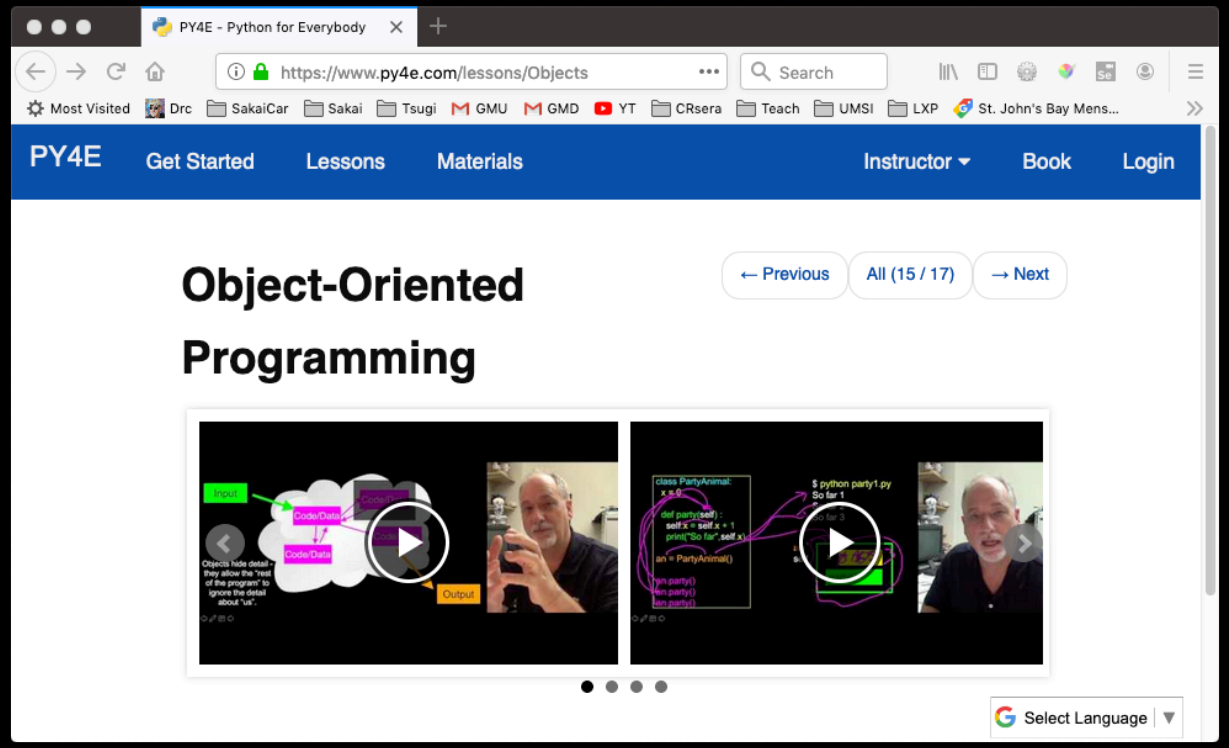
```
<p>Your guess was {{ guess }}</p>
{% if guess < 42 %}
    <p>Too low</p>
{% elif guess > 42 %}
    <p>Too high</p>
{% else %}
    <p>Just right</p>
{% endif %}
```



Template Inheritance

https://docs.djangoproject.com/en/3.0/ref/urlresolvers/

Review Python Object-Oriented Programming



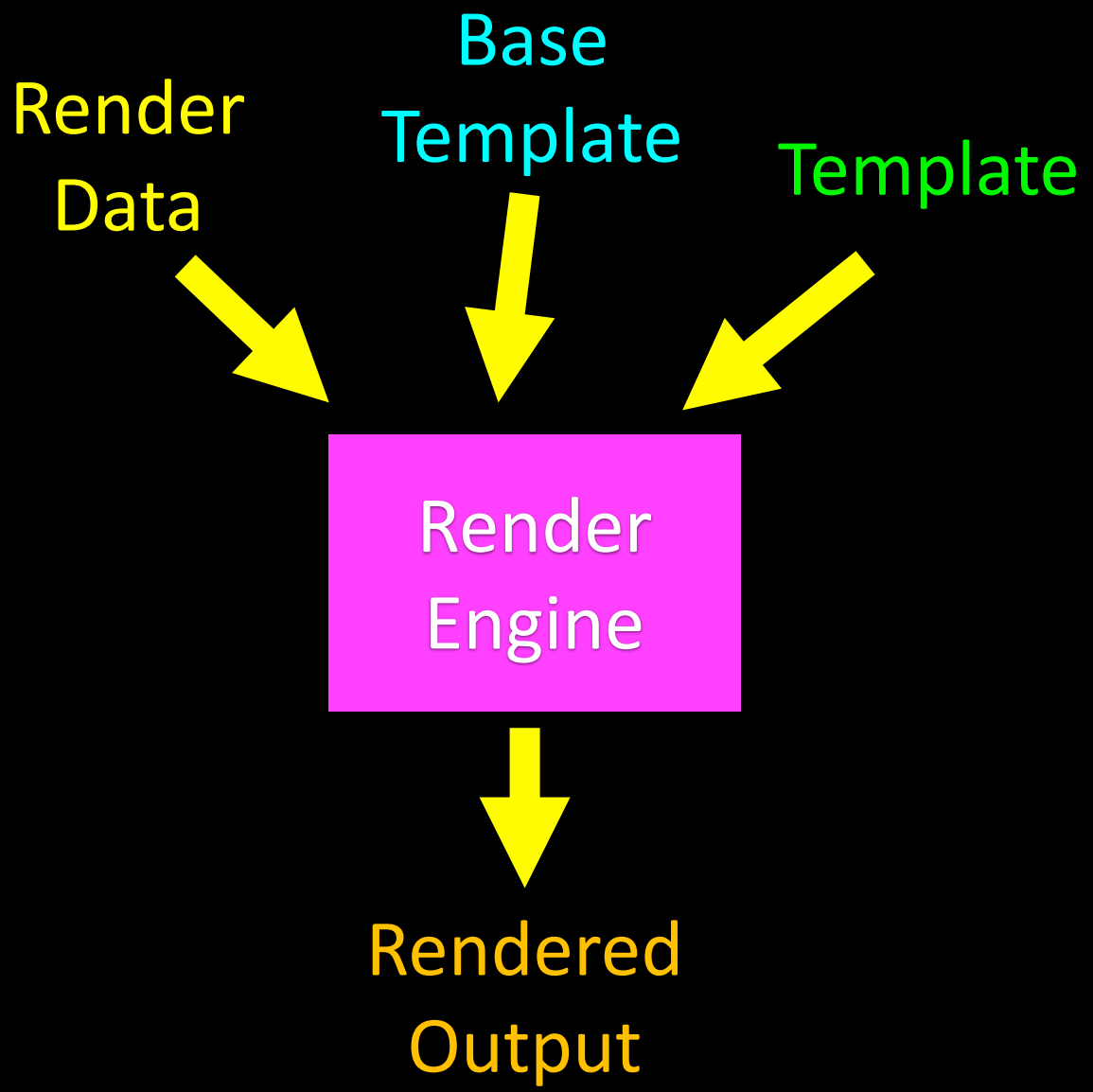
https://www.py4e.com/lessons/Objects

Inheritance

- When we make a new template - we can extend an existing template and then add our own little bit to make our new class
- Another form of store and reuse
- Don't Repeat Yourself (DRY)

https://en.wikipedia.org/wiki/Don%27t_repeat_yourself

Template Inheritance



Template Inheritance

tmpl/templates/tmpl/cond.html

```
<html>
<head>
    <title>A conditional template</title>
</head>
<body>
    <p>Your guess was {{ guess }}</p>
    {% if guess < 42 %}
        <p>Too low</p>
    {% elif guess > 42 %}
        <p>Too high</p>
    {% else %}
        <p>Just right</p>
    {% endif %}
</body>
</html>
```

tmpl/templates/tmpl/base.html

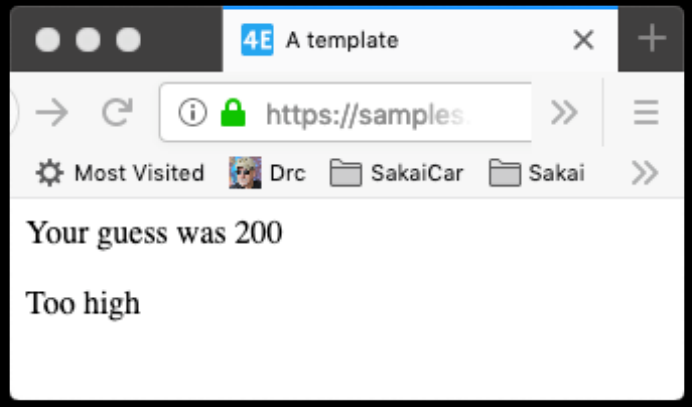
```
<html>
<head>
    <title>Base template</title>
</head>
<body>
    {% block content %}{% endblock %}
</body>
</html>
```

tmpl/templates/tmpl/cond2.html

```
{% extends "tmpl/base.html" %}

{% block content %}
    <p>Your guess was {{ guess }}</p>
    {% if guess < 42 %}
        <p>Too low</p>
    {% elif guess > 42 %}
        <p>Too high</p>
    {% else %}
        <p>Just right</p>
    {% endif %}
{% endblock %}
```

https://samples.dj4e.com/tmpl/game2/200

```
class GameView2(View) :
    def get(self, request, guess) :
        x = {'guess' : int(guess) }
        return render(request, 'tmpl/cond2.html', x)
```



tmpl/templates/tmpl/base.html

```
<html>
<head>
    <title>A template</title>
</head>
<body>
    {% block content %}{% endblock %}
</body>
</html>
```

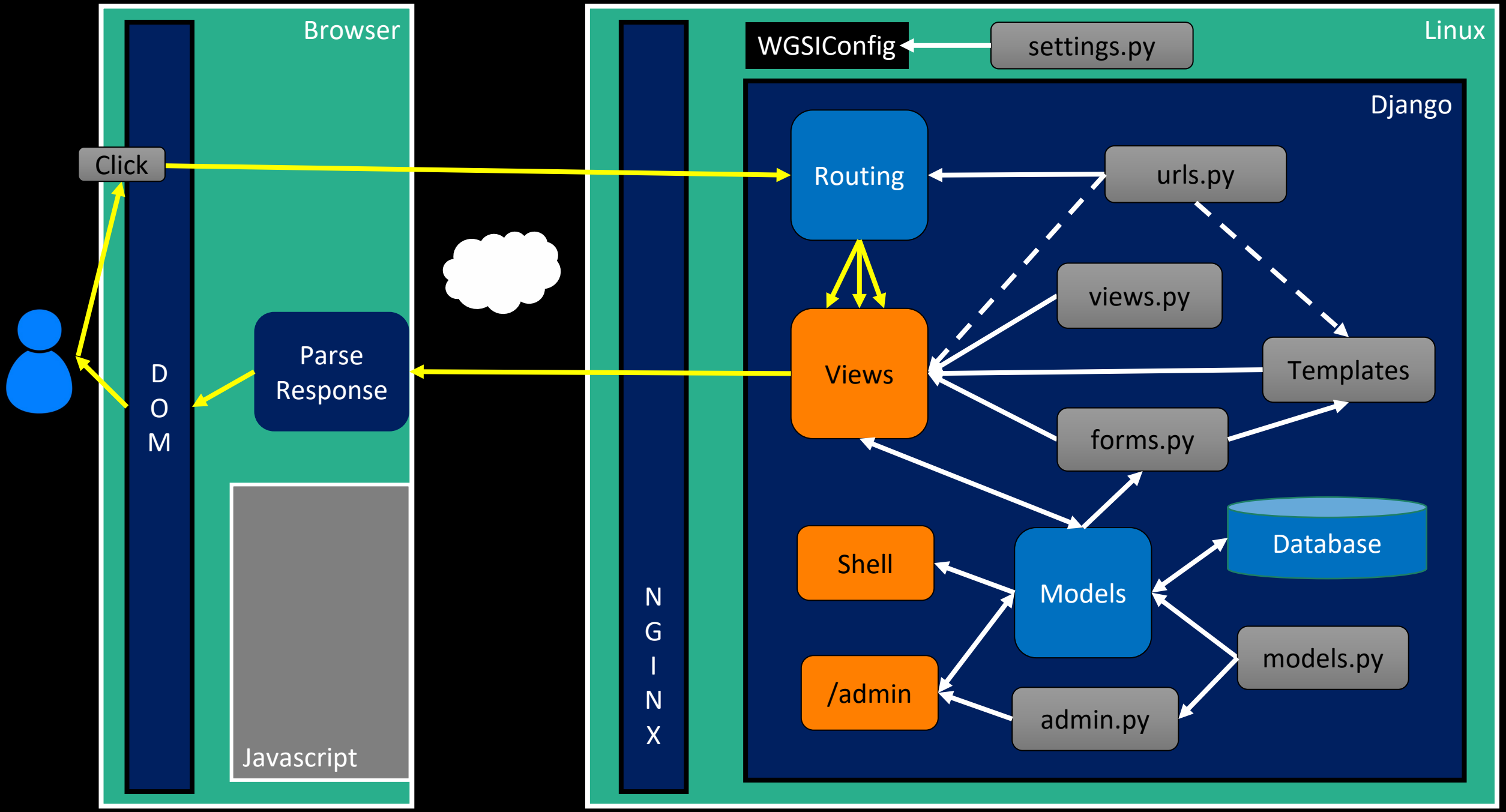
tmpl/templates/tmpl/cond2.html

```
{% extends "tmpl/base.html" %}

{% block content %}
    <p>Your guess was {{ guess }}</p>
    {% if guess < 42 %}
        <p>Too low</p>
    {% elif guess > 42 %}
        <p>Too high</p>
    {% else %}
        <p>Just right</p>
    {% endif %}
{% endblock %}
```

URL Mapping / Reversing

https://samples.dj4e.com/route/

https://docs.djangoproject.com/en/3.0/topics/http/urls/#reverse-resolution-of-urls


Browser
Linux
WGSIConfig
settings.py
Django
Click
Routing
urls.py
views.py
Templates
Views
Parse
Response
forms.py
D
O
M
N
G
I
N
X
Shell
Models
Database
/admin
models.py
admin.py
Javascript

Reverse Resolution of URLs

A common need when working on a Django project is the possibility to obtain URLs in their final forms either for embedding in generated content or for handling of the navigation flow on the server side (redirections, etc.)

It is strongly desirable to avoid hard-coding these URLs . Equally dangerous is devising ad-hoc mechanisms to generate URLs that are parallel to the design described by the URLconf, which can result in the production of URLs that become stale over time.

In other words, what's needed is a DRY mechanism. Among other advantages it would allow evolution of the URL design without having to go over all the project source code to search and replace outdated URLs.

The primary piece of information we have available to get a URL is an identification (e.g. the name) of the view in charge of handling it. Other pieces of information that necessarily must participate in the lookup of the right URL are the types (positional, keyword) and values of the view arguments.

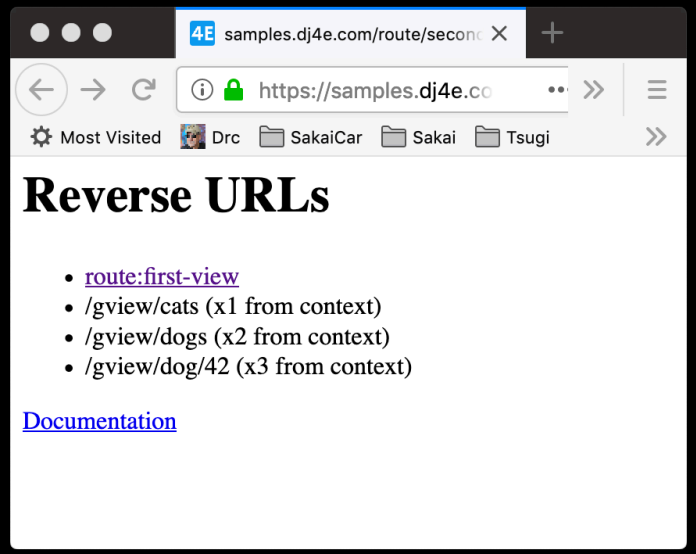
https://docs.djangoproject.com/en/3.0/topics/http/urls/#reverse-resolution-of-urls

dj4e-samples/route/urls.py

```
urlpatterns = [
    path('', TemplateView.as_view(template_name='route/main.html')),
    path('first', views.FirstView.as_view(), name='first-view'),
    path('second', views.SecondView.as_view(), name='second-view'),
]
```

https://samples.dj4e.com/route/

https://samples.dj4e.com/route/second



```
app_name = 'route'
urlpatterns = [
    path('', TemplateView.as_view(template_name='route/main.html')),
    path('first', views.FirstView.as_view(), name='first-view'),
    path('second', views.SecondView.as_view(), name='second-view'),
]
```

dj4e-samples/route/urls.py

dj4e-samples/route/templates/route/main.html

```
<li>
    <a href="/route/second">
    hard-coded</a> (not DRY)
</li>
<li>
    {% url 'route:first-view' %}
    (url 'route:first-view')
</li>
<li>
    <a href="{% url 'route:second-view' %}">
    url 'route:second-view'</a>
</li>
```

route:first-view

application name

view name

Using the url tag in a template

https://samples.dj4e.com/route/

dj4e-samples/route/templates/route/main.html

```
<li>
    <a href="/route/second-view">
    hard-coded</a> (not DRY)
</li>
<li>
    {% url 'route:first-view' %}
    (url 'route:first-view')
</li>
<li>
    <a href="{% url 'route:second-view' %}">
    url 'route:second-view'</a>
</li>
```

dj4e-samples/gview/urls.py

```
app_name = 'gview'
urlpatterns = [
    path('cats', views.CatListView.as_view(), name='cats'),
    path('cat/<int:pk_from_url>', views.CatDetailView.as_view(), name='cat'),
]
```

dj4e-samples/route/templates/route/main.html

```
 <li>
    {% url 'gview:cats' %}
   (url 'gview:cats') from gview/urls.py
</li>
<li>
    {% url 'gview:cat' 42 %}
    (url 'gview:cat' 42) from gview/urls.py
</li>
```

Parameter

'gview:cat' 42

application name: gview

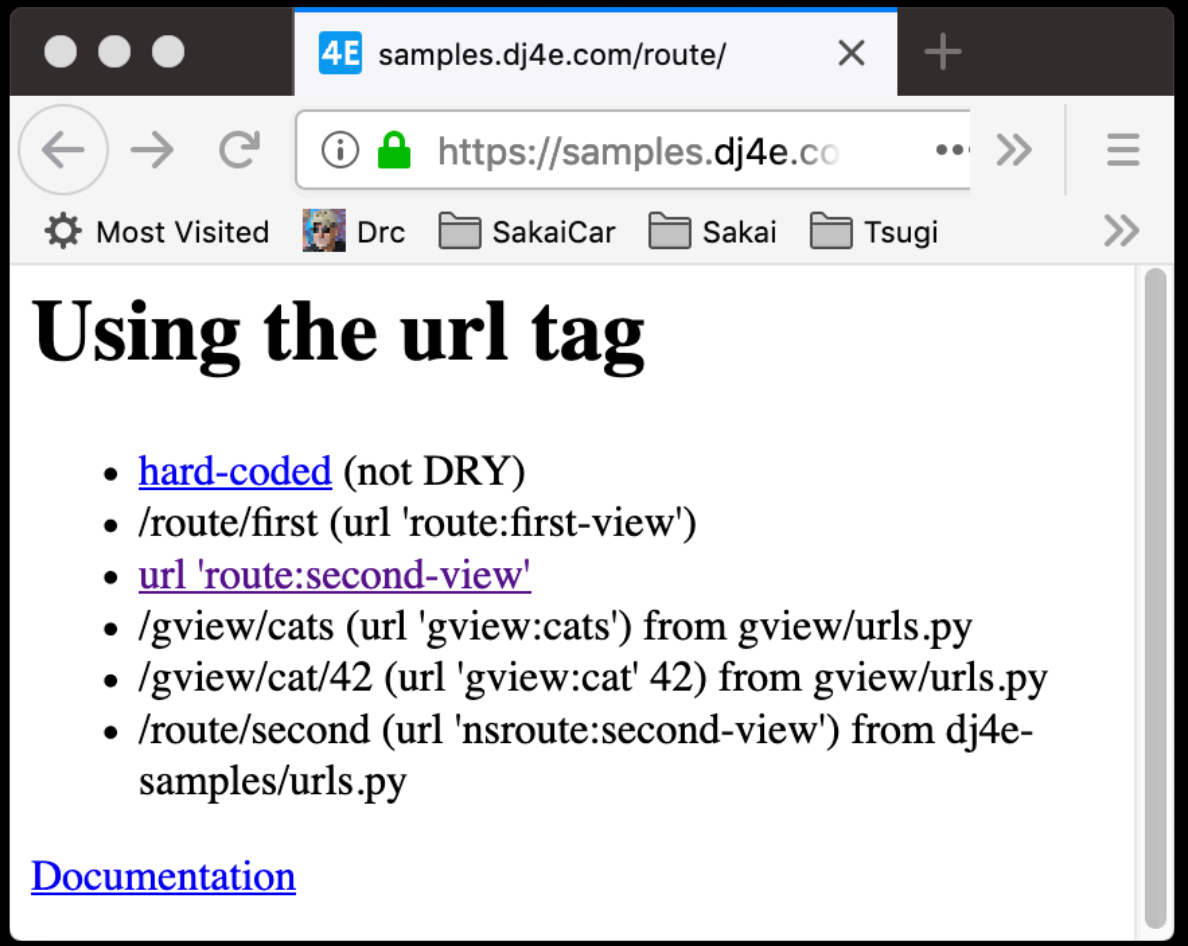
view name: cat

Other applications and parameters

dj4e-samples/route/templates/route/main.html

```
 <li>
     {% url 'gview:cats' %}
    (url 'gview:cats')
</li>
<li>
     {% url 'gview:cat' 42 %}
     (url 'gview:cat' 42)
</li>
```

https://samples.dj4e.com/route/



dj4e-samples/dj4e-samples/urls.py

```
urlpatterns = [
    path('', include('home.urls')),
    path('admin/', admin.site.urls),  # Keep
    url(r'^oauth/', include('social_django.urls', namespace='social')),
    path('hello/', include('hello.urls')),
    path('route/', include('route.urls', namespace='nsroute')),
]
```

dj4e-samples/route/templates/route/main.html

```
<li>
  <a href="{% url 'route:second-view' %}">
   url 'route:second-view'</a>
</li>

    ...
<li>
    {% url 'nsroute:second-view' %}
  (url 'nsroute:second-view')
</li>
```

A "second" name space

```
path('second', views.SecondView.as_view(), name='second-view'),
```

dj4e-samples/route/urls.py

dj4e-samples/route/views.py

```
from django.shortcuts import render
from django.urls import reverse
from django.views import View

class SecondView(View):
  def get(self, request) :
    u = reverse('gview:cats')
    u2 = reverse('gview:dogs')
    u3 = reverse('gview:dog', args=['42'] )
    ctx = {'x1' : u, 'x2': u2, 'x3': u3 }
    return render(request, 'route/second.html', ctx)
```

dj4e-samples/route/templates/route/main.html

```
<li>
    <a href="{% url 'route:first-view' %}">
    route:first-view</a>
</li>
<li>
    {{ x1 }} (x1 from context)
</li>
<li>
    {{ x2 }} (x2 from context)
</li>
<li>
    {{ x3 }} (x3 from context)
</li>
```

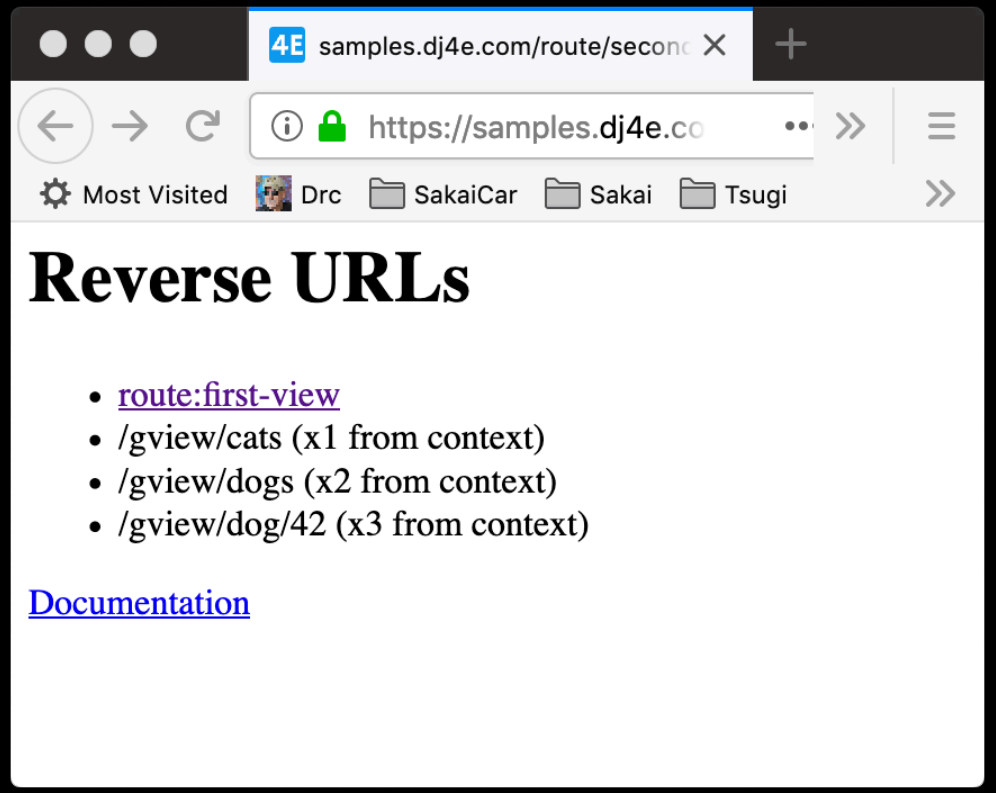
dj4e-samples/route/templates/route/main.html

```
class SecondView(View):
  def get(self, request) :
    u = reverse('gview:cats')
    u2 = reverse ('gview:dogs')
    u3 = reverse('gview:dog', args=['42'] )
    ctx = {'x1' : u, 'x2': u2, 'x3': u3 }
    return render(request, 'route/second.html', ctx)
```

dj4e-samples/route/templates/route/main.html

```
<li>
    {{ x1 }} (x1 from context)
</li>
<li>
    {{ x2 }} (x2 from context)
</li>
<li>
    {{ x3 }} (x3 from context)
</li>
```

https://samples.dj4e.com/route/second



Summary

- Views are where we bring the application components together to handle requests from browsers and produce responses for the browsers
- Templates take a context and merge it into a template to produce HTML
  - Values can be substituted without without "escaping"
  - Coding in templates

Acknowledgements / Contributions

Initial Development: Charles Severance, University of Michigan School of Information

Insert new Contributors and Translators here including names and dates

Continue new Contributors and Translators here

Additional Source Information

- Snowman Cookie Cutter" by Didriks is licensed under CC BY https://www.flickr.com/photos/dinnerseries/23570475099
- Portions of the text of these slides is adapted from the text www.djangoproject.org web site. Those slides which use text from that site have a reference to the original text on that site. Django is licensed under the three-clause BSD license.