

Lecture # 15

CSC336 Web Technologies

Credit Hours: 3(2, 1)

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Case study: *Airline*

- `django-admin startproject airline`
- `cd airline`
- `python manage.py startapp flights`

airline > settings.py

```
INSTALLED_APPS = [  
    'flights',  
    'django.contrib.admin',  
    'django.contrib.auth',  
    'django.contrib.contenttypes',  
    'django.contrib.sessions',  
    'django.contrib.messages',  
    'django.contrib.staticfiles',  
]
```

airline > urls.py

```
from django.contrib import admin
from django.urls import path
from django.urls.conf import include

urlpatterns = [
    path('admin/', admin.site.urls),
    path('flights/', include("flights.urls"))
]
```

flights > urls.py

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

```
urlpatterns = [  
    ]
```

flights > models.py

```
from django.db import models
```

```
# Create your models here.
```

```
class Flight(models.Model):
```

```
    origin = models.CharField(max_length=64)
```

```
    destination = models.CharField(max_length=64)
```

```
    duration = models.IntegerField()
```

- `python manage.py makemigrations`
- `python manage.py migrate`
- `python manage.py shell`

- `from flights.models import Flight`
- `f = Flight(origin="New York",
destination="London", duration=415)`
- `f.save()`

➤ `Flight.objects.all()`

flights > models.py

```
# Create your models here.
```

```
class Flight(models.Model):
```

```
    origin = models.CharField(max_length=64)
```

```
    destination = models.CharField(max_length=64)
```

```
    duration = models.IntegerField()
```

```
    def __str__(self):
```

```
        return f"{self.id}: {self.origin} to {self.destination}"
```

- `python manage.py shell`
- `from flights.models import Flight`
- `Flight.objects.all()`
- `flights = Flight.objects.all()`
- `flights`

- `flight = flights.first()`
- `flight.id`
- `flight.origin`
- `flight.destination`
- `flight.duration`
- `flight.delete()`

flights > models.py

```
# Create your models here.
```

```
class Airport(models.Model):  
    code = models.CharField(max_length=3)  
    city = models.CharField(max_length=64)  
  
    def __str__(self):  
        return f"{self.city} ({self.code})"
```

flights > models.py

```
# Create your models here.
```

```
class Flight(models.Model):  
    origin = models.ForeignKey(Airport, on_delete=models.CASCADE, related_name="departures")  
    destination = models.ForeignKey(Airport, on_delete=models.CASCADE, related_name="arrivals" )  
    duration = models.IntegerField()  
  
    def __str__(self):  
        return f"{self.id}: {self.origin} to {self.destination}"
```

- `python manage.py makemigrations`
- `python manage.py migrate`
- `python manage.py shell`

- `from flights.models import *`
- `jfk = Airport(code="JFK", city="New York")`
- `jfk.save()`
- `lhr = Airport(code="LHR", city="London")`
- `lhr.save()`
- `cdg = Airport(code="CDG", city="Paris")`
- `cdg.save()`
- `nrt = Airport(code="NRT", city="Tokyo")`
- `nrt.save()`

➤ `f = Flight(origin=jfk, destination=lhr,
duration=415)`

➤ `f.save()`

➤ `f`

➤ `f.origin`

➤ `f.origin.city`

➤ `f.origin.code`

➤ `lhr.arrivals.all()`

flights > urls.py

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

```
urlpatterns = [  
    path("", views.index, name="index")  
]
```

flights > views.py

```
from django.shortcuts import render
from .models import Flight

# Create your views here.
def index(request):
    return render(request, "flights/index.html", {
        "flights": Flight.objects.all()
    })
```

flights > templates > flights > layout.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Flights</title>
  </head>
  <body>
    {% block body %}

    {% endblock %}
  </body>
</html>
```

flights > templates > flights > index.html

```
{% extends "flights/layout.html" %}
```

```
{% block body %}
```

```
    <h1>Flights</h1>
```

```
    {% for flight in flights %}
```

```
        <li>Flight {{ flight.id }}: {{ flight.origin }} to {{ flight.destination }}</li>
```

```
    {% endfor %}
```

```
{% endblock %}
```

➤ `python manage.py runserver`

- `python manage.py shell`
- `from flights.models import *`
- `Airport.objects.all()`
- `Airport.objects.filter(city="New York")`
- `Airport.objects.filter(city="New York").first()`
- `Airport.objects.get(city="New York")`
- `jfk=Airport.objects.get(city="New York")`
- `cdg=Airport.objects.get(city="Paris")`

- `f = Flight(origin=jfk, destination=cdg,
duration=435)`
- `f.save()`

airline > urls.py

```
from django.contrib import admin
from django.urls import path
from django.urls.conf import include

urlpatterns = [
    path('admin/', admin.site.urls),
    path('flights/', include("flights.urls"))
]
```

Creating Admintrator account

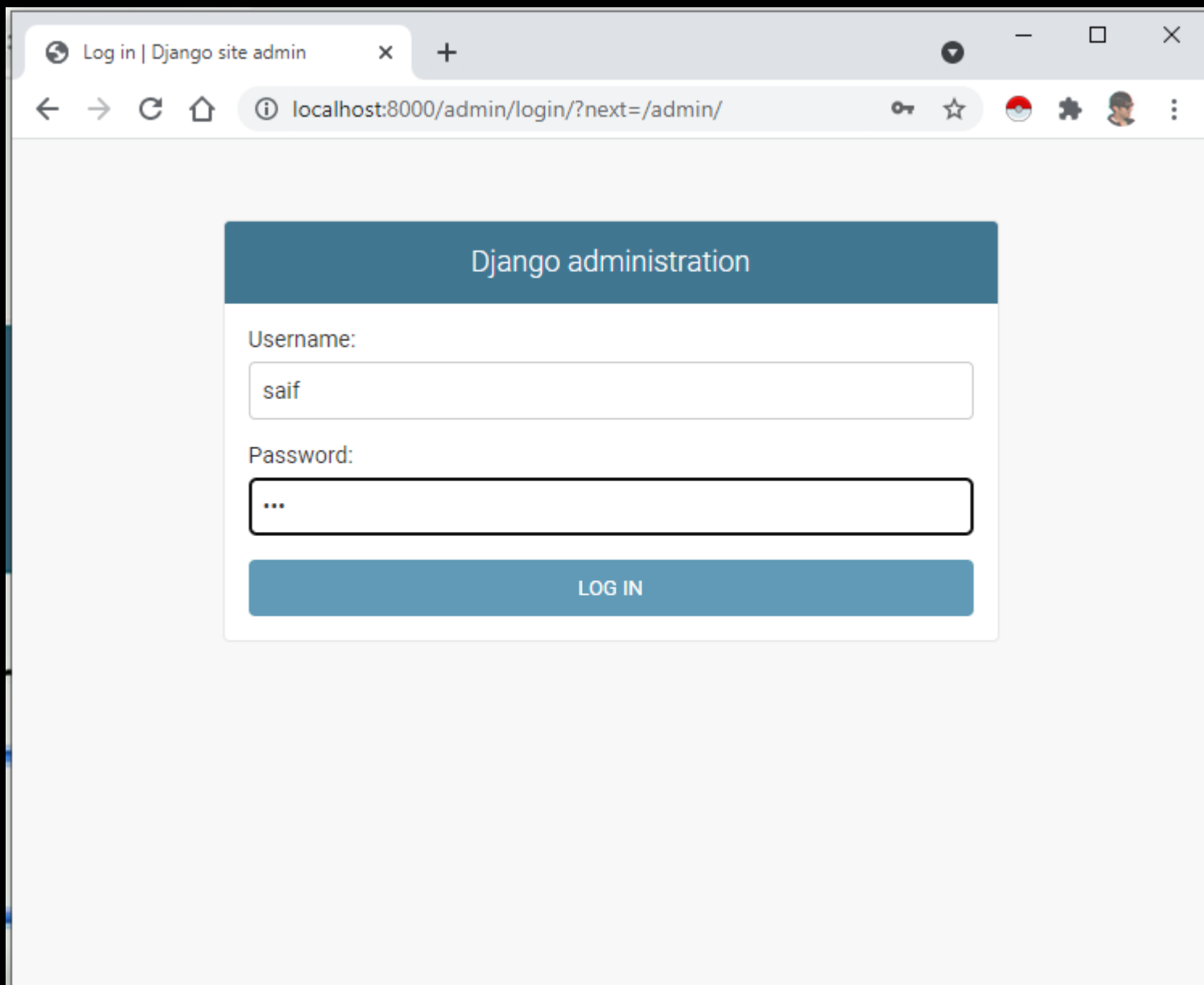
➤ `python manage.py createsuperuser`

flights > admin.py

```
from django.contrib import admin
from .models import Flight, Airport

# Register your models here.
admin.site.register(Airport)
admin.site.register(Flight)
```

- `python manage.py runserver`
- `http://localhost:8000/admin`



Django administration

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Site administration

AUTHENTICATION AND AUTHORIZATION

Groups [+ Add](#) [✎ Change](#)

Users [+ Add](#) [✎ Change](#)

FLIGHTS

Airports [+ Add](#) [✎ Change](#)

Flights [+ Add](#) [✎ Change](#)

Recent actions

My actions

None available

Django administration

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FLIGHTS

[Airports](#) [+ Add](#) [✎ Change](#)[Flights](#) [+ Add](#) [✎ Change](#)

Recent actions

My actions

None available

Select airport to change | Django

localhost:8000/admin/flights/airport/

Django administration

WELCOME, SAIF. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home > Flights > Airports

AUTHENTICATION AND AUTHORIZATION

Groups

+ Add

Users

+ Add

FLIGHTS

Airports

+ Add

Flights

+ Add

Select airport to change

ADD AIRPORT +

Action:

Go

 0 of 4 selected

☐ AIRPORT

☐ Tokyo (NRT)

☐ Paris (CDG)

☐ London (LHR)

☐ New York (JFK)

4 airports

Django administration

WELCOME, **SAIF**. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)[Home](#) > [Flights](#) > [Airports](#)

AUTHENTICATION AND AUTHORIZATION

[Groups](#) [+ Add](#)[Users](#) [+ Add](#)

FLIGHTS

[Airports](#) [+ Add](#)[Flights](#) [+ Add](#)

«

Select airport to change

[ADD AIRPORT +](#)Action: [Go](#) 0 of 4 selected☐ [AIRPORT](#)☐ [Tokyo \(NRT\)](#)☐ [Paris \(CDG\)](#)☐ [London \(LHR\)](#)☐ [New York \(JFK\)](#)

4 airports

Django administration

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AUTHENTICATION AND AUTHORIZATION

[Groups](#) [+ Add](#)[Users](#) [+ Add](#)

FLIGHTS

[Airports](#) [+ Add](#)[Flights](#) [+ Add](#)

«

Add airport

Code: **City:** [Save and add another](#)[Save and continue editing](#)[SAVE](#)

Django administration

WELCOME, **SAIF**. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)[Home](#) > [Flights](#) > [Airports](#) > Add airport

AUTHENTICATION AND AUTHORIZATION

[Groups](#) [+ Add](#)[Users](#) [+ Add](#)

FLIGHTS

[Airports](#) [+ Add](#)[Flights](#) [+ Add](#)

«

✔ The airport "Shanghai (PVG)" was added successfully. You may add another airport below.

Add airport

Code:

IST

City:

Istanbul

[Save and add another](#)[Save and continue editing](#)[SAVE](#)

Django administration

WELCOME, **SAIF**. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)[Home](#) > [Flights](#) > [Airports](#) > Add airport

AUTHENTICATION AND AUTHORIZATION

[Groups](#) [+ Add](#)[Users](#) [+ Add](#)

FLIGHTS

[Airports](#) [+ Add](#)[Flights](#) [+ Add](#)

«

✔ The airport "Istanbul (IST)" was added successfully. You may add another airport below.

Add airport

Code:

SVO

City:

Moscow

[Save and add another](#)[Save and continue editing](#)[SAVE](#)



Django administration

WELCOME, SAIF. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)[Home](#) › [Flights](#) › [Airports](#) › Add airport

AUTHENTICATION AND AUTHORIZATION

[Groups](#) [+ Add](#)[Users](#) [+ Add](#)

FLIGHTS

[Airports](#) [+ Add](#)[Flights](#) [+ Add](#)

«

✔ The airport "Moscow (SVO)" was added successfully. You may add another airport below.

Add airport

Code:

LIM

City:

Lima

[Save and add another](#)[Save and continue editing](#)[SAVE](#)

Select airport to change | Django

+

localhost:8000/admin/flights/airport/

☆

AUTHENTICATION AND AUTHORIZATION

Groups + Add

Users + Add

FLIGHTS

Airports + Add

Flights + Add

Select airport to change

ADD AIRPORT +

Action:

 Go 0 of 8 selected

☐ AIRPORT

☐ Lima (LIM)

☐ Moscow (SVO)

☐ Istanbul (IST)

☐ Shanghai (PVG)

☐ Tokyo (NRT)

☐ Paris (CDG)

☐ London (LHR)

☐ New York (JFK)

8 airports

AUTHENTICATION AND AUTHORIZATION

Groups

+ Add

Users

+ Add

FLIGHTS

Airports

+ Add

Flights

+ Add

Select airport to change

ADD AIRPORT +

Action: 0 of 8 selected☐ AIRPORT☐ Lima (LIM)☐ Moscow (SVO)☐ Istanbul (IST)☐ Shanghai (PVG)☐ Tokyo (NRT)☐ Paris (CDG)☐ London (LHR)☐ New York (JFK)

8 airports

Select flight to change | Django s x

+

localhost:8000/admin/flights/flight/

☆🇵🇰⚙️👤⋮

Django administration

WELCOME, SAIF. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home › Flights › Flights

AUTHENTICATION AND AUTHORIZATION

Groups + Add

Users + Add

FLIGHTS

Airports + Add

Flights + Add

Select flight to change

ADD FLIGHT +

Action:

 Go 0 of 3 selected

☐ FLIGHT

☐ 4: Paris (CDG) to London (LHR)

☐ 3: Paris (CDG) to Tokyo (NRT)

☐ 2: New York (JFK) to London (LHR)

3 flights

Select flight to change | Django s x

+

localhost:8000/admin/flights/flight/

☆🏠⚙️👤⋮

Django administration

WELCOME, SAIF. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home › Flights › Flights

AUTHENTICATION AND AUTHORIZATION

Groups + Add

Users + Add

FLIGHTS

Airports + Add

Flights + Add

Select flight to change

ADD FLIGHT +

Action:

 Go 0 of 3 selected

☐ FLIGHT

☐ 4: Paris (CDG) to London (LHR)

☐ 3: Paris (CDG) to Tokyo (NRT)

☐ 2: New York (JFK) to London (LHR)

3 flights

Add flight | Django site admin

localhost:8000/admin/flights/flight/add/

Django administration

WELCOME, SAIF. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home > Flights > Flights > Add flight

AUTHENTICATION AND AUTHORIZATION

Groups + Add

Users + Add

FLIGHTS

Airports + Add

Flights + Add

<<

Add flight

Origin: Shanghai (PVG) ✎ +

Destination: Paris (CDG) ✎ +

Duration: 760 ▾

Save and add another

Save and continue editing

SAVE

➤ <http://localhost:8000/flights>

flights > urls.py

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

urlpatterns = [
    path("", views.index, name="index"),
    path("<int:flight_id>", views.flight, name="flight")
]
```

flights > views.py

```
from django.shortcuts import render
from .models import Flight

# Create your views here.
def flight(request, flight_id):
    flight = Flight.objects.get(id=flight_id)
```

flights > views.py

```
from django.shortcuts import render
from .models import Flight
```

```
# Create your views here.
```

```
def flight(request, flight_id):
    flight = Flight.objects.get(pk=flight_id)
    return render(request, "flights/flight.html", {
        "flight": flight
    })
```

flights > templates > flights > flight.html

```
{% extends "flights/layout.html" %}
```

```
{% block body %}
```

```
    <h1>Flight {{ flight.id }}</h1>
```

```
    <ul>
```

```
        <li>Origin: {{ flight.origin }}</li>
```

```
        <li>Destination: {{ flight.destination }}</li>
```

```
        <li>Duration: {{ flight.duration }}</li>
```

```
    </ul>
```

```
{% endblock %}
```


➤ <http://localhost:8000/flights/1>

Adding Passengers to Flight

➤ <http://localhost:8000/flights/1>

flights > models.py

```
class Passenger(models.Model):
    first = models.CharField(max_length=64)
    last = models.CharField(max_length=64)
    flights = models.ManyToManyField(Flight, blank=True,
        related_name="passengers")

    def __str__(self):
        return f"{self.first} {self.last}"
```

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

flights > admin.py

```
from django.contrib import admin
from .models import Flight, Airport, Passenger

# Register your models here.
admin.site.register(Airport)
admin.site.register(Flight)
admin.site.register(Passenger)
```

- `python manage.py runserver`
- `http://localhost:8000/admin`

Django administration

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Site administration

AUTHENTICATION AND AUTHORIZATION

Groups [+ Add](#) [✎ Change](#)

Users [+ Add](#) [✎ Change](#)

FLIGHTS

Airports [+ Add](#) [✎ Change](#)

Flights [+ Add](#) [✎ Change](#)

Passengers [+ Add](#) [✎ Change](#)

Recent actions

My actions

- ✖ 3: Paris (CDG) to Tokyo (NRT)
Flight
- ✖ 4: Paris (CDG) to London (LHR)
Flight
- + 6: Shanghai (PVG) to Paris (CDG)
Flight
- + Lima (LIM)
Airport
- + Moscow (SVO)
Airport
- + Istanbul (IST)
Airport
- + Shanghai (PVG)
Airport
- ✖ New York (JFK)

Django administration

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Site administration

AUTHENTICATION AND AUTHORIZATION

Groups

[+ Add](#) [Change](#)

Users

[+ Add](#) [Change](#)

FLIGHTS

Airports

[+ Add](#) [Change](#)

Flights

[+ Add](#) [Change](#)

Passengers

[+ Add](#) [Change](#)

Recent actions

My actions

- ✖ 3: Paris (CDG) to Tokyo (NRT)
Flight
- ✖ 4: Paris (CDG) to London (LHR)
Flight
- + 6: Shanghai (PVG) to Paris (CDG)
Flight
- + Lima (LIM)
Airport
- + Moscow (SVO)
Airport
- + Istanbul (IST)
Airport
- + Shanghai (PVG)
Airport
- ✖ New York (JFK)

Add passenger | Django site adm x

Flights x

Flights x

+

localhost:8000/admin/flights/passenger/add/

Django administration

WELCOME, SAIF. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home » Flights » Passengers » Add passenger

AUTHENTICATION AND AUTHORIZATION

Groups + Add

Users + Add

FLIGHTS

Airports + Add

Flights + Add

Passengers + Add

Add passenger

First: Saif

Last: Ijaz

Flights:

2: New York (JFK) to London (LHR)

6: Shanghai (PVG) to Paris (CDG)

+

Hold down "Control", or "Command" on a Mac, to select more than one.

Save and add another

Save and continue editing

SAVE

Windows Taskbar

10:01 pm 04/11/2021

Add passenger | Django site admin

Flights

Flights

+

localhost:8000/admin/flights/passenger/add/

Django administration

WELCOME, SAIF. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home > Flights > Passengers > Add passenger

AUTHENTICATION AND AUTHORIZATION

Groups + Add

Users + Add

FLIGHTS

Airports + Add

Flights + Add

Passengers + Add

✓ The passenger "Saif Ijaz" was added successfully. You may add another passenger below.

Add passenger

First: Ali

Last: Haider

Flights:

2: New York (JFK) to London (LHR)

6: Shanghai (PVG) to Paris (CDG)

Hold down "Control", or "Command" on a Mac, to select more than one.

Save and add another

Save and continue editing

SAVE

Windows Taskbar

10:03 pm 04/11/2021

Add passenger | Django site adm

Flights

Flights

localhost:8000/admin/flights/passenger/add/

Django administration

WELCOME, SAIF. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home » Flights » Passengers » Add passenger

AUTHENTICATION AND AUTHORIZATION

Groups + Add

Users + Add

FLIGHTS

Airports + Add

Flights + Add

Passengers + Add

✓ The passenger "Saif Ijaz" was added successfully. You may add another passenger below.

Add passenger

First: Muhammad

Last: Amir

Flights:

2: New York (JFK) to London (LHR)

6: Shanghai (PVG) to Paris (CDG)

Hold down "Control", or "Command" on a Mac, to select more than one.

Save and add another

Save and continue editing

SAVE

Windows Taskbar

System Tray

flights > views.py

```
def flight(request, flight_id):  
    flight = Flight.objects.get(pk=flight_id)  
    return render(request, "flights/flight.html", {  
        "flight": flight,  
        "passengers": flight.passengers.all()  
    })
```

flights > templates > flights > flight.html

```
<li>Destination: {{ flight.destination }}</li>
```

```
<li>Duration: {{ flight.duration }}</li>
```

```
</ul>
```

```
<h2>Passengers</h2>
```

```
<ul>
```

```
{% for passenger in passengers %}
```

```
<li>{{ passenger }}</li>
```

```
{% empty %}
```

```
<li>No Passenger.</li>
```

```
{% endfor %}
```

```
</ul>
```

```
{% endblock %}
```

➤ <http://localhost:8000/flights/1>

flights > templates > flights > flight.html

```
    <li>Duration: {{ flight.duration }}</li>
</ul>
<h2>Passengers</h2>
<ul>
    {% for passenger in passengers %}
        <li>{{ passenger }}</li>
    {% empty %}
        <li>No Passenger.</li>
    {% endfor %}
</ul>
<a href="{% url 'index' %}">Back to Flight List.</a>
{% endblock %}
```


flights > templates > flights > index.html

```
{% extends "flights/layout.html" %}

{% block body %}
    <h1>Flights</h1>
    {% for flight in flights %}
        <a href="{% url 'flight' flight.id %}">
            <li>Flight {{ flight.id }}: {{ flight.origin }} to {{ flight.destination }}</li>
        </a>
    {% endfor %}
{% endblock %}
```