

(1) Models Structure

- petclinic_v4
 - petclinic
 - models
 - __init__.py
 - owner.py
 - pet.py
 - pet_type.py
 - specialty.py
 - vet.py
 - visit.py

models > owner.py

```
from django.db import models

class Owner(models.Model):
    first_name = models.CharField(max_length = 128)
    last_name = models.CharField(max_length = 128)
    address = models.CharField(max_length = 256)
    city = models.CharField(max_length = 128)
    telephone = models.CharField(max_length = 20)

    def __str__(self):
        return self.first_name + " " + self.last_name
```

models > pet.py

```
from django.db import models

from .owner import Owner
from .pet_type import PetType

class Pet(models.Model):
    name = models.CharField(max_length=30)
    owner_id = models.ForeignKey(Owner,on_delete=models.CASCADE)
    pet_type_id = models.ForeignKey(PetType, name='pettype', on_delete=models.CASCADE)
    birthday = models.DateTimeField(name='birthday',default=None)

    def __str__(self):
        return self.name
```

models > pet_type.py

```
from django.db import models

class PetType(models.Model):
    name = models.CharField(max_length=30)

    def __str__(self):
        return self.name
```

models > specialty.py

```
from django.db import models

class Specialty(models.Model):
    name = models.CharField(max_length = 128)

    def __str__(self):
        return self.name
```

models > vet.py

```
from django.db import models

from .specialty import Specialty

class Vet(models.Model):
    first_name = models.CharField(max_length = 128)
    last_name = models.CharField(max_length = 128)
    specialties = models.ManyToManyField(Specialty)

    def __str__(self):
        return self.first_name + " " + self.last_name
```

models > visit.py

```
from django.db import models

from .pet import Pet

class Visit(models.Model):
    visit_date = models.DateTimeField()
    description = models.TextField()
    pet = models.ForeignKey(Pet, on_delete=models.CASCADE)

    def __str__(self):
        return self.description
```

models > __init__.py

```
from .owner import Owner
from .pet_type import PetType
from .specialty import Specialty
from .pet import Pet
from .vet import Vet
from .visit import Visit
```

python manage.py makemigrations petclinic

python manage.py migrate petclinic

(2) Admin Register

petclinic > admin.py

```
from django.contrib import admin
from .models import *

class PetTypeAdmin(admin.ModelAdmin):
    list_display = ['name']
admin.site.register(PetType, PetTypeAdmin)

class PetAdmin(admin.ModelAdmin):
    list_display = ['owner_id', 'name', 'pettype', 'birthday']
admin.site.register(Pet, PetAdmin)

class SpecialtyAdmin(admin.ModelAdmin):
    list_display = ['name']
admin.site.register(Specialty, SpecialtyAdmin)

class VisitAdmin(admin.ModelAdmin):
    list_display = ['visit_date', 'description', 'pet']
admin.site.register(Visit, VisitAdmin)

class VetAdmin(admin.ModelAdmin):
    list_display = ['first_name', 'last_name']
admin.site.register(Vet, VetAdmin)

class OwnerAdmin(admin.ModelAdmin):
    list_display = ['first_name', 'last_name', 'address', 'city', 'telephone']
admin.site.register(Owner, OwnerAdmin)
```

(3) Templates Structure

- petclinic_v4
 - petclinic
 - models
 - templates
 - owners
 - add.html
 - detail.html
 - find.html
 - list.html
 - update.html
 - pets
 - add.html
 - visit
 - add.html
 - vets
 - base.html
 - footer.html
 - header.html
 - home.html

templates > base.html

```
<html>
  <head>
    <title> Django Petclinic | {% block title%}{% endblock %}</title>
    {% load staticfiles %}
    <link rel="stylesheet" href="{% static 'petclinic.css' %}" />
  </head>
  <body>
    {% include 'header.html' %}
    <div id="main">
      {% block content %}{% endblock %}
    </div>
    <div id="main">
      {% include 'footer.html' %}
    </div>
  </body>
</html>
```

templates > footer.html

```
<footer>
  <table class="footer">
    <tr>
      <td><a href="/petclinic/">Home</a></td>
    </tr>
  </table>
</footer>
```

templates > header.html

```

```

templates > home.html

```
{% extends 'base.html' %}

{% block title%}Home{% endblock %}

{% block content %}
  <h1>Django PetClinic</h1>
  <ul>
    <li><a href="/petclinic/owners/find">Find Owner</a></li>
    <li><a href="/petclinic/owners/">Owners</a></li>
    <li><a href="/petclinic/vets/">Vets</a></li>
    <li><a href="/petclinic/error/">Error</a></li>
  </ul>
{% endblock %}
```

templates > owners > add.html

```
{% extends 'base.html' %}

{% block title%} Owner {% endblock %}

{% block content %}
<h1> Owner </h1>
<form method="POST">
  {% csrf_token %}
  <table>
    <tr>
      <td>
        <label for="first_name">First Name</label><br />
      </td>
      <td> {{ form.first_name }} </td>
    </tr>
    <tr>
      <td>
        <label for="last_name">Last name</label><br />
      </td>
      <td> {{ form.last_name }} </td>
    </tr>
  </table>
</form>
```

```

</tr>
<tr>
  <td>
    <label for="address"> Address</label><br />
  </td>
  <td> {{ form.address }} </td>
</tr>
<tr>
  <td>
    <label for="city"> City</label><br />
  </td>
  <td> {{ form.city }} </td>
</tr>
<tr>
  <td>
    <label for="telephone"> Telephone</label><br />
  </td>
  <td> {{ form.telephone }} </td>
</tr>
<tr>
  <td><p class="submit"><input type="submit" value="Add Owner" name=""></p></td>
</tr>
</table>
</form>
{% endblock %}

```

templates > owners > detail.html

```

{% extends 'base.html' %}

{% block title %}{{ owner.first_name }} {{ owner.last_name }}{% endblock %}

{% block content %}
<h2> Owner Information </h2>

<table>
  <tr>
    <td>Name</td>
    <td>{{ owner.first_name }}&nbsp;{{ owner.last_name }}</td>
  </tr>
  <tr>
    <td>Address</td>
    <td>{{ owner.address }}</td>
  </tr>
  <tr>
    <td>City</td>
    <td>{{ owner.city }}</td>
  </tr>
  <tr>
    <td>Telephone</td>
    <td>{{ owner.telephone }}</td>
  </tr>

```

```

</table>

<a href="/petclinic/owners/edit/{{ owner.id }}">Edit Owner</a>
<a href="/petclinic/pets/add/{{ owner.id }}">Add New Pet</a>

<h2>Pets and Visits</h2>
{% for pet in owner.pet_set.all %}
    <table>
        <tr valign="top">
            <td>
                <table>
                    <tr>
                        <th>Name</th>
                        <td>{{ pet.name }}</td>
                    </tr>
                    <tr>
                        <th>Birthday</th>
                        <td>{{ pet.birthday }}</td>
                    </tr>
                    <tr>
                        <th>Type</th>
                        <td>{{ pet.pettype.name }}</td>
                    </tr>
                </table>
            </td>
            <td valign="top">
                <table>
                    <tr>
                        <thead>
                            <th>Visit Date</th>
                            <th>Description</th>
                        </thead>
                        {% for visit in pet.visit_set.all %}
                            <tr>
                                <td>{{ visit.visit_date }}</td>
                                <td>{{ visit.description }}</td>
                            </tr>
                        {% endfor %}
                    </tr>
                </table>
            </td>
        </tr>
    </table>

    <a href="/petclinic/pet/edit/{{ pet.id }}">Edit Pet</a>
    <a href="/petclinic/visit/add/{{ pet.id }}">Add Visit</a>

{% empty %}
    <p>There are no pets for this owner.</p>
{% endfor %}
{% endblock %}

```

templates > owners > find.html

```
{% extends 'base.html' %}

{% block title%} Find Owner {% endblock %}

{% block content %}
<h1> Find Owner </h1>
<form action="/petclinic/owners/" method="GET">
  <table>
    <tr>
      <th>
        <label for="last_name">Last name:</label><br />
        <input type="text" name="last_name" id="last_name"/>
      </th>
    </tr>
    <tr>
      <td><p class="submit"><input type="submit" value="Find Owners" name=""></p></td>
    </tr>
  </table>

  <a href="/petclinic/owners/add/">Add Owner</a>
</form>
{% endblock %}
```

templates > owners > list.html

```
{% extends 'base.html' %}

{% block title %} All Owners {% endblock %}

{% block content %}

<h1> Owners </h1>
{% if all_owners %}
  <table>
    <tr>
      <th>Name</th>
      <th>Address</th>
      <th>City</th>
      <th>Telephone</th>
      <th>Pets</th>
    </tr>
    {% for owner in all_owners %}
    <tr>
      <td><a href="{{ owner.id }}">{{ owner.first_name }} {{ owner.last_name }}</a></td>
      <td>{{ owner.address }}</td>
      <td>{{ owner.city }}</td>
      <td>{{ owner.telephone }}</td>
      <td>
        {% for pet in owner.pet_set.all %}
        {{ pet.name }}
      </td>
    </tr>
    {% endfor %}
  </table>
{% else %}
  No owners found.
{% endif %}
{% endblock %}
```



```

        {% endfor %}
    </td>
</tr>
{% endfor %}

</table>

{% else %}
    <p>There are currently no owners to display</p>
{% endif %}
{% endblock %}

```

templates > owners > update.html

```

{% extends 'base.html' %}

{% block title%} Owner {% endblock %}

{% block content %}
<h1> Owner </h1>
<form action="/petclinic/owners/update/{{ owner.id }}" method="POST">
    {% csrf_token %}
    <table>
        <tr>
            <td>
                <label for="first_name">First Name</label><br />
            </td>
            <td>
                <input type="text" name="first_name" value="{{ owner.first_name }}" />
            </td>
        </tr>
        <tr>
            <td>
                <label for="last_name">Last Name</label><br />
            </td>
            <td>
                <input type="text" name="last_name" value="{{ owner.last_name }}" />
            </td>
        </tr>
        <tr>
            <td>
                <label for="address"> Address </label><br />
            </td>
            <td>
                <input type="text" name="address" value="{{ owner.address }}" />
            </td>
        </tr>
        <tr>
            <td>
                <label for="city"> City </label><br />
            </td>
            <td>

```

```

        <input type="text" name="city" value="{{ owner.city }}" />
    </td>
</tr>
<tr>
    <td>
        <label for="telephone"> Telephone </label><br />
    </td>
    <td>
        <input type="text" name="telephone" value="{{ owner.telephone }}" />
    </td>
</tr>
<tr>
    <td><p class="submit"><input type="submit" value="Update Owner" name=""></p></td>
</tr>
</table>
</form>
{% endblock %}

```

templates > pets > add.html

```

{% extends 'base.html' %}

{% block title%} New Pet {% endblock %}

{% block content %}
<h1> New Pet </h1>
<form method="POST">
    {% csrf_token %}
    <table>
        <tr>
            <td>
                <label for="owner_id">Owner</label><br />
            </td>
            <td> {{ form.owner_id }} </td>
        </tr>
        <tr>
            <td>
                <label for="name">Name</label><br />
            </td>
            <td> {{ form.name }} </td>
        </tr>
        <tr>
            <td>
                <label for="birthday">Birthday</label><br />
            </td>
            <td> {{ form.birthday }} </td>
        </tr>
        <tr>
            <td>
                <label for="pettype"> PetType </label><br />
            </td>
            <td> {{ form.pettype }} </td>
        </tr>
    </table>
</form>

```

```

    </tr>
    <tr>
        <td><p class="submit"><input type="submit" value="Add Pet" name=""></p></td>
    </tr>
</table>
</form>
{% endblock %}

```

templates > visit > add.html

```

{% extends 'base.html' %}

{% block title%} New Visit {% endblock %}

{% block content %}
<h1> New Visit </h1>
<form method="POST">
    {% csrf_token %}
    <table>
        <tr>
            <td>
                <label for="pet">Pet</label><br />
            </td>
            <td> {{ form.pet }} </td>
        </tr>
        <tr>
            <td>
                <label for="visit_date">Visit Date</label><br />
            </td>
            <td> {{ form.visit_date }} </td>
        </tr>
        <tr>
            <td>
                <label for="description">Description</label><br />
            </td>
            <td> {{ form.description }} </td>
        </tr>

        <tr>
            <td><p class="submit"><input type="submit" value="Add Visit" name=""></p></td>
        </tr>
    </table>
</form>
{% endblock %}

```

(4) Views Structure

- petclinic_v4
 - petclinic
 - models
 - templates
 - views
 - __init__.py
 - base.py
 - owners.py
 - pets.py
 - visit.py

views > base.py

```
from django.shortcuts import render

def index(request):
    return render(request, 'home.html', {})

def error(request):
    return render(request, '404.html', {})
```

views > owners.py

```
from ..models import Owner
from ..forms import OwnerForm
from django.shortcuts import render, redirect

def owner(request, owner_id):
    owner = Owner.objects.get(pk=owner_id)
    return render(request, 'owners/detail.html', {'owner': owner})

def all_owners(request):
    if 'last_name' in request.GET:
        all_owners = Owner.objects.filter(last_name__icontains=request.GET['last_name'])
    else:
        all_owners = Owner.objects.all()
    return render(request, 'owners/list.html', {'all_owners': all_owners})

def find_owner(request):
    return render(request, 'owners/find.html', {})

def add_owner(request):
    if request.method == "POST":
        form = OwnerForm(request.POST)
        if form.is_valid():
            form.save()
```

```

        return redirect('/petclinic/owners')
    else:
        form = OwnerForm()
        return render(request, 'owners/add.html', {'form': form})

def edit_owner(request, owner_id):
    owner = Owner.objects.get(id=owner_id)
    return render(request, 'owners/update.html', {'owner': owner})

def update_owner(request, owner_id):
    owner = Owner.objects.get(id=owner_id)
    form = OwnerForm(request.POST, instance=owner)
    if form.is_valid():
        form.save()
        return redirect('/petclinic/owners/' + str(owner_id) + '/')
    return render(request, 'owners/update.html', {'owner': owner})

```

views > pets.py

```

from ..models import Pet
from ..forms import PetForm
from django.shortcuts import render, redirect

def add_pet(request, owner_id):
    if request.method == "POST":
        form = PetForm(request.POST)
        if form.is_valid():
            form.save()
            return redirect("/petclinic/owners/" + str(owner_id) + '/')
    else:
        form = PetForm(initial={'owner_id': owner_id})
    return render(request, 'pets/add.html', {'form': form})

```

views > visit.py

```

from ..models import Visit, Pet
from ..forms import VisitForm
from django.shortcuts import render, redirect

def add_visit(request, pet_id):
    pet = Pet.objects.get(id=pet_id)
    owner_id = pet.owner_id.id

    if request.method == "POST":
        form = VisitForm(request.POST)
        if form.is_valid():
            form.save()
            return redirect("/petclinic/owners/" + str(owner_id) + '/')
    else:
        form = VisitForm(initial={'pet': pet_id})
    return render(request, 'visit/add.html', {'form': form})

```

views > __init__.py

```
from .base import *
from .owners import *
from .pets import *
from .visit import *
```

(5) Forms Register

petclinic > forms.py

```
from django import forms
from .models import Owner, Pet, Visit

class DateInput(forms.DateInput):
    input_type = 'date'

class OwnerForm(forms.ModelForm):

    class Meta:
        model = Owner
        fields = "__all__"

class PetForm(forms.ModelForm):

    class Meta:
        model = Pet
        fields = "__all__"
        widgets = {'birthday': DateInput()}

class VisitForm(forms.ModelForm):

    class Meta:
        model = Visit
        fields = "__all__"
        widgets = {'visit_date': DateInput()}
```

(6) URL Register

petclinic_v4 > urls.py

```
from django.contrib import admin
from django.urls import path
from petclinic import views

urlpatterns = [
    path('admin/', admin.site.urls),
    path('petclinic/', views.index),
    path('petclinic/owners/', views.all_owners),
    path('petclinic/owners/<int:owner_id>/', views.owner),
    path('petclinic/owners/find/', views.find_owner),
    path('petclinic/owners/add/', views.add_owner),
    path('petclinic/owners/edit/<int:owner_id>/', views.edit_owner),
    path('petclinic/owners/update/<int:owner_id>/', views.update_owner),
    path('petclinic/pets/add/<int:owner_id>/', views.add_pet),
    path('petclinic/visit/add/<int:pet_id>/', views.add_visit)
]
```

(7) Static

- petclinic_v4
 - petclinic
 - models
 - templates
 - views
 - static
 - petclinic.css
 - pets.png
 - banner-graphic.png

static > petclinic.css

```
/* main elements */

body,div,td {
    font-family: Arial, Helvetica, sans-serif;
    font-size: 12px;
    color: #666;
}

body {
    background-color: #fff;
    background-image: url(/static/banner-graphic.png);
    background-position: top center;
```

```
        background-repeat: no-repeat;
        text-align: center;
        min-width: 600px;
        margin-top: 60px;
        margin-left: auto;
        margin-right: auto;
    }

    div {
        margin: 5px 25px 5px 25px;
        text-align: left;
    }

/* header and footer elements */

#main {
    margin:0 auto;
    position:relative;
    top: 35px;
    left:0px;
    width:560px;
    text-align:left;
}

.footer {
    display: flex;
    justify-content: center;
    background:#fff;
    border:none;
    margin-top:20px;
    border-top:1px solid #999999;
    width:100%;
}

.footer td {color:#999999;}

.footer a:link {color: #7db223;}

/* text styles */

h1,h2,h3 {
    font-family: Helvetica, sans-serif;
    color: #7db223;
}

h1 {
    font-size: 20px;
    line-height: 26px;
}

h2 {
```



```
        font-size: 18px;
        line-height: 24px;
    }

h3 {
    font-size: 15px;
    line-height: 21px;
    color: #555;
}

h4 {
    font-size: 14px;
    line-height: 20px;
}

.errors {
    color: red;
    font-weight: bold;
}

a {
    text-decoration: underline;
    font-size: 13px;
}

a:link {
    color: #7db223;
}

a:hover {
    color: #456314;
}

a:active {
    color: #7db223;
}

a:visited {
    color: #7db223;
}

ul {
    list-style: disc url(/static/bullet-arrow.png);
}

li {
    padding-top: 5px;
    text-align: left;
}

li ul {
    list-style: square url(/static/sub-bullet.gif);
```

```
}

li ul li ul {
    list-style: circle none;
}

/* table elements */

table {
    background: #d6e2c3;
    margin: 3px 0 0 0;
    border: 4px solid #d6e2c3;
    border-collapse: collapse;
}

table table {
    margin: -5px 0;
    border: 0px solid #e0e7d3;
    width: 100%;
}

table td,table th {
    padding: 8px;
}

table th {
    font-size: 12px;
    text-align: left;
    font-weight: bold;
}

table thead {
    font-weight: bold;
    font-style: italic;
    background-color: #c2ceaf;
}

table a:link {color: #303030;}

caption {
    caption-side: top;
    width: auto;
    text-align: left;
    font-size: 12px;
    color: #848f73;
    padding-bottom: 4px;
}

fieldset {
    background: #e0e7d3;
    padding: 8px;
    padding-bottom: 22px;
}
```

```
        border: none;
        width: 560px;
    }

fieldset label {
    width: 70px;
    float: left;
    margin-top: 1.7em;
    margin-left: 20px;
}

fieldset textfield {
    margin: 3px;
    height: 20px;
    background: #e0e7d3;
}

fieldset textarea {
    margin: 3px;
    height: 165px;
    background: #e0e7d3;
}

fieldset input {
    margin: 3px;
    height: 20px;
    background: #e0e7d3;
}

fieldset table {
    width: 100%;
}

fieldset th {
    padding-left: 25px;
}

.table-buttons {
    background-color: #fff;
    border: none;
}

.table-buttons td {
    border: none;
}

.submit input {
    background: url(/static/submit-bg.png) repeat-x;
    border: 2px outset #d7b9c9;
    color: #383838;
    padding: 2px 10px;
    font-size: 11px;
}
```

```
        text-transform:uppercase;
        font-weight:bold;
    }

.updated {
    background:#ecf1e5;
    font-size:11px;
    margin-left:2px;
    border:4px solid #ecf1e5;
}

.updated td {
    padding:2px 8px;
    font-size:11px;
    color:#888888;
}
```