Отчет по РК № 2 по курсу

"Разработка Интернет-Приложений"

Выполнил:

Студент группы

ИУ5-51Б

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Задание:

Рубежный контроль представляет собой разработку веб-приложения с использованием фреймворка Django. Веб-приложение должно выполнять следующие функции:

1. Создайте проект Python Django с использованием стандартных средств Django.
2. Создайте модель Django ORM, содержащую две сущности, связанные отношением один-ко-многим в соответствии с Вашим вариантом из условий рубежного контроля №1.
3. С использованием стандартного механизма Django сгенерируйте по модели макет веб-приложения, позволяющий добавлять, редактировать и удалять данные.
4. Создайте представление и шаблон, формирующий отчет, который содержит соединение данных из двух таблиц.

№ варианта	Класс 1	Класс 2
6	Дом	Улица

Текст программы:

rk2/urls.py

```python
from django.contrib import admin
from django.urls import path, include
from houses import views

urlpatterns = [
    path('admin/', admin.site.urls),
    path('', views.index, name="main"),
    path('house/', include([
        path('', views.read_house, name='read_house'),
        path('create/', views.create_house, name="create_house"),
        path('update/<int:house_id>/', views.update_house,
name="update_house"),
        path('delete/<int:house_id>/', views.delete_house,
name="delete_house"),
    ])),
    path('street_house/', include([
        path('', views.read_street_house, name='read_street_house'),
        path('create/', views.create_street_house,
name="create_street_house"),
        path('update/<int:street_house_id>/',
```

```
                views.update_street_house, name="update_street_house"),
        path('delete/<int:street_house_id>/',
                views.delete_street_house, name="delete_street_house"),
    ])),
    path('report/', views.report, name="report"),
]
```

houses/models.py

```python
from django.db import models


class Street(models.Model):
    name = models.CharField(max_length=256, verbose_name="Street name")
    city = models.CharField(max_length=256, verbose_name="Street city")
    def __str__(self):
        return self.name


class House(models.Model):
    name = models.CharField(max_length=256, verbose_name="House name")
    house_number = models.PositiveIntegerField(verbose_name="House number")
    num_of_citizens = models.PositiveIntegerField(verbose_name="House
citizens")
    street_house = models.ForeignKey(
        Street,
        on_delete=models.SET_DEFAULT,
        null=True,
        default=None,
        related_name="houses"
    )

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

houses /views.py

```python
from django.db.models.aggregates import Sum
from django.http.response import HttpResponse
from django.shortcuts import get_list_or_404, get_object_or_404, redirect,
render
from .models import Street, House
from django.db import models


def index(request):
    return render(request, 'index.html')
```

```python
# houses


def read_house(request):
    houses = House.objects.all()
    return render(request, 'house/house_list.html', {'houses': houses})


def create_house(request):
    if request.method == 'GET':
        street_houses = Street.objects.all()
        return render(request, 'house/create_house.html', {"street_houses":
street_houses})
    else:
        dto = {}
        for key in request.POST:
            if key in House.__dict__:
                dto[key] = request.POST[key]
        dto['street_house'] = get_object_or_404(Street,
pk=request.POST['street_house'])
        new_house = House(**dto)
        new_house.save()
        return redirect('read_house')


def update_house(request, house_id):
    if request.method == 'GET':
        street_houses = Street.objects.all()
        house = get_object_or_404(House, pk=house_id)
        return render(request, 'house/update_house.html', {"house": house,
"street_houses": street_houses})
    else:
        house = get_object_or_404(House, pk=house_id)
        for key in request.POST:
            if key in house.__dict__ and key != 'street_house':
                setattr(house, key, request.POST[key])
        if 'street_house' in request.POST:
            setattr(house, 'street_house', get_object_or_404(
                Street, pk=request.POST['street_house']))
        house.save()
        return redirect('read_house')


def delete_house(request, house_id):
    house = get_object_or_404(House, pk=house_id)
    house.delete()
    return redirect(request.META.get('HTTP_REFERER'))

# street_houses
```

```python
def read_street_house(request):
    street_houses = Street.objects.all()
    return render(request, 'street_house/street_house_list.html',
{'street_houses': street_houses})


def create_street_house(request):
    if request.method == 'GET':
        return render(request, 'street_house/create_street_house.html')
    else:
        dto = {}
        for key in request.POST:
            if key in Street.__dict__:
                dto[key] = request.POST[key]
        new_street_house = Street(**dto)
        new_street_house.save()
        return redirect('read_street_house')


def update_street_house(request, street_house_id):
    if request.method == 'GET':
        street_house = get_object_or_404(Street, pk=street_house_id)
        return render(request, 'street_house/update_street_house.html',
{"street_house": street_house})
    else:
        street_house = get_object_or_404(Street, pk=street_house_id)
        for key in request.POST:
            if key in street_house.__dict__:
                setattr(street_house, key, request.POST[key])
        street_house.save()
        return redirect('read_street_house')


def delete_street_house(request, street_house_id):
    street_house = get_object_or_404(Street, pk=street_house_id)
    street_house.delete()
    return redirect(request.META.get('HTTP_REFERER'))


# REPORT


def report(request):
    sortet_streets = Street.objects.order_by("name")
    num_of_citizens = []
    for street_house in Street.objects.all():
```

```python
        num_of_citizens.append({"street_house":
street_house,  "num_of_citizens": House.objects.filter(
            street_house=street_house.pk).aggregate(Sum('num_of_citizens'))['n
um_of_citizens__sum']})
    return render(request, 'report.html', {"sortet_streets": sortet_streets,
"num_of_citizens": sorted(num_of_citizens, key=lambda A: -
1*A['num_of_citizens'])})
```

templates/inc/base.html

```html
{% load static %}

<!doctype html>
<html lang="en" class="h-100">

<head>
    <!-- ========== CHARSET AND VIEWPORT ========== -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1,
shrink-to-fit=no">
    <!-- ========== CACHE TURN OFF ========== -->
    <meta http-equiv="cache-control" content="no-cache">
    <meta http-equiv="expires" content="0">
    <!-- ========== COPY RIGHT ========== -->
    <meta name="author" content="IU5-51 Ivan Bondarenko">
    <title>
        IU5-51 Bondarenko RK2
    </title>

    <!-- ========== BOOTSTRAP CORE CSS ========== -->
    <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/bootstrap.min.css"
rel="stylesheet" integrity="sha384-
1BmE4kWBq78iYhFldvKuhfTAU6auU8tT94WrHftjDbrCEXSU1oBoqyl2QvZ6jIW3"
crossorigin="anonymous">
    <!-- ========== SHARED STYLES ========== -->
    <link rel="stylesheet" href="{% static 'css/navbar.css' %}">
</head>

<body class="d-flex flex-column h-100">
    <header>
        <!-- Navbar -->
        {% include 'inc/navbar.html' %}
    </header>

    <!-- Begin page content -->
    <main role="main" class="flex-shrink-0">
        <div class="container">
```

```
        <div class="row">
            <div class="col-md-12">
                <!-- Content -->
                {% block content %}
                {% endblock content %}
            </div>
        </div>
    </div>
</main>

<footer class="footer mt-auto py-3">
    <!-- Footer -->
</footer>

<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/js/bootstrap.bundle.min
.js" integrity="sha384-
ka7Sk0Gln4gmtz2MlQnikT1wXgYsOg+OMhuP+IlRH9sENBO0LRn5q+8nbTov4+1p"
crossorigin="anonymous"></script>
</html>
```

templates/inc/navbar.html

```
{% load static %}
<nav class="navbar navbar-expand-sm navbar-dark bg-dark p-3">
    <a class="navbar-brand ml-5" href="{% url 'main' %}">Bondarenko</a>

    <ul class="navbar-nav ml-auto">
        <li class="nav-item">
            <a href="{% url 'main' %}" class="nav-link">Main Page</a>
        </li>
        <li class="nav-item">
            <a href="{% url 'read_house' %}" class="nav-link">All houses</a>
        </li>
        <li class="nav-item">
            <a href="{% url 'create_house' %}" class="nav-link">Create
house</a>
        </li>
        <li class="nav-item">
            <a href="{% url 'read_street_house' %}" class="nav-link">All
street_houses</a>
        </li>
        <li class="nav-item">
            <a href="{% url 'create_street_house' %}" class="nav-link">Create
street_house</a>
        </li>
        <li class="nav-item">
            <a href="{% url 'report' %}" class="nav-link">Report</a>
```

```
            </li>
        </ul>
</nav>
```

templates/house/house_card.html

```html
{% load static %}

<div class="card mb-3">
    <div class="row g-0">
        <div class="col-md-4">
            <img src="{% static 'img/house.png' %}" class="img-fluid rounded-
start" />
        </div>
        <div class="col-md-8">
            <div class="card-body">
                <h5 class="card-title">{{ house.name }}</h5>
                <p class="card-text">{{ house.street_house.name }}</p>
                <p class="card-text"><small class="text-muted">Число жителей:
{{ house.num_of_citizens }}</small></p>
                <p class="card-text"><small class="text-muted">Номер дома: {{
house.house_number }}</small></p>
                <a href="{% url 'delete_house' house.pk %}" class="btn btn-
danger"> Delete </a>
                <a href="{% url 'update_house' house.pk %}" class="btn btn-
primary"> Update </a>
            </div>
        </div>
    </div>
</div>
```

templates/house/house_form.html

```html
<div class="mb-3">
    <label for="houseName" class="form-label">house Name</label>
    <input type="text" name="name" value="{{ house.name }}" class="form-
control" id="houseName" />
</div>

<div class="mb-3">
    <label for="houseNumber" class="form-label">house Number</label>
    <input type="number" min="0" name="house_number" value="{{
house.house_number }}" required="required" class="form-control"
id="houseNumber" />
</div>

<div class="mb-3">
```

```html
    <label for="houseCitizens" class="form-label">house number of
citizens</label>
    <input type="number" min="0" name="num_of_citizens" value="{{
house.num_of_citizens }}" required="required" class="form-control"
id="houseCitizens" />
</div>

<div class="mb-3">
    <label for="housestreet_house" class="form-label">Select
street_house</label>
    <select name="street_house" class="form-select" aria-label="Default select
example" id="housestreet_house">
        {% for street_house in street_houses %}
        <option value="{{ street_house.pk }}">{{ street_house.name }}</option>
        {% endfor %}
    </select>
</div>
```

templates/house/house_list.html

```html
{% extends 'inc/base.html' %} {% load static %} {% block content %}
<div class="container">
    <h1 class="text-center mt-4">All houses</h1>
</div>
<!-- Page Content -->
<div class="d-flex flex-column">
    {% for house in houses %} {% include 'house/house_card.html' with
house=house %} {% endfor %}
</div>
{% endblock content %}
```

templates/house/create_house.html

```html
{% extends 'inc/base.html' %} {% load static %} {% block content %}
<div class="container">
    <h1 class="text-center mt-4">New house</h1>
</div>
<!-- Page Content -->
<div>
    <form action="{% url 'create_house' %}" method="POST" class="form">
        {% csrf_token %} {% include 'house/house_form.html' with house=house
%}
        <button type="submit" class="btn btn-primary">Create</button>
    </form>
</div>
{% endblock content %}
```

templates/house/update_house.html

```
{% extends 'inc/base.html' %} {% load static %} {% block content %}
<div class="container">
    <h1 class="text-center mt-4">Update house</h1>
</div>
<!-- Page Content -->
<div>
    <form action="{% url 'update_house' house.pk %}" method="POST"
class="form">
        {% csrf_token %} {% include 'house/house_form.html' with house=house
%}
        <button type="submit" class="btn btn-primary">Save</button>
    </form>
</div>
{% endblock content %}
```

templates/street_house/street_house_card.html

```
{% load static %}

<div class="card m-3" style="width: 18rem">
    <img src="{% static 'img/house.png' %}" class="card-img-top" alt="..." />
    <div class="card-body">
        <h5 class="card-title">{{ street_house.name }}</h5>
        <p class="card-text">{{ street_house.city }}</p>
        <a href="{% url 'delete_street_house' street_house.pk %}" class="btn
btn-danger"> Delete </a>
        <a href="{% url 'update_street_house' street_house.pk %}" class="btn
btn-primary"> Update </a>
    </div>
</div>
```

templates/street_house/street_house_form.html

```
<div class="mb-3">
    <label for="street_houseName" class="form-label">street_house Name</label>
    <input
        type="text"
        name="name"
        value="{{ street_house.name }}"
        required="required"
        class="form-control"
        id="street_houseName"
    />
</div>

<div class="mb-3">
```

```html
    <label for="street_houseCity" class="form-label">street_house City</label>
    <input
        type="text"
        name="city"
        value="{{ street_house.city }}"
        required="required"
        class="form-control"
        id="street_houseCity"
    />
</div>
```

templates/street_house/street_house_list.html

```html
{% extends 'inc/base.html' %} {% load static %} {% block content %}
<div class="container">
    <h1 class="text-center mt-4">All street_houses</h1>
</div>
<!-- Page Content -->
<div class="d-flex flex-wrap">
    {% for street_house in street_houses %} {% include
'street_house/street_house_card.html' with street_house=street_house %} {%
endfor %}
</div>
{% endblock content %}
```

templates/street_house/create_street_house.html

```html
{% extends 'inc/base.html' %} {% load static %} {% block content %}
<div class="container">
    <h1 class="text-center mt-4">New street house</h1>
</div>
<!-- Page Content -->
<div>
    <form action="{% url 'create_street_house' %}" method="POST" class="form">
        {% csrf_token %} {% include 'street_house/street_house_form.html' with
street_house=street_house %}
        <button type="submit" class="btn btn-primary">Create</button>
    </form>
</div>
{% endblock content %}
```

templates/street_house/update_street_house.html

```
{% extends 'inc/base.html' %} {% load static %} {% block content %}
<div class="container">

    <h1 class="text-center mt-4">Update {% extends 'inc/base.html' %} {% load
static %} {% block content %}
<div class="container">
    <h1 class="text-center mt-4">Update street_house</h1>
</div>
<!-- Page Content -->
<div>
    <form action="{% url 'update_street_house' street_house.pk %}"
method="POST" class="form">
        {% csrf_token %} {% include 'street_house/street_house_form.html' with
street_house=street_house %}
        <button type="submit" class="btn btn-primary">Save</button>
    </form>
</div>
{% endblock content %}
```

templates/report.html

```
{% extends 'inc/base.html' %} {% load static %} {% block content %}
<div class="container">
    <h1 class="text-center mt-4">Report Page</h1>
</div>
<!-- Page Content -->
<div>
    <h1>Sorted houses</h1>
    {% for street in sortet_streets %} {% include
'street_house/street_house_card.html' with street_house=street %} {% endfor %}
</div>

<div>
    <h1>Number of citizens</h1>
    <div class="d-flex flex-wrap">
        {% for num_of_citizen in num_of_citizens %}
        <div class="d-flex flex-column align-center" >
            <h3 class="text-center">Number of citizens {{
num_of_citizen.num_of_citizens }}</h3>
            {% include 'street_house/street_house_card.html' with
street_house=num_of_citizen.street_house %}
        </div>
        {% endfor %}
    </div>
</div>
{% endblock content %}
```

`templates/index.html`

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

{% load static %}

{% block content %}
<div class="container">
  <h1 class="text-center mt-4">API</h1>
</div>
<!-- Page Content -->
<div>
    <img src="{% static 'img/house.png' %}" alt="#" class="card-img">
</div>
{% endblock content %}
```
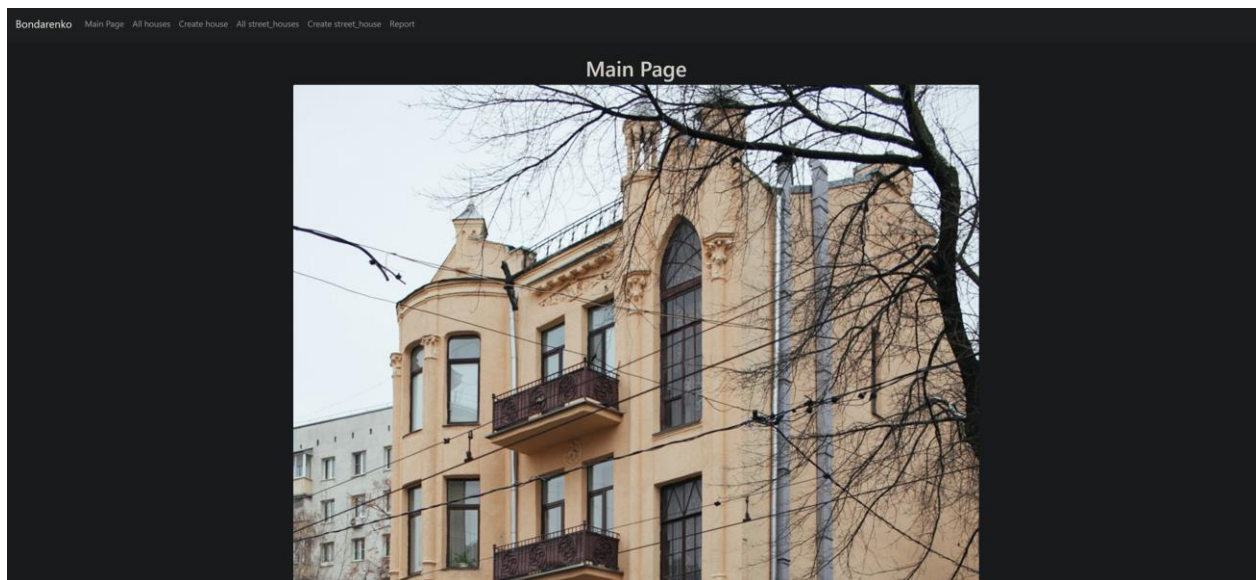
Результат работы:

All houses

Чертановская

Число жителей: 250

Номер дома: 53

Delete Update

Бауманская

Число жителей: 125

Номер дома: 123

Delete Update

New house

house Name

house Number

56

house number of citizens

433

Select street_house

Бауманская
Бауманская
Ленинская
Чертановская

Update house

house Name

house Number

53

house number of citizens

250

Select street_house

Бауманская

Save

All street_houses

Бауманская

Москва

Delete Update

Ленинская

Казань

Delete Update

Чертановская

Москва

Delete Update

New street house

street_house Name

street_house City

Create

Update street_house

street_house Name

Ленинская

street_house City

Казань

Save

Report Page

Sorted houses

Бауманская
Москва

Delete | Update

Ленинская
Казань

Delete | Update

Чертановская
Москва

Delete | Update

Number of citizens

Number of citizens 259	Number of citizens 250	Number of citizens 10
Бауманская Москва	**Чертановская** Москва	**Ленинская** Казань
Delete Update	Delete Update	Delete Update

Start typing to filter...

AUTHENTICATION AND AUTHORIZATION

Groups   + Add
Users   + Add

HOUSES

Houses   + Add
Streets   + Add

«

Select street to change

Action: [——————] [Go] 0 of 3 selected

	STREET
☐	Чертановская
☐	Ленинская
☐	Бауманская

3 streets