

**Отчет по РК № 2 по курсу**  
**"Разработка Интернет-Приложений"**

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## Задание:

1. «Музыкант» и «Оркестр» связаны соотношением один-ко-многим. Выведите список всех Музыкантов, у которых фамилия заканчивается на «ов», и названия их Оркестров.
2. «Музыкант» и «Оркестр» связаны соотношением один-ко-многим. Выведите список Оркестр со средней зарплатой Музыкантов в каждом Оркестре, отсортированный по средней зарплате.

№ варианта	Класс 1	Класс 2
5	Музыкант	Оркестр

## Текст программы:

rk2/urls.py

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

urlpatterns = [
    path('admin/', admin.site.urls),
    path('', views.index, name="main"),
    path('musician/', include([
        path('', views.read_musician, name='read_musician'),
        path('create/', views.create_musician, name="create_musician"),
        path('update/<int:musician_id>/', views.update_musician,
name="update_musician"),
        path('delete/<int:musician_id>/', views.delete_musician,
name="delete_musician"),
    ])),
    path('orchestra/', include([
        path('', views.read_orchestra, name='read_orchestra'),
        path('create/', views.create_orchestra, name="create_orchestra"),
        path('update/<int:orchestra_id>/',
            views.update_orchestra, name="update_orchestra"),
        path('delete/<int:orchestra_id>/',
            views.delete_orchestra, name="delete_orchestra"),
    ])),
    path('report/', views.report, name="report"),
]
```

musicians/models.py

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

```

class Orchestra(models.Model):
    name = models.CharField(max_length=256, verbose_name="Orchestra name")

    def __str__(self):
        return self.name

class Musician (models.Model):
    name = models.CharField(max_length=256, verbose_name="Musician name")
    salary = models.PositiveIntegerField(verbose_name="Musician's salary")
    orchestra = models.ForeignKey(
        Orchestra,
        on_delete=models.SET_DEFAULT,
        null=True,
        default=None,
        related_name="musicians"
    )

    def __str__(self):
        return self.name

```

## musicians/views.py

```

from django.db.models.aggregates import Avg
from django.http.response import HttpResponseRedirect
from django.shortcuts import get_list_or_404, get_object_or_404, redirect, render
from .models import Orchestra, Musician
from django.db import models

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

# musicians

def read_musician(request):
    musicians = Musician.objects.all()
    return render(request, 'musician/musician_list.html', {'musicians': musicians})

def create_musician(request):
    if request.method == 'GET':
        orchestras = Orchestra.objects.all()
        return render(request, 'musician/create_musician.html', {"orchestras": orchestras})
    else:
        dto = {}
        for key in request.POST:
            if key in Musician.__dict__:
                dto[key] = request.POST[key]
        dto['orchestra'] = get_object_or_404(
            Orchestra, pk=request.POST['orchestra'])
        new_musician = Musician(**dto)

```

```

        new_musician.save()
        return redirect('read_musician')

def update_musician(request, musician_id):
    if request.method == 'GET':
        orchestras = Orchestra.objects.all()
        musician = get_object_or_404(Musician, pk=musician_id)
        return render(request, 'musician/update_musician.html', {"musician": musician,
"orchestras": orchestras})
    else:
        musician = get_object_or_404(Musician, pk=musician_id)
        for key in request.POST:
            if key in musician.__dict__ and key != 'orchestra':
                setattr(musician, key, request.POST[key])
        if 'orchestra' in request.POST:
            setattr(musician, 'orchestra', get_object_or_404(
                Orchestra, pk=request.POST['orchestra']))
        musician.save()
        return redirect('read_musician')

def delete_musician(request, musician_id):
    musician = get_object_or_404(Musician, pk=musician_id)
    musician.delete()
    return redirect(request.META.get('HTTP_REFERER'))

# orchestras

def read_orchestra(request):
    orchestras = Orchestra.objects.all()
    return render(request, 'orchestra/orchestra_list.html', {'orchestras': orchestras})

def create_orchestra(request):
    if request.method == 'GET':
        return render(request, 'orchestra/create_orchestra.html')
    else:
        new_orchestra = Orchestra(name=request.POST['name'])
        new_orchestra.save()
        return redirect('read_orchestra')

def update_orchestra(request, orchestra_id):
    if request.method == 'GET':
        orchestra = get_object_or_404(Orchestra, pk=orchestra_id)
        return render(request, 'orchestra/update_orchestra.html', {"orchestra": orchestra})
    else:
        orchestra = get_object_or_404(Orchestra, pk=orchestra_id)
        for key in request.POST:
            if key in orchestra.__dict__:
                setattr(orchestra, key, request.POST[key])

```

```

        orchestra.save()
        return redirect('read_orchestra')

def delete_orchestra(request, orchestra_id):
    orchestra = get_object_or_404(Orchestra, pk=orchestra_id)
    orchestra.delete()
    return redirect(request.META.get('HTTP_REFERER'))

# REPORT

def report(request):
    # return HttpResponse('♥')
    found_musicians = Musician.objects.filter(name__endswith='ов')
    average_salaries = []
    for orchestra in Orchestra.objects.all():
        average_salaries.append({"orchestra": orchestra, "salary":
round(Musician.objects.filter(
            orchestra=orchestra.pk).aggregate(Avg('salary'))['salary__avg'] or 0)})
    return render(request, 'report.html', {"found_musicians": found_musicians,
"average_salaries": sorted(average_salaries, key=lambda salary: salary['salary'])})

```

## templates/inc/base.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="IU5-55 Vadim Khizhnyakov">
    <title>
        IU5-55 Zubareva RK2
    </title>

    <!-- ===== BOOTSTRAP CORE CSS ===== -->
    <link href="https://cdn.jsdelivrivr.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-ka7Sk0Gln4gmtz2MlQnikTlwxgYsOg+OMhuP+IlRH9sENBO0LRn5q+8nbTov4+lp"
crossorigin="anonymous"></script>
</html>

```

## templates/inc/navbar.html

```

{% load static %}
<nav class="navbar navbar-expand-sm navbar-dark bg-dark p-3">
    <ul class="navbar-nav nav-tabs 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_musician' %}" class="nav-link">All musicians</a>
        </li>
        <li class="nav-item">
            <a href="{% url 'create_musician' %}" class="nav-link">Create musician</a>
        </li>
        <li class="nav-item">
            <a href="{% url 'read_orchestra' %}" class="nav-link">All orchestras</a>
        </li>
        <li class="nav-item">
            <a href="{% url 'create_orchestra' %}" class="nav-link">Create orchestra</a>
        </li>
        <li class="nav-item">
            <a href="{% url 'report' %}" class="nav-link">Report</a>
        </li>
    </ul>

```

```
</nav>
```

## templates/musician/musician\_card.html

```
{% load static %}

<div class="card mb-3">
  <div class="row g-0">
    <div class="col-md-4">
      
    </div>
    <div class="col-md-8">
      <div class="card-body">
        <h5 class="card-title">{{ musician.name }}</h5>
        <p class="card-text">{{ musician.orchestra.name }}</p>
        <p class="card-text">
          This is a wider card with supporting text below as a natural lead-in to
additional content. This
          content is a little bit longer.
        </p>
        <p class="card-text"><small class="text-muted">{{ musician.salary
}}</small></p>
        <a href="{% url 'delete_musician' musician.pk %}" class="btn btn-danger">
Delete </a>
        <a href="{% url 'update_musician' musician.pk %}" class="btn btn-primary">
Update </a>
      </div>
    </div>
  </div>
</div>
```

## templates/musician/musician\_form.html

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

<div class="mb-3">
  <label for="musicianSalary" class="form-label">Musician Salary</label>
  <input
    type="number"
    min="0"
    name="salary"
    value="{{ musician.salary }}"
    required="required"
    class="form-control"
    id="musicianSalary"
  />
</div>

<div class="mb-3">
  <label for="musicianOrchestra" class="form-label">Select Orchestra</label>
```

```

    <select name="orchestra" class="form-select" aria-label="Default select example"
id="musicianOrchestra">
        {% for orchestra in orchestras %}
        <option value="{{ orchestra.pk }}">{{ orchestra.name }}</option>
        {% endfor %}
    </select>
</div>

```

## templates/musician/musician\_list.html

```

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

```

## templates/musician/create\_musician.html

```

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

```

## templates/musician/update\_musician.html

```

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

```



templates/orchestra/orchestra\_card.html

templates/orchestra/orchestra\_form.html

```
{% load static %}

<div class="card m-3" style="width: 18rem">
    
    <div class="card-body">
        <h5 class="card-title">{{ orchestra.name }}</h5>
        <p class="card-text">
            Some quick example text to build on the card title and make up the bulk of the
            card's content.
        </p>
        <a href="{% url 'delete_orchestra' orchestra.pk %}" class="btn btn-danger"> Delete
    </a>
        <a href="{% url 'update_orchestra' orchestra.pk %}" class="btn btn-primary"> Update
    </a>
    </div>
</div>
```

templates/orchestra/orchestra\_list.html

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

templates/orchestra/create\_orchestra.html

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

## templates/orchestra/update\_orchestra.html

```
{% extends 'inc/base.html' %} {% load static %} {% block content %}
<div class="container">
    <h1 class="text-center mt-4">Update Orchestra</h1>
</div>
<!-- Page Content -->
<div>
    <form action="{% url 'update_orchestra' orchestra.pk %}" method="POST" class="form">
        {% csrf_token %} {% include 'orchestra/orchestra_form.html' with orchestra=orchestra %}
        <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>Musicians with name ends with 'ов'</h1>
    {% for musician in found_musicians %} {% include 'musician/musician_card.html' with musician=musician %} {% endfor %}
</div>

<div>
    <h1>Average salary</h1>
    <div class="d-flex flex-wrap">
        {% for avg_salary in average_salaries %}
        <div class="d-flex flex-column align-center" >
            <h3 class="text-center">Average salary {{ avg_salary.salary }}</h3>
            {% include 'orchestra/orchestra_card.html' with orchestra=avg_salary.orchestra %}
        </div>
        {% endfor %}
    </div>
</div>
{% endblock content %}
```

## templates/index.html

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

{% load static %}

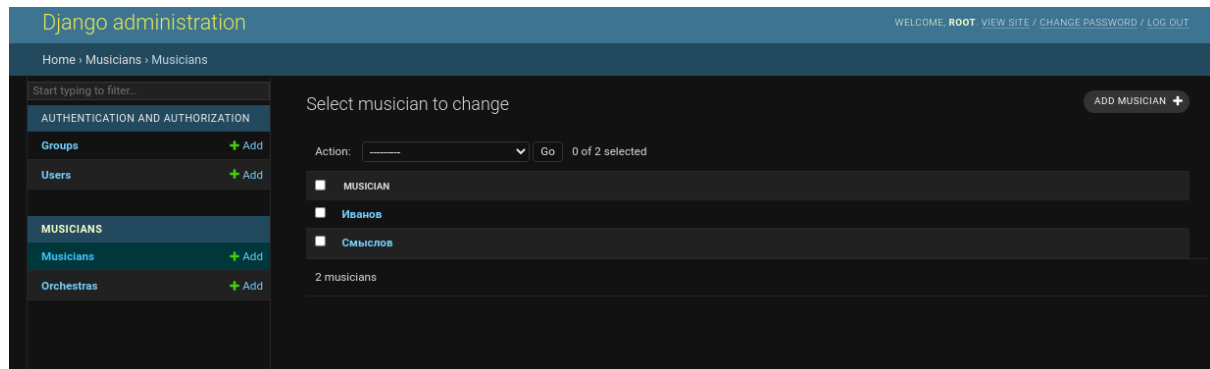
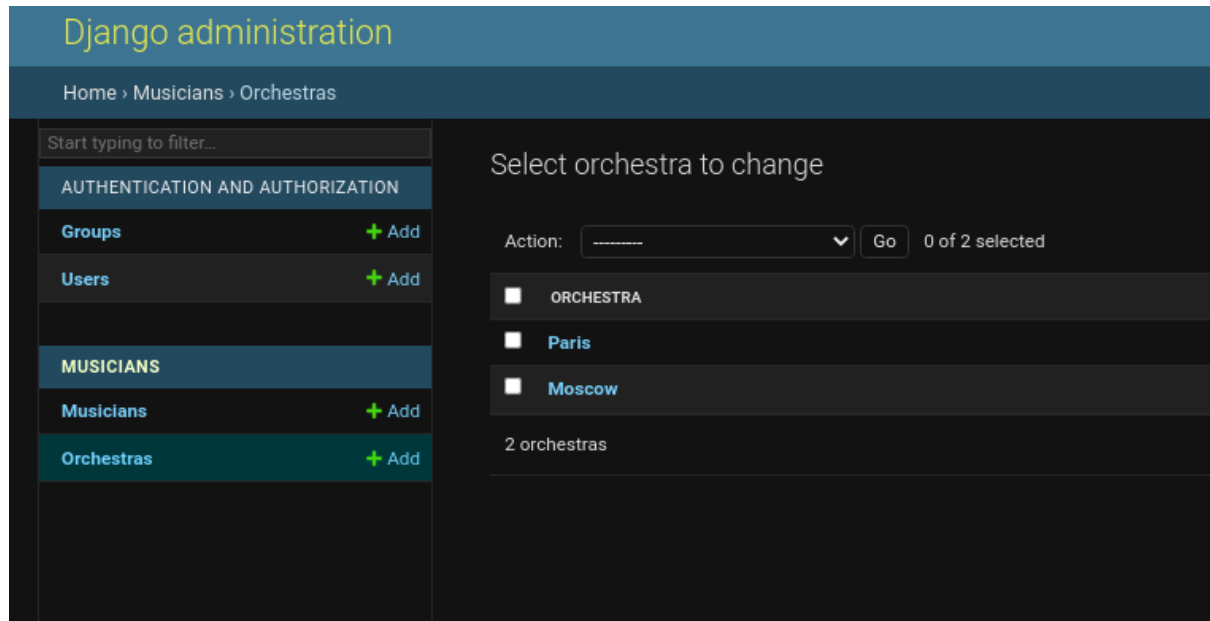
{% block content %}
<div class="container">
```

```

<h1 class="text-center mt-4">Main Page</h1>
</div>
<!-- Page Content -->
<div>
    
</div>
{% endblock content %}

```

## Результат работы:



## Main Page



## All Musicians



Смыслов Максим

Paris

This is a wider card with supporting text below as a natural lead-in to additional content. This content is a little bit longer.

100000

Delete

Update



Иванов

Moscow

This is a wider card with supporting text below as a natural lead-in to additional content. This content is a little bit longer.

1524

Delete

Update



Иванова

Moscow

This is a wider card with supporting text below as a natural lead-in to additional content. This content is a little bit longer.

1234

Delete

Update



Сидорова

Moscow

This is a wider card with supporting text below as a natural lead-in to additional content. This content is a little bit longer.

1345

Delete

Update

## New Musician

Musician Name

Сидорова

Musician Salary

1345

Select Orchestra

Moscow

Create

