

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

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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
10	Компьютер	Браузер

Текст программы:

rk2/urls.py

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

urlpatterns = [
    path('admin/', admin.site.urls),
    path('', views.index, name="main"),
    path('browser/', include([
        path('', views.read_browser, name='read_browser'),
        path('create/', views.create_browser, name="create_browser"),
        path('update/<int:browser_id>/', views.update_browser,
name="update_browser"),
        path('delete/<int:browser_id>/', views.delete_browser,
name="delete_browser"),
    ])),
    path('comp_browser/', include([
        path('', views.read_comp_browser, name='read_comp_browser'),
        path('create/', views.create_comp_browser, name="create_comp_browser"),
        path('update/<int:comp_browser_id>/',
views.update_comp_browser, name="update_comp_browser"),
        path('delete/<int:comp_browser_id>/',
views.delete_comp_browser, name="delete_comp_browser"),
    ])),
    path('report/', views.report, name="report"),
```

app/models.py

```
from django.db import models

# Create your models here.
class Computer(models.Model):
    name = models.CharField(max_length=256, verbose_name="Computer name")
    model = models.CharField(max_length=256, verbose_name="Computer model")

    def __str__(self):
        return self.name

class Browser(models.Model):
    name = models.CharField(max_length=256, verbose_name="Browser name")
    memory_on_disk = models.PositiveIntegerField(verbose_name="Browser memory on disk")
    comp_browser = models.ForeignKey(
        Computer,
        on_delete=models.SET_DEFAULT,
        null=True,
        default=None,
        related_name="browsers"
    )

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

app/views.py

```
from django.db.models.aggregates import Sum
from django.http.response import HttpResponseRedirect
from django.shortcuts import get_list_or_404, get_object_or_404, redirect, render
from .models import Computer, Browser
from django.db import models

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

# BROWSERS

def read_browser(request):
    browsers = Browser.objects.all()
    return render(request, 'browser/browser_list.html', {'browsers': browsers})

def create_browser(request):
    if request.method == 'GET':
        comp_browsers = Computer.objects.all()
        return render(request, 'browser/create_browser.html', {"comp_browsers": comp_browsers})
    else:
        dto = {}
        for key in request.POST:
            if key in Browser.__dict__:
                dto[key] = request.POST[key]
            dto['comp_browser'] = get_object_or_404(Computer, pk=request.POST['comp_browser'])
        new_browser = Browser(**dto)
```

```

        new_browser.save()
        return redirect('read_browser')

def update_browser(request, browser_id):
    if request.method == 'GET':
        comp_browsers = Computer.objects.all()
        browser = get_object_or_404(Browser, pk=browser_id)
        return render(request, 'browser/update_browser.html', {"browser": browser,
"comp_browsers": comp_browsers})
    else:
        browser = get_object_or_404(Browser, pk=browser_id)
        for key in request.POST:
            if key in browser.__dict__ and key != 'comp_browser':
                setattr(browser, key, request.POST[key])
        if 'comp_browser' in request.POST:
            setattr(browser, 'comp_browser', get_object_or_404(
                Computer, pk=request.POST['comp_browser']))
        browser.save()
        return redirect('read_browser')

def delete_browser(request, browser_id):
    browser = get_object_or_404(Browser, pk=browser_id)
    browser.delete()
    return redirect(request.META.get('HTTP_REFERER'))

# COMPUTERS

def read_comp_browser(request):
    comp_browsers = Computer.objects.all()
    return render(request, 'comp_browser/comp_browser_list.html', {'comp_browsers':
comp_browsers})

def create_comp_browser(request):
    if request.method == 'GET':
        return render(request, 'comp_browser/create_comp_browser.html')
    else:
        dto = {}
        for key in request.POST:
            if key in Computer.__dict__:
                dto[key] = request.POST[key]
        new_comp_browser = Computer(**dto)
        new_comp_browser.save()
        return redirect('read_comp_browser')

def update_comp_browser(request, comp_browser_id):
    if request.method == 'GET':
        comp_browser = get_object_or_404(Computer, pk=comp_browser_id)
        return render(request, 'comp_browser/update_comp_browser.html',
{"comp_browser": comp_browser})
    else:
        comp_browser = get_object_or_404(Computer, pk=comp_browser_id)
        for key in request.POST:
            if key in comp_browser.__dict__:
                setattr(comp_browser, key, request.POST[key])
        comp_browser.save()
        return redirect('read_comp_browser')

def delete_comp_browser(request, comp_browser_id):
    comp_browser = get_object_or_404(Computer, pk=comp_browser_id)

```

```

    comp_browser.delete()
    return redirect(request.META.get('HTTP_REFERER'))

# REPORT

def report(request):
    sorted_computers = Computer.objects.order_by("name")
    memory_on_disk_arr = []
    for comp_browser in Computer.objects.all():
        browsers_on_comp = Browser.objects.filter(comp_browser=comp_browser.pk)
        if len(browsers_on_comp) != 0:
            memory_on_disk_arr.append({"comp_browser": comp_browser,
"memory_on_disk": Browser.objects.filter(
comp_browser=comp_browser.pk).aggregate(Sum('memory_on_disk'))['memory_on_disk__sum']
})
    return render(request, 'report.html', {"sorted_computers": sorted_computers,
"memory_on_disk_arr":
sorted(memory_on_disk_arr,
key=lambda A:
-1 * A['memory on disk'])})

```

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="IU5-51 Andrey Golovatskiy">
    <title>
        IU5-51 Golovatskiy Andrey 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.jsdelivrivr.net/npm/bootstrap@5.1.3/dist/js/bootstrap.bundle.min.js"
integrity="sha384-ka7Sk0Gln4gmtz2MlQnikT1wXgYsOg+OMhuP+IlRH9sENBO0LRn5q+8nbTov4+1p"
crossorigin="anonymous"></script>
</body>
</html>
```

templates/inc/navbar.html

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

  <ul class="navbar-nav ml-auto">
    <li class="nav-item">
      <a href="{% url 'read_browser' %}" class="nav-link">All Browsers</a>
    </li>
    <li class="nav-item">
      <a href="{% url 'create_browser' %}" class="nav-link">Create Browser</a>
    </li>
    <li class="nav-item">
      <a href="{% url 'read_comp_browser' %}" class="nav-link">All
Computers</a>
    </li>
    <li class="nav-item">
      <a href="{% url 'create_comp_browser' %}" class="nav-link">Create
Computer</a>
    </li>
    <li class="nav-item">
      <a href="{% url 'report' %}" class="nav-link">Report</a>
    </li>
  </ul>
</nav>
```

templates/browser/browser_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">{{ browser.name }}</h5>
        <p class="card-text">{{ browser.comp_browser.name }}</p>
        <p class="card-text"><small class="text-muted">Memory on disk: {{
browser.memory_on_disk }}</small></p>
        <a href="{% url 'delete_browser' browser.pk %}" class="btn btn-
danger"> Delete </a>
        <a href="{% url 'update_browser' browser.pk %}" class="btn btn-
primary"> Update </a>
      </div>
    </div>
  </div>
</div>
```

templates/browser/browser form.html

```
<div class="mb-3">
    <label for="browserName" class="form-label">Browser name</label>
    <input type="text" name="name" value="{{ browser.name }}" class="form-control"
id="browserName" />
</div>

<div class="mb-3">
    <label for="browserMemoryOnDisk" class="form-label">Browser memory on
disk</label>
    <input type="number" min="0" name="memory_on_disk" value="{{
browser.memory_on_disk }}" required="required" class="form-control"
id="browserMemoryOnDisk" />
</div>

<div class="mb-3">
    <label for="browsercomp_browser" class="form-label">Select computer
browser</label>
    <select name="comp_browser" class="form-select" aria-label="Default select
example" id="browsercomp_browser">
        {% for comp_browser in comp_browsers %}
            <option value="{{ comp_browser.pk }}">{{ comp_browser.name }}</option>
        {% endfor %}
    </select>
</div>
```


templates/browser/browser_list.html

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

templates/browser/create_browser.html

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

templates/browser/update_browser.html

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

templates/comp_browser/comp_browser_card.html

```
{% load static %}
<div class="card m-3" style="width: 18rem">
    
    <div class="card-body">
        <h5 class="card-title">{{ comp_browser.name }}</h5>
        <p class="card-text">{{ comp_browser.model }}</p>
        <a href="{% url 'delete_comp_browser' comp_browser.pk %}" class="btn btn-danger"> Delete </a>
        <a href="{% url 'update_comp_browser' comp_browser.pk %}" class="btn btn-primary"> Update </a>
    </div>
</div>
```

templates/comp_browser/comp_browser_form.html

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

<div class="mb-3">
    <label for="comp_browserModel" class="form-label">Computer model</label>
    <input
        type="text"
        name="model"
        value="{{ comp_browser.model }}"
        required="required"
        class="form-control"
        id="comp_browserModel"
    />
</div>
```

templates/comp_browser/comp_browser_list.html

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

templates/comp_browser/create_comp_browser.html

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

templates/comp_browser/update_comp_browser.html

```
{% extends 'inc/base.html' %} {% load static %} {% block content %}
<div class="container">
    <h1 class="text-center mt-4">Update computer browser</h1>
</div>
<!-- Page Content -->
<div>
    <form action="{% url 'update_comp_browser' comp_browser.pk %}" method="POST"
class="form">
        {% csrf_token %} {% include 'comp_browser/comp_browser_form.html' with
comp_browser=comp_browser %}
        <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>Computers ordered by name</h1>
    {% for computer in sorted_computers %} {% include
'comp_browser/comp_browser_card.html' with comp_browser=computer %} {% endfor %}
</div>

<div style="margin-top: 100px">
    <h1>Memory on disk occupied by browsers on computers</h1>
    <div class="d-flex flex-wrap">
        {% for memory_on_disk in memory_on_disk_arr %}
        <div class="d-flex flex-column align-center" >
            <h3 class="text-center">Memory on disk {{ memory_on_disk.memory_on_disk
}}</h3>
            {% include 'comp_browser/comp_browser_card.html' with
comp_browser=memory_on_disk.comp_browser %}
        </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">Welcome to home page</h1>
</div>
<!-- Page Content -->
<div style="width: 400px; margin: auto; margin-top: 100px">
  
</div>
{% endblock content %}
```

Результат работы:

Основная страница (по нажатию на имя):

Andrey Golovatskiy All Browsers Create Browser All Computers Create Computer Report



Welcome to home page



Список браузеров:

Andrey Golovatskiy All Browsers Create Browser All Computers Create Computer Report

All browsers

	<p>Google Chrome</p> <p>Acer</p> <p>Memory on disk: 123</p> <p>Delete Update</p>
	<p>Safari</p> <p>Asus 13</p> <p>Memory on disk: 512</p> <p>Delete Update</p>

Форма создания браузера:

New browser

Browser name

Browser memory on disk


Select computer browser

Acer


Create

Список компьютеров:

All computers



Acer
ZX24819
DeleteUpdate



Asus 13
JF33123
DeleteUpdate

Форма создания компьютера:

New computer

Computer name

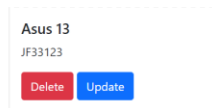
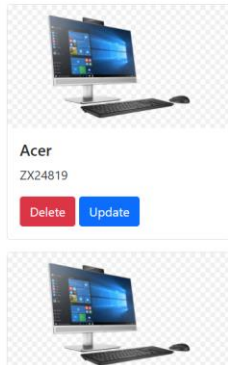
Computer model

Create

Страница отчета:

Report page

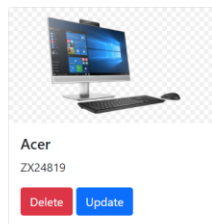
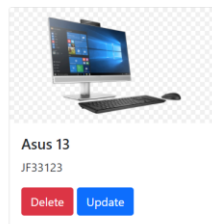
Computers ordered by name



Memory on disk occupied by browsers on computers

Memory on disk 1495

Memory on disk 123



Администрирование:

Django administration

WELCOME, HISOHKAH VIEW SITE / CHANGE PASSWORD / LOG OUT

Home / App / Browsers

Start typing to filter...

APP

Browsers + Add

Computers + Add

AUTHENTICATION AND AUTHORIZATION

Groups + Add

Users + Add

Select browser to change

ADD BROWSER +

Action: Go 0 of 3 selected

☐ BROWSER

☐ Mozilla

☐ Safari

☐ Google Chrome

3 browsers