

Министерство науки и высшего образования Российской Федерации
федеральное государственное автономное образовательное учреждение высшего
образования
«Национальный исследовательский университет ИТМО»
Факультет инфокоммуникационных технологий

Лабораторная работа №6

«Разработка интерфейсов для выполнения CRUD- операций над базой данных средствами PHP/Django»

по дисциплине

«Проектирование и реализация баз данных»

Выполнил:

студент II курса ФИКТ

группы K3241

Ф.И.О. Кондрашов Егор Юрьевич

Проверила:

Говорова Марина Михайловна

Санкт-Петербург

2021

Цель лабораторной работы: овладеть практическими навыками разработки форм для вставки, выборки и редактирования данных.

Выполнение практического задания:

Суть проекта: портал, где пользователи могут выставить свои вещи на продажу и покупать вещи, выставленные другими пользователями (аналог Авито).

Код на Django и Django Templates:

Файл urls.py:

```
from django.urls import path
from django.contrib.auth import views as auth_views

from . import views

urlpatterns = [
    path("", views.ListingList.as_view(), name="index"),
    path('listing/create', views.CreateListing.as_view(), name='create_listing'),
    path('listing/<int:pk>', views.ListingDetail.as_view(),
         name='listing_detail'),
    path('close_listing/<int:pk>', views.close_listing, name='close_listing'),
    path("my-listings", views.MyListingsListView.as_view(),
         name="my_listings"),
    path("delete-listings/<int:pk>", views.delete_listing,
         name="delete_listing"),
    path('listing/update/<int:pk>', views.UpdateListing.as_view(),
         name='update_listing'),
    path('search-listings/', views.SearchListingsView.as_view(),
         name='search_listings'),
]
```

Файл views.py:

```
from django.contrib.auth.mixins import LoginRequiredMixin
from django.http import HttpResponseRedirect
from django.shortcuts import render
from django.urls import reverse
from django.views.generic import ListView, CreateView, DetailView, UpdateView
from django.contrib.auth.decorators import login_required

from .models import *
from .forms import *

class ListingList(ListView):
    model = Listing
    template_name = "auctions/index.html"

    def get_queryset(self):
```

```

        listings = Listing.objects.filter(active=True)
        return listings

class MyListingsListView(LoginRequiredMixin, ListView):
    model = Listing
    template_name = "auctions/my_listings.html"

    def get_queryset(self):
        listings = Listing.objects.filter(
            created_by=self.request.user
        )
        return listings

class CreateListing(LoginRequiredMixin, CreateView):
    model = Listing
    fields = ['title', 'description', 'starting_bid', 'image_url',
              'category']

    def form_valid(self, form):
        form.instance.created_by = self.request.user
        return super().form_valid(form)

class UpdateListing(LoginRequiredMixin, UpdateView):
    model = Listing
    fields = ['title', 'description', 'starting_bid', 'image_url',
              'category']

    def form_valid(self, form):
        form.instance.created_by = self.request.user
        return super().form_valid(form)

class ListingDetail(DetailView):
    model = Listing

    def get_context_data(self, **kwargs):
        context = super().get_context_data(**kwargs)
        listing = Listing.objects.get(pk=self.kwargs['pk'])

        if self.request.user == listing.created_by:
            is_author = True
        else:
            is_author = False

        if self.request.user == listing.winner:
            is_winner = True
        else:
            is_winner = False

```

```

        comments = ListingComment.objects.filter(
            original_listing=listing).all()

        context['is_winner'] = is_winner
        context['is_author'] = is_author
        context['form'] = ListingCommentForm()
        context['comments'] = comments
        return context

@login_required
def close_listing(request, pk):
    listing = Listing.objects.get(pk=pk)
    listing.active = False
    listing.winner = listing.highest_bidder()
    listing.save()
    return HttpResponseRedirect(reverse('listing_detail', kwargs={'pk': pk}))

@login_required
def delete_listing(request, pk):
    listing = Listing.objects.get(pk=pk)
    if listing.created_by == request.user:
        listing.delete()
    return HttpResponseRedirect(reverse('index'))

class SearchListingsView(ListView):
    model = Listing
    template_name = "auctions/search_listings.html"

    def get_queryset(self):
        q = self.request.GET.get('q', '')
        queryset = Listing.objects.filter(title__contains=q)
        return queryset

    def get_context_data(self, **kwargs):
        context = super().get_context_data(**kwargs)
        context['q'] = self.request.GET.get('q', '')
        return context

```

Файл models.py:

```

from django.db import models

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

```

```

def __str__(self) -> str:
    return f"{self.name}"

class Listing(models.Model):
    title = models.CharField(max_length=128)
    description = models.TextField()
    starting_bid = models.DecimalField(decimal_places=2, max_digits=15)
    image_url = models.URLField(blank=True)

    category = models.ForeignKey(ListingCategory, on_delete=models.PROTECT,
                                 related_name='listings', null=True)

    created_at = models.DateTimeField(auto_now_add=True)
    created_by = models.ForeignKey(User, on_delete=models.PROTECT,
                                   related_name='listings')
    active = models.BooleanField(default=True)
    winner = models.ForeignKey(User, on_delete=models.PROTECT,
                               related_name='winner', null=True)

    def __str__(self) -> str:
        return self.title

    def get_absolute_url(self):
        return reverse('listing_detail', kwargs={'pk': self.pk})

    def highest_bidder(self):
        highest_bid = Bid.objects.filter(listing=self).order_by('-value')
        if highest_bid:
            return highest_bid[0].bidder
        else:
            return None

    def current_price(self):
        highest_bid = Bid.objects.filter(listing=self).order_by('-value')
        if highest_bid:
            return highest_bid[0].value
        else:
            return None

```

Файл layout.html:

```

{% load static %}

<!DOCTYPE html>
<html lang="en">
    <head>
        <title>{% block title %}Auctions{% endblock %}</title>
        <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.4.1/css/bootstrap.min.css" integrity="sha384-

```

```

Vkoo8x4CGs03+Hhxv8T/Q5PaXtkKtu6ug5TOeNV6gBiFeWPGFN9MuhOf23Q9Ifjh" crossorigin="an
onymous">
    <link href="{% static 'auctions/styles.css' %}" rel="stylesheet" type="te
xt/css">
</head>
<body>
    <h1>Auctions</h1>
    <div>
        {% if user.is_authenticated %}
            Signed in as <strong>{{ user.username }}</strong>.
        {% else %}
            Not signed in.
        {% endif %}
    </div>
    <ul class="nav">
        <li class="nav-item">
            <a class="nav-link" href="{% url 'index' %}">Active Listings</a>
        </li>

        <li class="nav-item">
            <a class="nav-
link" href="{% url 'categories' %}">Browse Categories</a>
        </li>

        {% if user.is_authenticated %}
            <li class="nav-item">
                <a class="nav-
link" href="{% url 'create_listing' %}">Create listing</a>
            </li>
            <li class="nav-item">
                <a class="nav-
link" href="{% url 'my_listings' %}">My listings</a>
            </li>
            <li class="nav-item">
                <a class="nav-
link" href="{% url 'watchlist' %}">My Watchlist</a>
            </li>
            <li class="nav-item">
                <a class="nav-link" href="{% url 'logout' %}">Log Out</a>
            </li>
        {% else %}
            <li class="nav-item">
                <a class="nav-link" href="{% url 'login' %}">Log In</a>
            </li>
            <li class="nav-item">
                <a class="nav-link" href="{% url 'register' %}">Register</a>
            </li>
        {% endif %}
    </ul>
    <hr>
    {% block body %}

```

```

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

```

Файл index.html:

```

{% extends "auctions/layout.html" %}

{% block body %}
    <h2>Active Listings</h2>
    <form action="/search-listings">
        <input class="search" type="text" name="q" placeholder="Search Listings">
    </form>

    <ul>
        {% for listing in object_list %}
            <li>
                <h4><a href="{% url 'listing_detail' listing.pk %}">{{ listing.title }}</a></h4>
                <p>Description:</p>
                <p>{{ listing.description }}</p>
                <p>Current price:
                    {% if listing.current_price %}
                        {{ listing.current_price }}$ </p>
                    {% else %}
                        {{ listing.starting_bid }} $ </p>
                    {% endif %}
                    {% if listing.image_url %}
                        <img src='{{ listing.image_url }}'>
                    {% else %}
                        <p>No image provided</p>
                    {% endif %}
                    {% if listing.category %}
                        <p>Categories:</p>
                        <p>{{ listing.category }}</p>
                    {% else %}
                        <p>No categories provided</p>
                    {% endif %}
            </li>
        {% endfor %}
    </ul>
{% endblock %}

```

Файл listing_detail.html:

```

{% extends "auctions/layout.html" %}

{% block body %}

    {% if request.session.new_bid_error %}
        <h4 style='color: red;'>{{ request.session.new_bid_error }}</h4>
    {% endif %}

```

```

{% endif %}

{% if object.active %}
    {% if is_author %}
        <p>This is your listing. You can <a href="{% url 'update_listing' object.pk %}">edit</a>, <a href="{% url 'close_listing' object.pk %}">close</a> or <a href="{% url 'delete_listing' object.pk %}">delete</a> this listing</p>
    {% endif %}
{% else %}
    {% if is_winner %}
        <h3>You have won this listing!</h3>
    {% else %}
        <h3>This listing has been closed by its author.</h3>
    {% endif %}
{% endif %}

<h2>{{ object.title }}</h2>

<p>Description: {{ object.description }}</p>
<p>Starting bid: {{ object.starting_bid }}$</p>
{% if object.current_price %}
    <h4>Current price: {{ object.current_price }}</h4>
{% else %}
    <h4>No bids yet. Be the first one to make it!</h4>
{% endif %}
{% if object.highest_bidder %}
    <h3>Highest bidder: {{ object.highest_bidder }}</h3>
{% endif %}

{% if object.active %}
    {% if user.is_authenticated %}
        <form action="{% url 'new_bid' object.pk %}" method='post'>{% csrf_token %}
            <p><label for="new_bid">My bid:</label>
                <input id="new_bid" type="text" name="bid_value">${<input type="submit" value="Bid"></p>
            </form>
    {% else %}
        <p>To bid on this listing, sign in.</p>
    {% endif %}
{% endif %}

{% if object.image_url %}
    <img src='{{ object.image_url }}'>
{% else %}
    <p>No image provided</p>
{% endif %}
{% if object.category %}
    <p>Categories:</p>
    <p>{{ listing.category }}</p>
{% else %}

```



```

        <p>No categories provided</p>
    {% endif %}
    <p>Created by: {{ object.created_by }}</p>
    <p>Created at: {{ object.created_at }}</p>

    {% if user.is_authenticated %}
        <form action="{% url 'make_comment' object.pk %}" method="post">
            {% csrf_token %}
            {{ form.as_p }}
            <input type="submit" value="Submit">
        </form>
    {% endif %}

    {% for comment in comments %}
        <div><hr>
            <p>Comment by {{comment.author}}</p>
            <p>{{ comment.text }}</p>
            <p>Rating: {{ comment.rating }}</p>
            <p>Posted at: {{ comment.posted }}</p>
        </div>
    {% endfor %}

    {% if user.is_authenticated %}
        {% if object in user.watchlist.items.all %}
            <a href="{% url 'remove_from_watchlist' object.pk %}" style='color: red;'>Remove from my watchlist</a>
        {% else %}
            <a href="{% url 'add_to_watchlist' object.pk %}" style='color: green;'>Add to my watchlist</a>
        {% endif %}
    {% endif %}

```

Файл listing_form.html:

```

{% extends "auctions/layout.html" %}

{% block body %}
    <form method="post">{% csrf_token %}
        {{ form.as_p }}
        <input type="submit" value="Save">
    </form>
{% endblock %}

```

Файл my_listings.html:

```

{% extends "auctions/layout.html" %}

{% block body %}
    <h2>My Listings</h2>

    <ul>

```

```

        {% for listing in object_list %}
            <li>
                <h4><a href="{% url 'listing_detail' listing.pk %}">{{ listing.ti
title }}</a></h4>
                <p>Description:</p>
                <p>{{ listing.description }}</p>
                <p>Current price:
                {% if listing.current_price %}
                    {{ listing.current_price }}$ </p>
                {% else %}
                    {{ listing.starting_bid }} $ </p>
                {% endif %}
                {% if listing.image_url %}
                    <img src='{{ listing.image_url }}'>
                {% else %}
                    <p>No image provided</p>
                {% endif %}
                {% if listing.category %}
                    <p>Categories:</p>
                    <p>{{ listing.category }}</p>
                {% else %}
                    <p>No categories provided</p>
                {% endif %}
            </li>
        {% endfor %}
    </ul>
{% endblock %}

```

Файл search_listings.html:

```

{% extends "auctions/layout.html" %}

{% block title %}
    Search results
{% endblock %}

{% block body %}
    <h1>Search results for "{{ q }}"</h1>

    <form action="/search-listings">
        <input class="search" type="text" name="q" placeholder="{{q}}>
    </form>

    <ul>
        {% for listing in object_list %}
            <li>
                <h4><a href="{% url 'listing_detail' listing.pk %}">{{ listing.ti
title }}</a></h4>
                <p>Description:</p>
                <p>{{ listing.description }}</p>
                <p>Current price:

```

```

{% if listing.current_price %}
    {{ listing.current_price }}$ </p>
{% else %}
    {{ listing.starting_bid }} $ </p>
{% endif %}
{% if listing.image_url %}
    <img src='{{ listing.image_url }}'>
{% else %}
    <p>No image provided</p>
{% endif %}
{% if listing.category %}
    <p>Categories:</p>
    <p>{{ listing.category }}</p>
{% else %}
    <p>No categories provided</p>
{% endif %}
</li>
{% endfor %}
</ul>

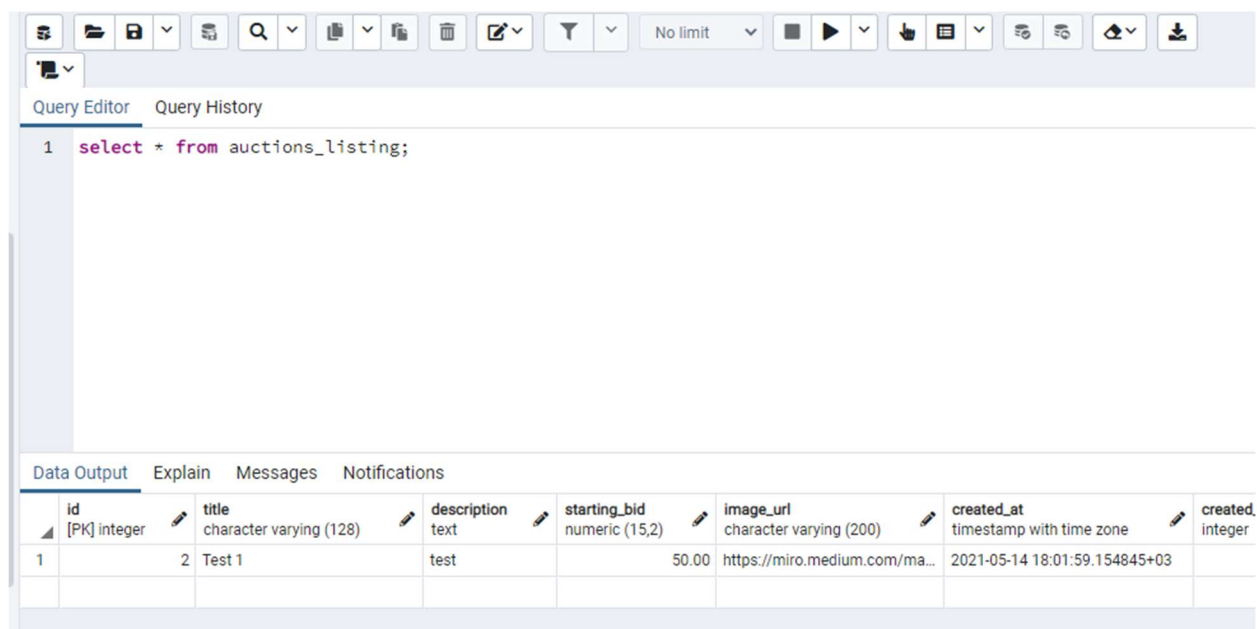
{% endblock %}

```

Работа с БД с помощью форм:

Вставка:

До:



The screenshot shows a database query editor interface. At the top is a toolbar with various icons for file operations, search, and execution. Below the toolbar are tabs for 'Query Editor' and 'Query History'. The 'Query Editor' tab is active, displaying a SQL query: `1 select * from auctions_listing;`. Below the query editor are tabs for 'Data Output', 'Explain', 'Messages', and 'Notifications'. The 'Data Output' tab is active, showing a table with 9 columns: `id` (integer, primary key), `title` (character varying (128)), `description` (text), `starting_bid` (numeric (15,2)), `image_url` (character varying (200)), `created_at` (timestamp with time zone), and `created` (integer). The table contains one row of data with the following values: `id` is 1, `title` is 'Test 1', `description` is 'test', `starting_bid` is 50.00, `image_url` is 'https://miro.medium.com/ma...', `created_at` is '2021-05-14 18:01:59.154845+03', and `created` is empty.

| id | title | description | starting_bid | image_url | created_at | created |
|----|--------|-------------|--------------|-------------------------------|-------------------------------|---------|
| 1 | Test 1 | test | 50.00 | https://miro.medium.com/ma... | 2021-05-14 18:01:59.154845+03 | |

Форма:

Auctions

Signed in as **admin**.

[Active Listings](#) [Browse Categories](#) [Create listing](#) [My listings](#) [My Watchlist](#) [Log Out](#)

Title:

Description:

listing 3 desc







Starting bid:

Image url:

Category: collectibles

После:

```
1 select * from auctions_listing;
```

| Data Output | | Explain | Messages | Notifications | | | | | | | | |
|---|--|--|---|--|--|--|--------------|--|--|--|--|--|
|  | id [PK] integer  | title character varying (128)  | description text  | starting_bid numeric (15,2)  | image_url character varying (200)  | created_at timestamp with time zone  | crea inte | | | | | |
| 1 | 2 | Test 1 | test | 50.00 | https://miro.medium.com/ma... | 2021-05-14 18:01:59.154845+03 | | | | | | |
| 2 | 3 | listing 2 | listing 3 desc | 50.00 | https://avatars.mds.yandex.n... | 2021-05-14 19:31:01.643668+03 | | | | | | |
| | | | | | | | | | | | | |

Изменение:

До:

```
1 select * from auctions_listing where id = 3;
```

Data Output Explain Messages Notifications

| | id [PK] integer | title character varying (128) | description text | starting_bid numeric (15,2) | image_url character varying (200) | created_at timestamp with time zone | cre inte |
|---|--------------------|----------------------------------|---------------------|--------------------------------|--------------------------------------|--|-------------|
| 1 | 3 | listing 2 | listing 3 desc | 50.00 | https://avatars.mds.yandex.n... | 2021-05-14 19:31:01.643668+03 | |

Форма:

Auctions

Signed in as **admin**.

[Active Listings](#)

[Browse Categories](#)

[Create listing](#)

[My lis](#)

Title:

Description:

listing 3 desc







Starting bid:

Image url:

Category: ▼

После:

```
1 select * from auctions_listing where id = 3;
```

| Data Output | | Explain | Messages | Notifications | | | |
|---|--|--|---|--|--|--|--|
|  | id [PK] integer  | title character varying (128)  | description text  | starting_bid numeric (15,2)  | image_url character varying (200)  | created_at timestamp with time zone | |
| 1 | 3 | listing 222 | listing 3 desc | 50.00 | https://avatars.mds.yandex.n... | 2021-05-14 19:31:01.643668+0 | |
| | | | | | | | |

Удаление:

До:

```
1 select * from auctions_listing where id = 3;
```

| | Data Output | Explain | Messages | Notifications |
|---|-----------------|---------|-------------------------------|---|
| | id [PK] integer | | title character varying (128) | description text starting_bid numeric (15,2) image_url character varying (200) created_at timestamp with time zone |
| 1 | | 3 | listing 222 | listing 3 desc 50.00 https://avatars.mds.yandex.n... 2021-05-14 19:31:01.643668+0 |
| | | | | |

Форма:

Auctions

Signed in as **admin**.

[Active Listings](#) [Browse Categories](#) [Create listing](#) [My listings](#) [My Watchlist](#) [Log C](#)

This is your listing. You can [edit](#), [close](#) or [delete](#) this listing

listing 222

Description: listing 3 desc

Starting bid: 50.00\$

No bids yet. Be the first one to make it!

My bid: \$



После:

```
1 select * from auctions_listing where id = 3;
```

| Data Output | | | | | | | Explain | Messages | Notifications |
|-------------|--------------|-------------------------|-------------|----------------|-------------------------|--------------------------|---------|----------|---------------|
| | id | title | description | starting_bid | image_url | created_at | | | |
| | [PK] integer | character varying (128) | text | numeric (15,2) | character varying (200) | timestamp with time zone | | | |
| | | | | | | | | | |

Выборка:

Форма:

Search results for "Listing":

Listing

- **Listing 3**

Description:

desc

Current price: 40.00 \$

Categories:

collectibles

- **Listing 4**

Description:

list

Current price: 60.00 \$

Categories:

collectibles

Соответствующий запрос:

```
1 select * from auctions_listing l where l.title like '%Listing%';
```

| Data Output Explain Messages Notifications | | | | | | | | | |
|--|--------------------|----------------------------------|---------------------|--------------------------------|--------------------------------------|--|------------|--|--|
| | id [PK] integer | title character varying (128) | description text | starting_bid numeric (15,2) | image_url character varying (200) | created_at timestamp with time zone | cre int | | |
| 1 | 4 | Listing 3 | desc | 40.00 | https://miro.medium.com/ma... | 2021-05-14 19:36:52.643753+03 | | | |
| 2 | 5 | Listing 4 | list | 60.00 | https://miro.medium.com/ma... | 2021-05-14 19:37:44.088007+03 | | | |

Вывод:

в ходе выполнения работы были созданы формы для вставки, выборки и редактирования данных.