Lab 4 Part (3)

User Accounts

In this exercise we will look at how to authenticate users in our web application. Keep working on the project that you created in **lab 4**.

Django comes with a powerful, built-in user authentication system that we can use. Whenever you create a new project, by default Django installs the **auth** app, which provides us with a **User** object containing:

- username
- password
- email
- first_name
- last_name

We will use this **User** object to implement log in, log out, and sign up in our blog application.

Log in

Django provides us with a default view for a log in page via **LoginView**. We need to make the following changes to our application to use this view:

- add a urlpattern for the auth system
- create a **log in** template
- make a small update to the **settings.py** file

We need to update the **blogproject/urls.py** file. We will add a path to this file which defines the accounts/ URL where we will place our **log in** and **log out** pages.

1. Add the line of code shown at line 6 below:

Code

```
1  from django.contrib import admin
2  from django.urls import path, include # new
3
4  urlpatterns = [
5      path('admin/', admin.site.urls),
6      path('accounts/', include('django.contrib.auth.urls')),
7      path('', include('blog.urls')), # new
8  ]
```

By default, Django will look within a **templates** directory called **registration** for a file called **login.html** for a log in form. We need to create a new directory called **registration** and the requisite file within it.

2. In VS Code create a folder inside the **templates** folder called **registration**.
3. Create an empty file called **login.html** and add in the following code:

Code

```
templates > registration > login.html > ...
1   {% extends 'base.html' %}
2   <!DOCTYPE html>
3   <html lang="en">
4     <head>
5       {% block title %}
6           <title>Login Page</title>
7       {% endblock title %}
8     </head>
9     <body>
10      {% block content %}
11          <h1>Log In</h1>
12          <form action="" method="POST">
13              {% csrf_token %}
14              {{ form.as_p }}
15              <input type="submit" value="Log In"/>
16          </form>
17      {% endblock content %}
18    </body>
19  </html>
```

Line 12: We use HTML **<form></form>** tags and specify the **POST** method since we are sending data to the server (we would use **GET** if we were requesting data, such as in a search engine form).

Line 13: We add **{% csrf_token %}** for security concerns, namely, to prevent a XSS Attack.

Line 14: The form's contents are outputted between paragraph tags thanks to **{{ form.as_p }}** and then we add a "**Log In**" button.

Re Direct User

The final step is to specify where to redirect the user upon a successful log in. We can set this with the **LOGIN_REDIRECT_URL** setting.

1. At the bottom of the **settings.py** file add the following:

Code

```
login.html    settings.py
blog_project > settings.py
# blog_project/settings.py
LOGIN_REDIRECT_URL = 'home'
```

Now the user will be redirected to the **'home'** template which is our homepage.

2. Start up the Django server again with the command **python manage.py runserver** and navigate to our log in page: **http://127.0.0.1:8080/accounts/login/**

You will see the following:

3. Enter your username and password for your superuser account and press the **Log In** button

You will be redirected to the homepage. Notice that we didn't add any view logic or create a database model because the Django **auth** system provided both for us automatically.

Updated Base.html

We will update our **base.html** template so we display a message to users whether they are logged in or not. We can use the **is_authenticated** attribute for this.

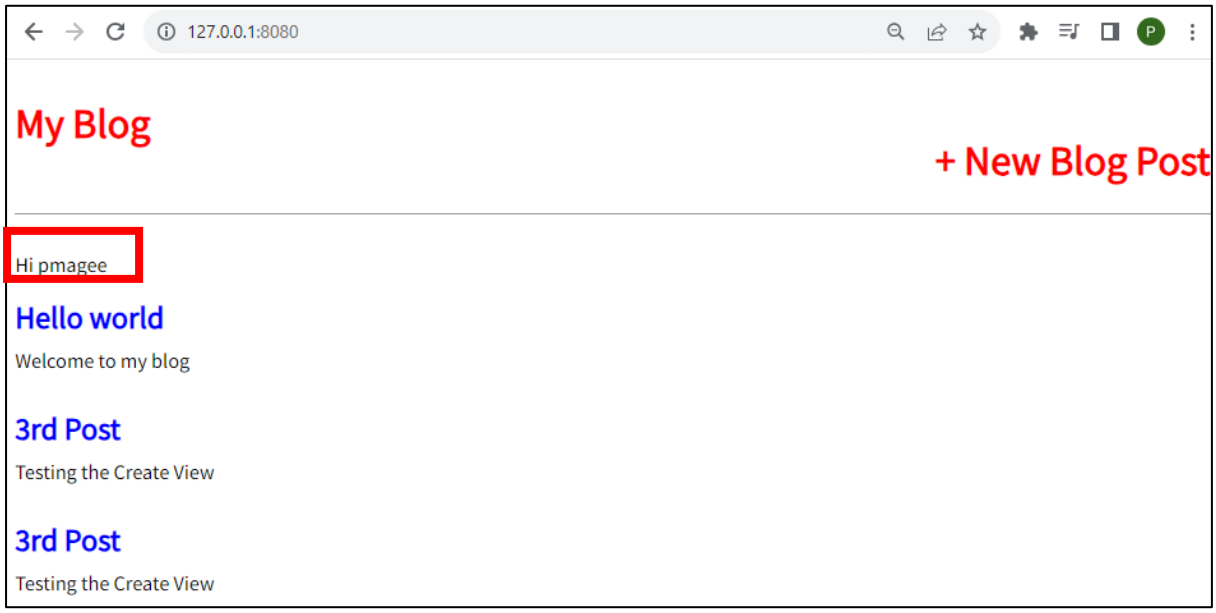
1. Update the **base.html** file with the following code starting beneath the closing **</header>** tag.

Code

```
    </header>
    {% if user.is_authenticated %}
        <p>Hi {{user.username }}</p>
    {% else %}
        <p>You are not logged in </p>
        <a href="{% url 'login' %}">Log In</a>
    {% endif %}
    <body>
        {% block content %}
        {% endblock content %}
    </body>
</html>
```

If the user is logged in, we say hello to them by name, if not we provide a link to a newly created log in page.

2. Run the server and access the site at: **http://127.0.0.1:8080/**



It worked. You should see your username on the page.

Log out link

Next, we will add a log out link that redirects the user to the homepage.

1. In the **base.html** file add a one-line **{% url 'logout' %}** link for logging out just below our user greeting.

Code

```
17      </header>
18      {% if user.is_authenticated %}
19          <p>Hi {{user.username }}</p>
20          <a href="{% url 'logout' %}">Log Out</a>
21      {% else %}
22          <p>You are not logged in </p>
23          <a href="{% url 'login' %}">Log In</a>
24      {% endif %}
25      <body>
26          {% block content %}
27          {% endblock content %}
28      </body>
29  </html>
```

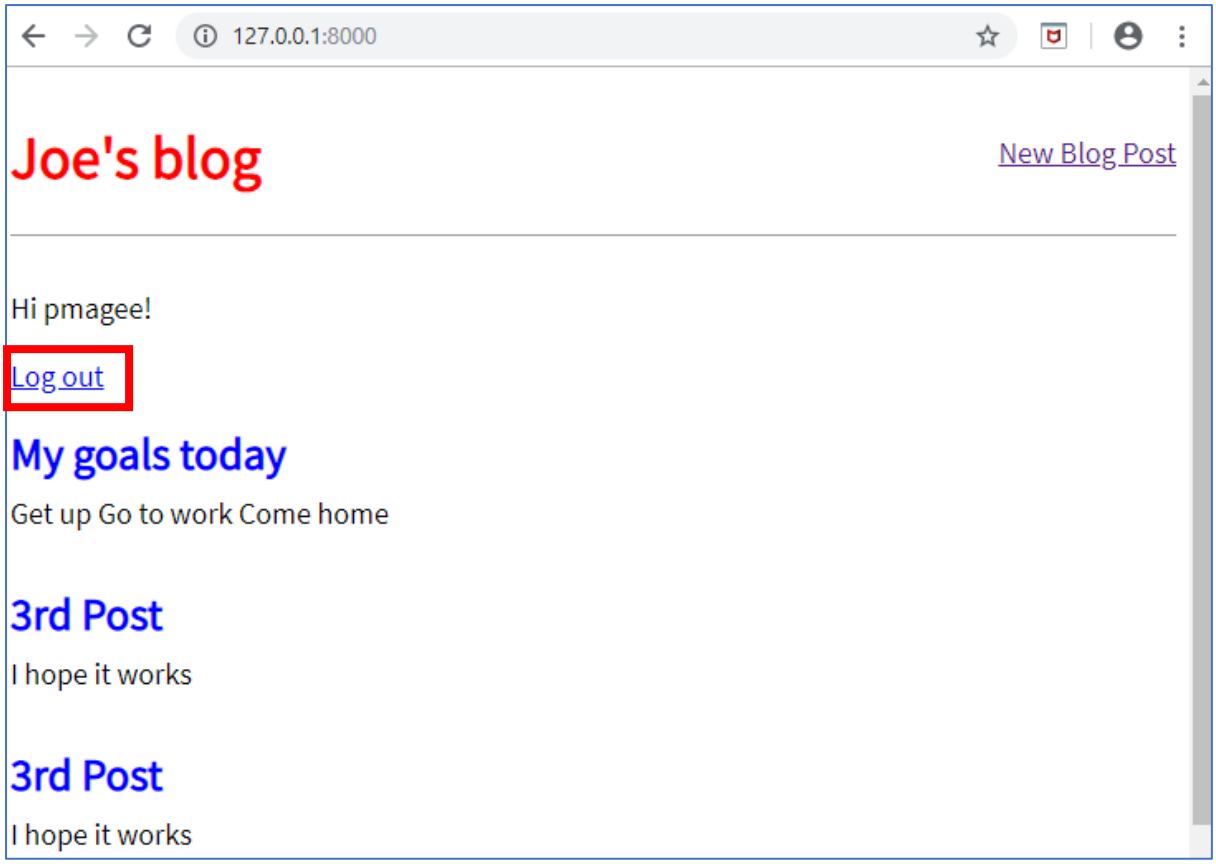
That is all we need to do as the necessary view is provided to us by the Django **auth** app. We do need to specify where to redirect a user upon log out though.

2. Update **settings.py** to provide a redirect link which is called **LOGOUT_REDIRECT_URL**. Add this line of code just beneath the log in redirect as shown below:

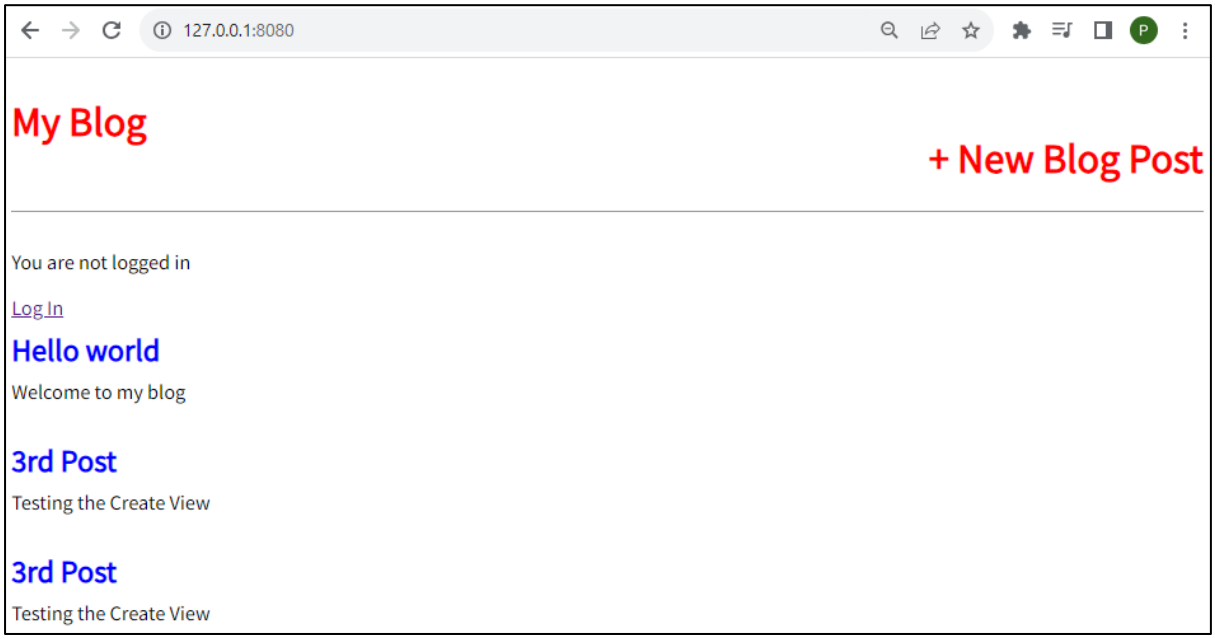
Code

```
settings.py ×
blog_project > settings.py
125  # blog_project/settings.py
126  LOGIN_REDIRECT_URL = 'home'
127  LOGOUT_REDIRECT_URL = 'home' # new
```

3. Refresh the homepage & you will see the page now has a “log out” link for logged in users.



1. Click the logout link and see that it takes you back to the homepage with a login link.
2. Try logging in and out a few times with your user account



Sign up

We need to write our own view for a sign-up page to register new users, but Django provides us with a form class, **UserCreationForm**, to make things easier. By default, it comes with three fields: username, password1, and password2.

There are many ways to organize your code and URL structure for a user authentication system. Here we will create a dedicated new app called **accounts**, for our sign-up page.

In Windows Command Line use the following command to create a new app called **accounts**

---

python manage.py startapp accounts

---

1. Add the following line of code to the **INSTALLED_APPS** setting in our **settings.py** file.

Code

```
33  INSTALLED_APPS = [
34      'django.contrib.admin',
35      'django.contrib.auth',
36      'django.contrib.contenttypes',
37      'django.contrib.sessions',
38      'django.contrib.messages',
39      'django.contrib.staticfiles',
40      'blog',
41      'accounts',
42  ]
```

Create the view

1. Open the **accounts/views.py** file
2. Delete the import at the top of the file on line 1
3. Add the following code to the file. This new view uses the built-in **UserCreationForm** (see import on line 1) and generic **CreateView** (see import on line 3).

Code

```
accounts > views.py
1  from django.contrib.auth.forms import UserCreationForm
2  from django.urls import reverse_lazy
3  from django.views import generic
4
5
6  class SignUpView(generic.CreateView):
7      form_class = UserCreationForm
8      success_url = reverse_lazy('login')
9      template_name = 'registration/signup.html'
```

4. Create a new file called **signup.html** in the **templates/registration** directory & populate it with the following code:

Code

templates > registration > signup.html > ...

```
{% extends 'base.html' %}
<!DOCTYPE html>
<html lang="en">
  <head>
    {% block title %}
        <title>Sign Up Page</title>
    {% endblock title %}
  </head>
  <body>
    {% block content %}
        <h1>Sign Up</h1>
        <form action="" method="POST">
            {% csrf_token %}
            {{ form.as_p }}
            <input type="submit" value="Sign Up"/>
        </form>
    {% endblock content %}
  </body>
</html>
```

This format is very similar to what we have done before. We extend our base template at the top, place our logic between **<form></form>** tags, use the **csrf_token** for security, display the form's content in paragraph tags with **form.as_p**, and include a **submit** button.

Configure the URLs

1. Add the following line of code which adds a new URL path in **blog_project/urls.py** pointing to this new app.

Code

blogproject > urls.py

```
from django.contrib import admin
from django.urls import path, include # new

urlpatterns = [
    path('admin/', admin.site.urls),
    path('accounts/', include('django.contrib.auth.urls')),
    path('accounts/', include('accounts.urls')), # new
    path('', include('blog.urls')), # new
]
```

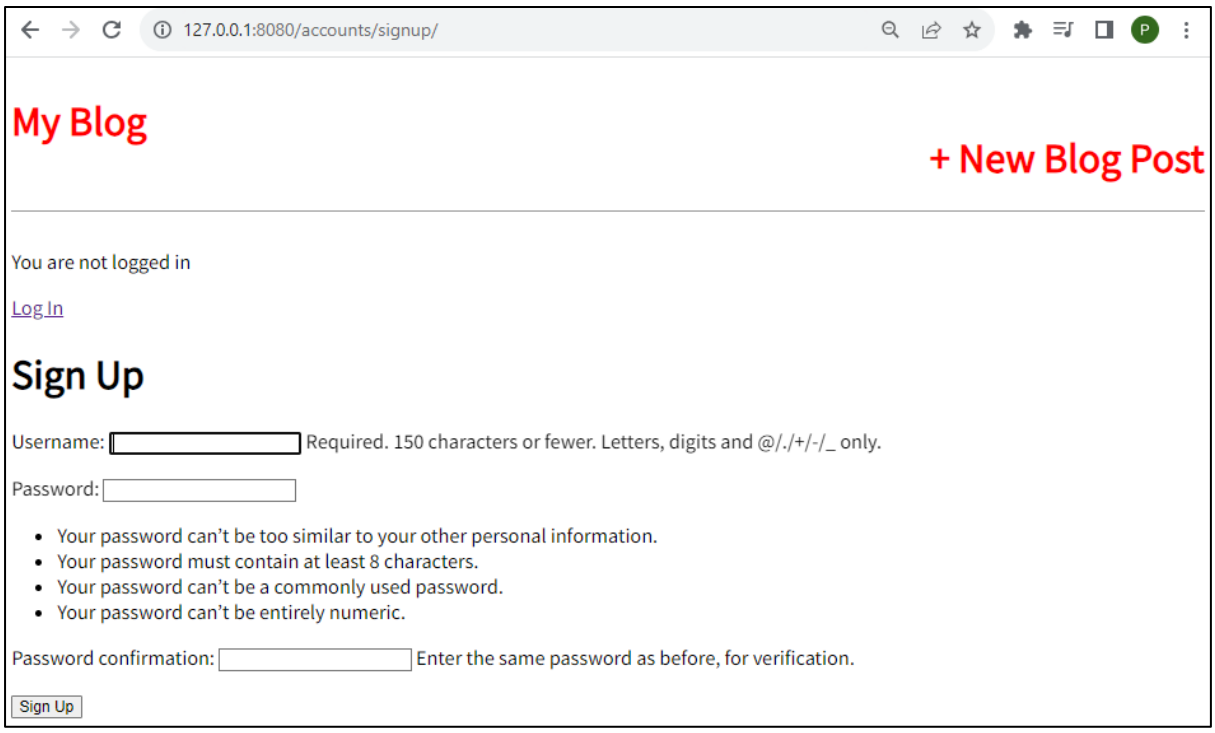
The order of our urls matters here because Django reads this file from top-to-bottom. Therefore, when we request the **/accounts/signup** url, Django will first look in **auth**, not find it, and then proceed to the **accounts** app.

2. In VS Code, create a new file inside the accounts folder called **urls.py** and add the following code into it.

Code

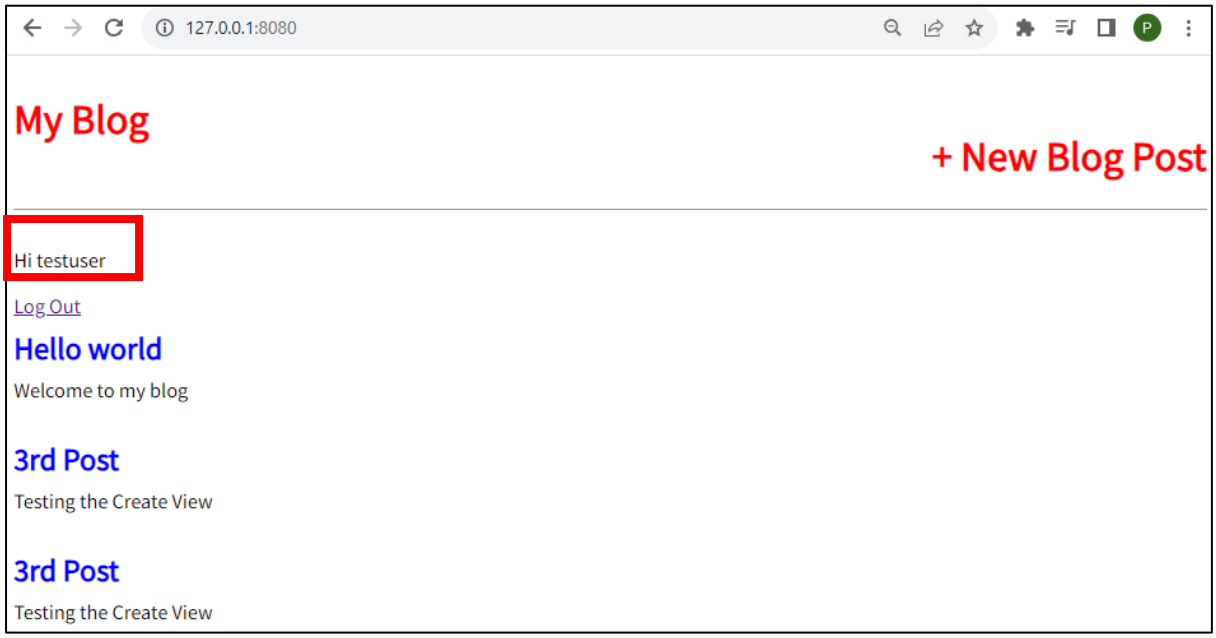
```
urls.py blog_project    urls.py accounts
accounts > urls.py
1  # accounts/urls.py
2  from django.urls import path
3
4  from .views import SignUpView
5
6  urlpatterns = [
7      path('signup/', SignUpView.as_view(), name='signup'),
8  ]
```

5. Start up the local server with the command **python manage.py runserver** and navigate to the newly created page: http://127.0.0.1:8080/accounts/signup/



Notice there is a lot of extra text that Django includes by default.

6. Create a new user and click **Sign up** which will redirect you to the log in page. Then after logging in successfully with your new user and password, you will be redirected to the homepage with a personalized “Hi username” greeting.



Run the following git commands to update the **lab 4** local and remote repositories:

git add -A

git commit -m “lab 4 part 3 commit”

git push -u origin main