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OSL Mini Project

Instagram Look-a-Like Webapp

Introduction:

We have created an Instagram Look-a-like web application. Users can do the following things:

1. Register to the website to get your credentials for the webapp.
2. Login to gain permissions to use the web app.
3. View posts from all users on the home-page.
4. View the post details and comments on the page dedicated to the post and also comment.
5. View a person's profile along with all their posts on their profile page.
6. Upload your photo with a mind-blowing caption.
7. Like photos from the home-page, profile page and details page of the post.

Implementation:

- We have used Django (Python Web-Framework) for the backend(sever side) development.
- We have used SQLite3 database.
- The Frontend was developed from Scratch using Bootstrap.
- The webapp is responsive and can be run on various devices from mobile phones to computers.
- We have taken care of form validations for User Registrations and Logins which include '*unique usernames and emails*', '*non-blank first names*', etc.
- We have implemented additional security against password thefts by hashing the passwords.
- Cross-Site Request Forgery attacks are prevented by using CSRF Tokens provided by Django itself, wherever required.

- The posts are displayed in anti-chronological order while the comments on the posts are displayed in chronological order of being saved in the database.
- Models of the webapp include Post, Comment, User and Profile.
- The author of a Post and Comments are a Foreign Key to the Model User, Comments are Foreign Keys to Posts, Likes on Posts are linked using by using Many to Many Fields in Django which in the database, is saved using an intermediate table.
- Photos have been saved in the media directory further classified on the basis of username.

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Source Code:

models.py

```
from datetime import datetime

# Creating a custom path for storing the user photos

# Example : /MEDIA_ROOT/photos/1234567890/abc.jpg

def path(instance, filename):

    return 'photos/{0}/{1}'.format(instance.author.username,
filename)


class Profile(models.Model):

    user = models.OneToOneField(User, on_delete=models.CASCADE)

    bio = models.TextField(max_length=500, blank=True, null=True)

    display = models.FileField(blank=True, null=True)


class Post(models.Model):

    author = models.ForeignKey(User, on_delete=models.CASCADE,
related_name='post_written')

    caption = models.TextField(max_length=500)

    photo = models.FileField(upload_to=path)

    likes = models.ManyToManyField(User,
related_name='posts_liked', blank=True)

    time = models.DateTimeField(default=datetime.now)


    def __str__(self):

        return self.author.username + " - " + str(self.time)


class Comment(models.Model):

    author = models.ForeignKey(User, on_delete=models.CASCADE)

    post = models.ForeignKey(Post, on_delete=models.CASCADE)

    text = models.CharField(max_length=200)

    time = models.DateTimeField(default=datetime.now)
```

```
    def __str__(self):
        return self.author.username + " - " + self.post.id + " -
" + self.time
```

VIEWS.PY

```
from django.http import JsonResponse, HttpResponseRedirect
from django.shortcuts import render, redirect, get_object_or_404
from django.views.decorators.csrf import ensure_csrf_cookie
from django.contrib.auth import authenticate, login, logout
from django.contrib.auth.decorators import login_required
from .models import User, Profile, Post, Comment
from .forms import UserLoginForm, UserRegisterForm,
PostUploadForm
from django.conf import settings
# Create your views here.

@ensure_csrf_cookie
def loginView(request):
    print(request.user)
    if not request.user.id == None:
        return redirect('project:homepage')



     if request.method == 'POST':
        form = UserLoginForm(request.POST)

        username = request.POST.get('username')
        password = request.POST.get('password')

        user = authenticate(username=username, password=password)
```

```
        if user is not None:
            if user.is_active:
                login(request, user)
                return redirect('project:homepage')
            else:
                error_message = 'User is inactive.'
                return render(request, 'project/login.html',
{'error_message': error_message, 'form': form})
        error_message = 'Invalid Login'
        return render(request, 'project/login.html',
{'error_message': error_message, 'form': form})
    if request.method == 'GET':
        form = UserLoginForm(None)
        return render(request, 'project/login.html', {'form':
form})



def registerView(request):
    if not request.user.id == None:
        return redirect('project:homepage')
    if request.method == 'POST':
        form = UserRegisterForm(request.POST)

        if form.is_valid():
            user = form.save(commit=False)

            password = form.cleaned_data['password']
            user.set_password(password)
            user.save()
            return redirect('project:login')
        error_message = 'Invalid Form'
        return render(request, 'project/register.html', {'form':
form, 'error_message': error_message})
    if request.method == 'GET':
```

```
        form = UserRegisterForm(None)
        return render(request, 'project/register.html', {'form':
form})


@login_required
def homePage(request):
    posts = Post.objects.exclude(author=request.user).order_by('-
time')
    return render(request, 'project/homepage.html', {'posts':
posts})



@login_required
def postDetail(request, pk):
    post = get_object_or_404(Post, id=pk)
    comments =
Comment.objects.filter(post=post).all().order_by('time')
    return render(request, 'project/postDetail.html', {'post':
post, 'comments': comments})



@login_required
def like(request, pk):
    post = get_object_or_404(Post, id=pk)
    user = request.user
    try:
        if user in post.likes.all():
            post.likes.remove(user)
        else:
            post.likes.add(user)
    except (KeyError, Post.DoesNotExist):
        return JsonResponse({'success': False})
    return JsonResponse({'success': True})
```

```
@login_required
def uploadPost(request):
    if request.method == 'POST':
        form = PostUploadForm(request.POST, request.FILES)
        if form.is_valid():
            post = form.save(commit=False)
            post.author = request.user
            post.save()
            return redirect('project:detail', post.id)
        return render(request, 'project/upload.html', {'form':
form})
    else:
        form = PostUploadForm(None)
        return render(request, 'project/upload.html', {'form':
form})



@login_required
def uploadComment(request, pk):
    if request.method == 'POST':
        user = get_object_or_404(User, id=request.user.id)
        post = get_object_or_404(Post, id=pk)
        content = request.POST.get('comment')
        comment = Comment(author=user, text=content, post=post)
        comment.save()
    return redirect('project:detail', pk=pk)



@login_required
def profile(request, username):
```

```
user = get_object_or_404(User, username=username)
    posts = Post.objects.filter(author=user).all().order_by('-
time')
    return render(request, 'project/profile.html', {'user': user,
'posts': posts})


@login_required
def logout_view(request):
    logout(request)
    return redirect('project:homepage')
```

URLS.PY (from the app):

```
from django.urls import path
from . import views

app_name = 'project'
urlpatterns = [
    path("login/", views.loginView, name="login"),
    path("register/", views.registerView, name="register"),
    path("home/", views.homePage, name="homepage"),
    path("post/<int:pk>/", views.postDetail, name="detail"),
    path("profile/<str:username>/", views.profile,
name="profile"),
    path("post/<int:pk>/like/", views.like, name="like"),
    path("post/<int:pk>/comment/", views.uploadComment,
name="comment"),
    path("post/upload/", views.uploadPost, name="uploadPost"),
    path("logout/", views.logout_view, name="logout")
]
```

URLS.PY (from the project):

```
from django.contrib import admin
from django.urls import path, include
from django.conf import settings
from django.conf.urls.static import static


urlpatterns = [
    path('admin/', admin.site.urls),
    path('app/', include('project.urls')),
]


if settings.DEBUG:
    urlpatterns += static(settings.STATIC_URL, document_root =
settings.STATIC_ROOT)
    urlpatterns += static(settings.MEDIA_URL, document_root =
settings.MEDIA_ROOT)
```

FORMS.PY:

```
from django.contrib.auth.models import User
from django import forms
from .models import Post


class UserLoginForm(forms.ModelForm):
    password = forms.CharField(widget=forms.PasswordInput)


    class Meta:
        model = User
        fields = ['username', 'password']
```

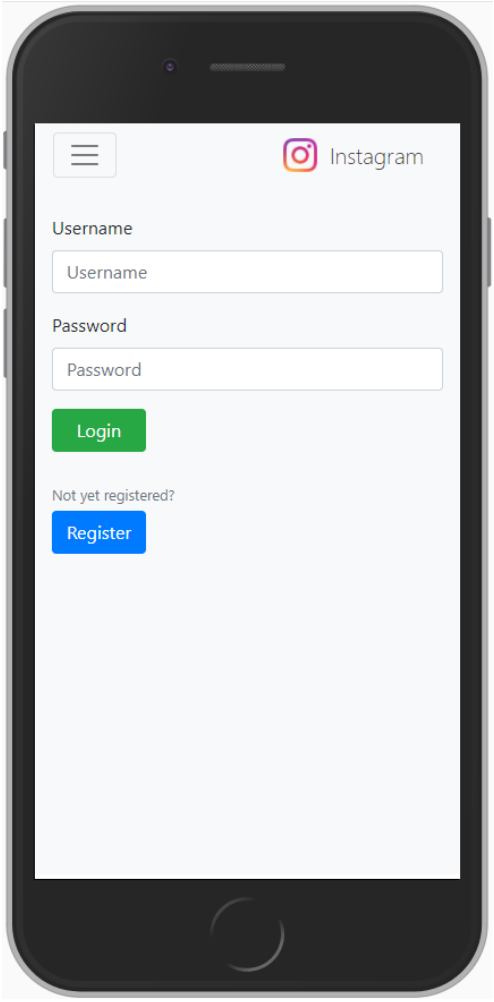
```
class UserRegisterForm(forms.ModelForm):
    password = forms.CharField(widget=forms.PasswordInput)
    email = forms.CharField(widget=forms.EmailInput)

    class Meta:
        model = User
        fields = ['first_name', 'last_name', 'username', 'email',
'password']

class PostUploadForm(forms.ModelForm):
    photo = forms.FileField()
    caption = forms.CharField()

    class Meta:
        model = Post
        fields = ['photo', 'caption']
```

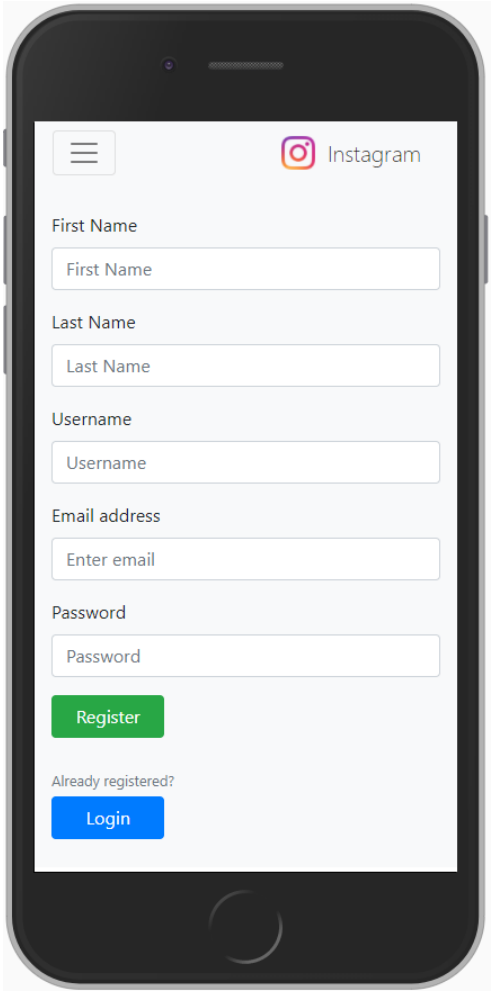
SNIPPET OF A POST IN FRONTEND:

```
<div class="card-deck">
   <div class="card">
        <a href="{% url 'project:detail' post.id %}">
        <div class="card-img-top">
             <img class="postImage" src="{{ post.photo.url }}"
alt="Card image cap">
        </div></a>
        <div class="card-body">
             <img class="like {% if request.user in
post.likes.all %}liked{% endif %}" id="{{ post.id }}"
src="../../static/project/img/{% if not request.user in
post.likes.all %}InstagramLike.png{% else %}Liked.png{% endif %}"
height="30px" width="30px" style="float: right">
             <p class="text-muted likecount" style="float: right;
margin-top: 2px;">{{ post.likes.count }}</p>
```

```
                <a href="{% url 'project:profile'
post.author.username %}"><p class="card-text" style="font-weight:
bold">{{ post.author.username }}</p></a>

                <span class="caption text-muted">{{ post.caption
}}</span>

                <p class="card-text"><small class="text-muted">{{
post.time|date:"M d, Y" }}</small></p>

            </div>

    </div>
```

Screenshots:





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