Lab No: 5 Developing Web Application using Django - Part I

Name: Ketan Goud

Reg No: 220905260

Section: D D2

Roll No: 39

Develop a simple web page to reproduce the given Captcha. Upon match, suitable message must be displayed. If there is a mismatch for more than 3 times, Textbox must be disabled.

Settings.py

```python
INSTALLED_APPS = [
    'captcha_app',
    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
]

MIDDLEWARE = [
    'django.middleware.security.SecurityMiddleware',
    'django.contrib.sessions.middleware.SessionMiddleware',
    'django.middleware.common.CommonMiddleware',
    'django.middleware.csrf.CsrfViewMiddleware',
    'django.contrib.auth.middleware.AuthenticationMiddleware',
    'django.contrib.messages.middleware.MessageMiddleware',
    'django.middleware.clickjacking.XFrameOptionsMiddleware',
]

ROOT_URLCONF = 'captcha_project.urls'

import os

TEMPLATES = [
    {
        'BACKEND': 'django.template.backends.django.DjangoTemplates',
        'DIRS': [os.path.join(BASE_DIR, 'captcha_app/templates')],  # Add this
        'APP_DIRS': True,
        'OPTIONS': {
            'context_processors': [
                'django.template.context_processors.debug',
                'django.template.context_processors.request',
                'django.contrib.auth.context_processors.auth',
                'django.contrib.messages.context_processors.messages',
            ],
        },
    },
]
```

Captcha_app\urls.py

```python
Lab 5 > captcha_project > captcha_app > 🐍 urls.py > ...
1    from django.urls import path
2    from .views import captcha_view, verify_captcha
3
4    urlpatterns = [
5        path('', captcha_view, name='captcha'),
6        path('verify/', verify_captcha, name='verify_captcha'),
7    ]
8
```

Captcha_project\urls.py

```python
from django.contrib import admin
from django.urls import path, include

urlpatterns = [
    path('admin/', admin.site.urls),
    path('', include('captcha_app.urls')),
]
```

Captcha_app\models.py

```python
Lab 5 > captcha_project > captcha_app > 🐍 models.py > ...
1    from django.db import models
2
3    # Create your models here.
4    from django.db import models
5
6    class CaptchaAttempt(models.Model):
7        session_id = models.CharField(max_length=255, unique=True)
8        attempts = models.IntegerField(default=0)
9
```

Captcha_app\views.py

```python
1   from django.shortcuts import render
2
3   # Create your views here.
4   from django.shortcuts import render
5   from django.http import JsonResponse
6   import random
7   import string
8
9   # Store session attempts
10  attempts = {}
11
12  def generate_captcha():
13      return ''.join(random.choices(string.ascii_uppercase + string.digits, k=5))
14
15  def captcha_view(request):
16      session_id = request.session.session_key
17      if not session_id:
18          request.session.create()
19          session_id = request.session.session_key
20
21      if session_id not in attempts:
22          attempts[session_id] = 0
23
24      captcha = generate_captcha()
25      request.session['captcha'] = captcha  # Store in session
26
27      return render(request, 'captcha_form.html', {'captcha': captcha, 'disabled': attempts[session_id] >= 3})
28
29  def verify_captcha(request):
30      session_id = request.session.session_key
31      if not session_id or session_id not in attempts:
32          return JsonResponse({'message': 'Session expired! Refresh the page.', 'disable': True})
33
34      if attempts[session_id] >= 3:
35          return JsonResponse({'message': 'Too many attempts! Textbox disabled.', 'disable': True})
36
37      user_input = request.POST.get('captcha_input', '')
38      correct_captcha = request.session.get('captcha', '')
39
40      if user_input == correct_captcha:
41          attempts[session_id] = 0  # Reset attempts
42          return JsonResponse({'message': 'Captcha Matched! ✅', 'disable': False})
43      else:
44          attempts[session_id] += 1
45          if attempts[session_id] >= 3:
46              return JsonResponse({'message': 'Too many failed attempts! ❌ Textbox disabled.', 'disable': True})
47          return JsonResponse({'message': 'Incorrect! Try again.', 'disable': False})
48
```

HTML file

```
Lab 5 > captcha_project > captcha_app > templates > <> captcha_form.html
    1    <!DOCTYPE html>
    2    <html lang="en">
    3    <head>
    4        <meta charset="UTF-8">
    5        <meta name="viewport" content="width=device-width, initial-scale=1.0">
    6        <title>Captcha Verification</title>
    7        <script>
    8            function verifyCaptcha() {
    9                let input = document.getElementById("captcha_input").value;
   10                let button = document.getElementById("submit_btn");
   11
   12                fetch('/verify/', {
   13                    method: 'POST',
   14                    headers: {
   15                        'Content-Type': 'application/x-www-form-urlencoded',
   16                        'X-CSRFToken': document.getElementsByName('csrfmiddlewaretoken')[0].value
   17                    },
   18                    body: 'captcha_input=' + encodeURIComponent(input)
   19                })
   20                .then(response => response.json())
   21                .then(data => {
   22                    document.getElementById("message").innerText = data.message;
   23                    if (data.disable) {
   24                        document.getElementById("captcha_input").disabled = true;
   25                        button.disabled = true;
   26                    }
   27                });
   28            }
   29        </script>
   30    </head>
   31    <body>
   32        <h2>Enter the Captcha:</h2>
   33        <p><strong>CAPTCHA:</strong> {{ captcha }}</p>
   34
   35        <form onsubmit="event.preventDefault(); verifyCaptcha();">
   36            {% csrf_token %}
   37            <input type="text" id="captcha_input" {% if disabled %}disabled{% endif %}>
   38            <button id="submit_btn" type="submit" {% if disabled %}disabled{% endif %}>Submit</button>
   39        </form>
   40
   41        <p id="message"></p>
   42    </body>
   43    </html>
   44
```

Enter the Captcha:

CAPTCHA: TCLDJ

TC12   Submit

Too many failed attempts! ❌ Textbox disabled.

Enter the Captcha:

CAPTCHA: 47UZS

47UZS   Submit

Captcha Matched! ✅