

Ex.05 Design a Website for Server Side Processing

Date: 05 - 05 - 2025

AIM:

To design a website to calculate the power of a lamp filament in an incandescent bulb in the server side.

FORMULA:

$$P = I^2R$$

P --> Power (in watts)

I --> Intensity

R --> Resistance

DESIGN STEPS:

Step 1:

Clone the repository from GitHub.

Step 2:

Create Django Admin project.

Step 3:

Create a New App under the Django Admin project.

Step 4:

Create python programs for views and urls to perform server side processing.

Step 5:

Create a HTML file to implement form based input and output.

Step 6:

Publish the website in the given URL.

PROGRAM :

1. Settings Configuration

```
# filepath: d:\EVEN JUN\WEB DEVE\Experiments\MathServer\MathServer\settings.py
INSTALLED_APPS = [
    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
    'MathApp',
]
```



2. Views Implementation

```
# filepath: d:\EVEN JUN\WEB DEVE\Experiments\MathServer\MathApp\views.py
from django.shortcuts import render

def calculate_power(request):
    if request.method == 'POST':
        intensity = float(request.POST.get('intensity', 0))
        resistance = float(request.POST.get('resistance', 0))
        power = intensity * intensity * resistance
        return render(request, 'power_calculator.html', {
            'power': power,
            'intensity': intensity,
            'resistance': resistance
        })
    return render(request, 'power_calculator.html')
```



3. URL Configurations

Main URLs:

```
# filepath: d:\EVEN JUN\WEB DEVE\Experiments\MathServer\MathServer\urls.py
from django.contrib import admin
from django.urls import path, include

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



App URLs:

```
# filepath: d:\EVEN JUN\WEB DEVE\Experiments\MathServer\MathApp\urls.py
from django.urls import path
from . import views

urlpatterns = [
    path('', views.calculate_power, name='calculate_power'),
]
```



4. HTML Template

```
# filepath: d:\EVEN JUN\WEB DEVE\Experiments\MathServer\MathApp\templates\power_calcul
<!DOCTYPE html>
<html>
<head>
    <title>Power Calculator</title>
    <style>
        body {
            font-family: Arial, sans-serif;
            max-width: 600px;
            margin: 0 auto;
            padding: 20px;
        }
        .form-group {
            margin-bottom: 15px;
        }
        input[type="number"] {
            width: 200px;
            padding: 5px;
        }
        .result {
            margin-top: 20px;
            padding: 10px;
            background-color: #f0f0f0;
        }
    </style>
</head>
<body>
    <h1>Power Calculator for Lamp Filament</h1>
    <form method="post">
        {% csrf_token %}
        <div class="form-group">
            <label>Intensity (I) in amperes:</label><br>
            <input type="number" name="intensity" step="0.01" required
                value="{{ intensity|default:'' }}">
        </div>
        <div class="form-group">
            <label>Resistance (R) in ohms:</label><br>
            <input type="number" name="resistance" step="0.01" required
                value="{{ resistance|default:'' }}">
        </div>
```



```

        <input type="submit" value="Calculate Power">
    </form>

{% if power %}
<div class="result">
    <h2>Result:</h2>
    <p>Power (P) = {{ power|floatformat:2 }} watts</p>
    <p>Formula:  $P = I^2 \times R$ </p>
    <p>Where:</p>
    <ul>
        <li>I = {{ intensity|floatformat:2 }} amperes</li>
        <li>R = {{ resistance|floatformat:2 }} ohms</li>
    </ul>
</div>
{% endif %}
</body>
</html>

```

SERVER SIDE PROCESSING:

```

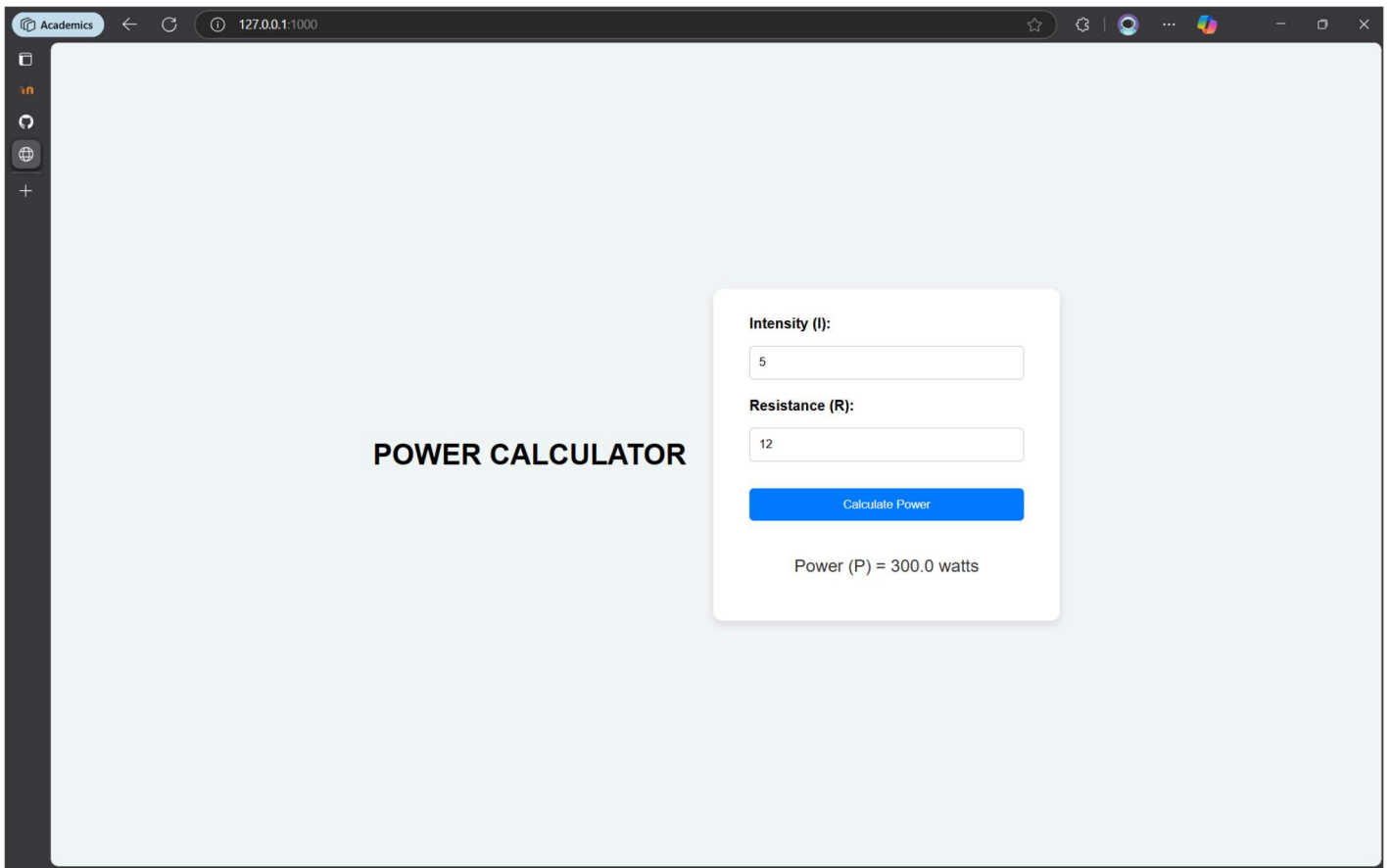
(KABE) PS D:\EVEN JUN\WEB DEVE\Experiments\MathServer\MathServer> python manage.py runserver 1000
Watching for file changes with StatReloader
Performing system checks...

System check identified no issues (0 silenced).
May 12, 2025 - 17:36:16
Django version 5.1.7, using settings 'MathServer.settings'
Starting development server at http://127.0.0.1:1000/
Quit the server with CTRL-BREAK.

[12/May/2025 17:36:20] "POST / HTTP/1.1" 200 2066
[12/May/2025 17:36:28] "POST / HTTP/1.1" 200 2066

```

HOMEPAGE:



RESULT:

The program for performing server side processing is completed successfully.