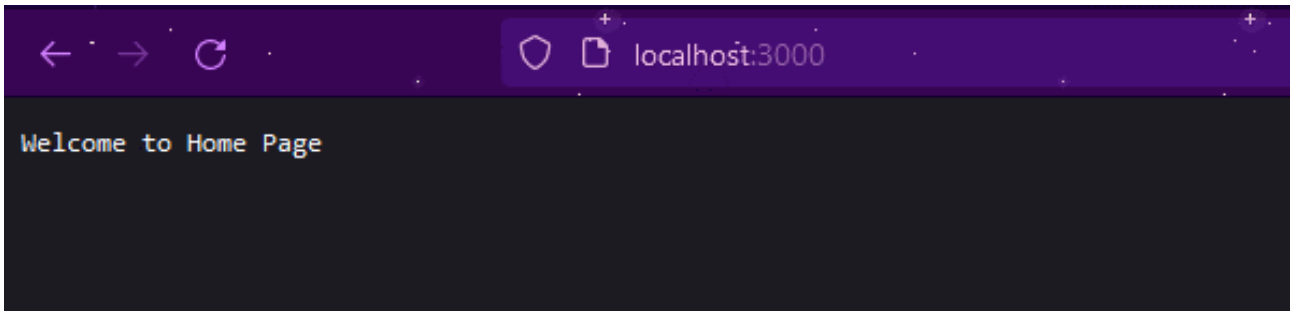
Practical 1

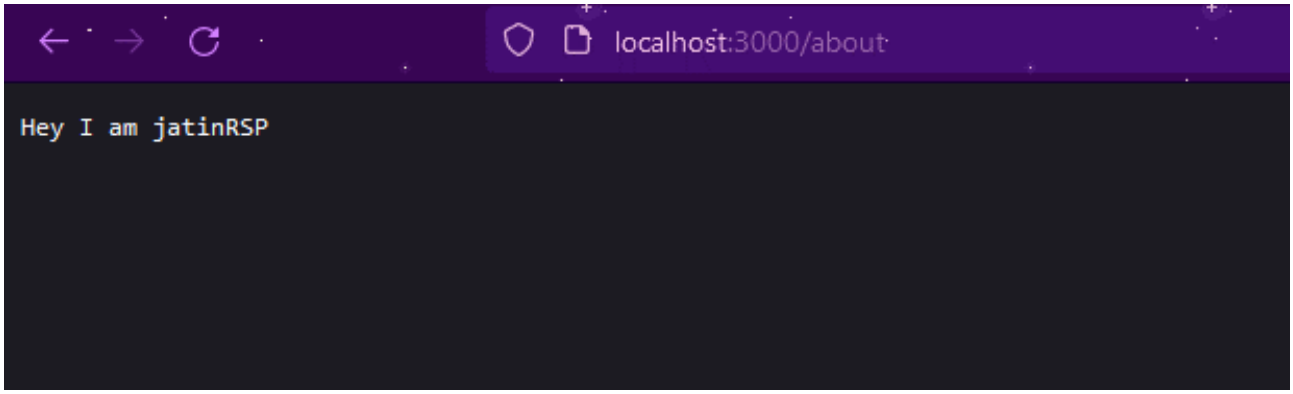
➢ Create web server in Node

CODE

```
const http = require('http');
const fs = require('fs');

const myServer = http.createServer((req, res) => {
    const log = `${Date.now()}: New Request for ${req.url}\n`;
    fs.appendFile('log.txt', log, (err, data) => {
        console.log("NEW REQUEST RECEIVED");
        switch (req.url) {
            case '/': res.end("Welcome to Home Page");
            break;
            case '/about': res.end("Hey I am jatinRSP");
            break;
            case '/contact': res.end("Contact me at 9824304318");
            break;
            default: res.end("404 Page Not Found");
        }

    });
});

myServer.listen(3000, () => {
    console.log("Server started on http://localhost:3000");
});
```

OUTPUT





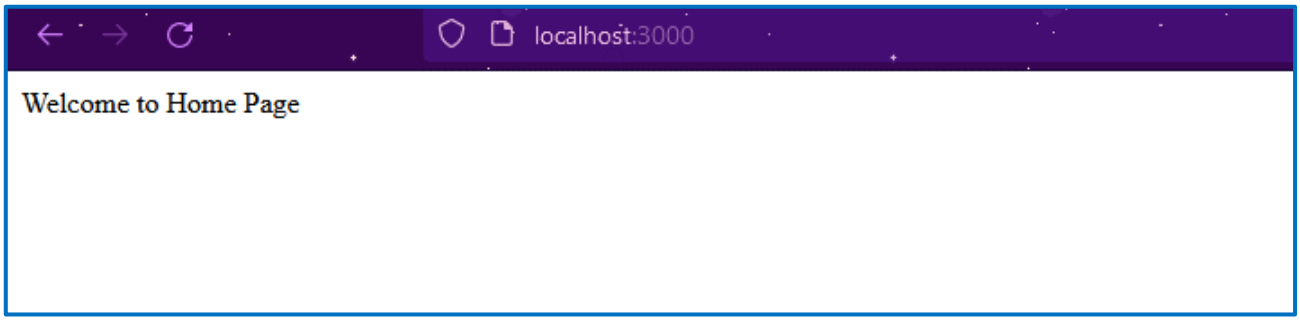
Practical 2

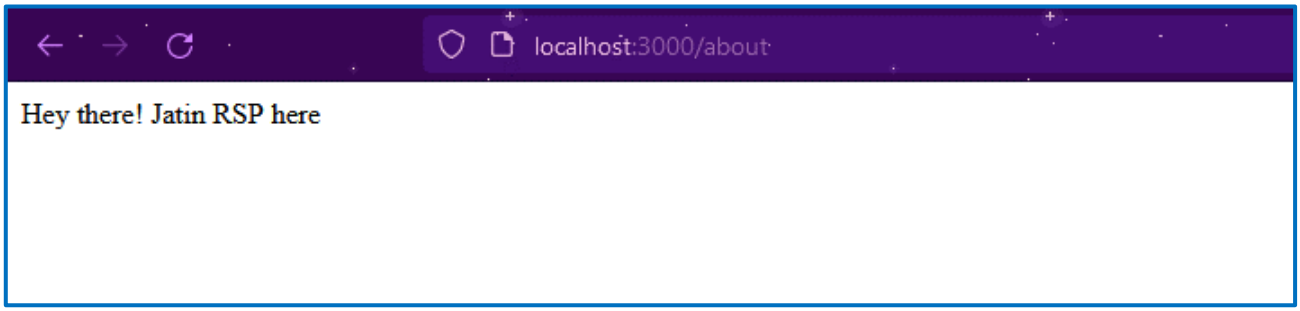
➢ Enhance your node web server by using Express

CODE

```
const express = require('express');
const fs = require('fs');

const app = express();

app.get('/', (req, res) => {
    res.send('Welcome to Home Page');
});

app.get('/about', (req, res) => {
    res.send('Hey there! Jatin RSP here');
});

app.get('/contact', (req, res) => {
    res.send('Contact me at 9824304318');
});

app.get('/Shop', (req, res) => {
    res.send('Shop our products');
});

app.listen(3000, () => {
    console.log('Server is running at port 3000');
});
```

OUTPUT





Practical 3

➢ Setting up a MongoDB Database (Connecting MongoDB to your application)

Experiment 3: Create a JavaScript file with MongoDB queries for operations such as insert, update, and delete while also establishing a connection to the MongoDB database.

Hint: Ensure that your MongoDB server is running and accessible at localhost:27017 or replace it with the appropriate connection string if it's hosted elsewhere.

Note: Please include snapshots of all commands, terminal sessions, localhost outputs, and Mongo compass output in your documentation with all necessary steps.

Code:-

```
const mongoose = require('mongoose');
const validator = require('validator');

// Connection URI
const uri =
'mongodb+srv://jatinRSP:jatinRSP@cluster0.lmhkvus.mongodb.net/jatinRSP?retryW
rites=true&w=majority';

// Connect to MongoDB
mongoose.connect(uri, { useNewUrlParser: true, useUnifiedTopology: true })
  .then(() => console.log('Connected to MongoDB'))
  .catch(err => console.error('Error connecting to MongoDB:', err));

// Define friend schema
const friendSchema = new mongoose.Schema({
  username: { type: String, required: true },
  email: { type: String, required: true, validate: [validator.isEmail,
'Invalid email'] },
  age: { type: Number, required: true },
});

// Create model
const Friend = mongoose.model('Friend', friendSchema);

// Main function to perform CRUD operations
const main = async () => {
  try {
    // Insert document
    const ins = {
      username: "jatinRSP",
      email: "jatinrsp575@gmail.com",
      age: 21
    };
    await Friend.create(ins);
```

```
    // Update document
    await Friend.updateOne({ name: "jatinRSP" }, { $set: { age: 20 } });

    // Delete document
    await Friend.deleteOne({ name: "jatinRSP" });

    // Read document
    const read = await Friend.findOne({ name: "jatinRSP" });
    console.log(read.username);
  } catch (err) {
    console.error(err);
  } finally {
    // Close MongoDB connection
    await mongoose.connection.close();
  }
};

// Execute main function
main();
```

OUTPUT

```
Connected to MongoDB
jatinRSP
```

Practical 4

Experiment 4: Create a database schema and model using mongoose and perform MongoDB queries for operations such as insert, update, and delete while also establishing a connection to the MongoDB database.

Hint: Ensure that your MongoDB server is running and accessible at localhost:27017 or replace it with the appropriate connection string if it's hosted elsewhere.

Note: Please include snapshots of all commands, terminal sessions, localhost outputs, and Mongo compass output in your documentation with all necessary steps

Code:-

```
const mongoose = require('mongoose');
const validator = require('validator');

// Connection URI
const uri =
'mongodb+srv://jatinRSP:jatinRSP@cluster0.lmhkvus.mongodb.net/jatinRSP?retryW
rites=true&w=majority';

// Connect to MongoDB
mongoose.connect(uri, { useNewUrlParser: true, useUnifiedTopology: true })
  .then(() => console.log('Connected to MongoDB'))
  .catch(err => console.error('Error connecting to MongoDB:', err));

// Define friend schema
const friendSchema = new mongoose.Schema({
  name: String,
  age: Number,
  type: String,
  active: Boolean,
});

// Sample document
const ins = {
  name: "jatinRSP",
  age: 21,
  type: "friend",
  active: true
};

// Create model
const Friend = mongoose.model("Friend", friendSchema);

// Main function to perform CRUD operations
const main = async () => {
  try {
    // Insert document
    await Friend.insertMany(ins);
```

```
    // Update document
    await Friend.findOneAndUpdate({ name: "lisa" }, { $set: { age: 26 } });

    // Delete document
    await Friend.findOneAndDelete({ name: "lisa" });

    // Read document
    const read = await Friend.find({ name: "jatinRSP" });
    console.log(read[0].name);

  } catch (err) {
    console.log(err);
  } finally {
    mongoose.connection.close();
  }
};

// Execute main function
main();
```

PRACTICAL 5

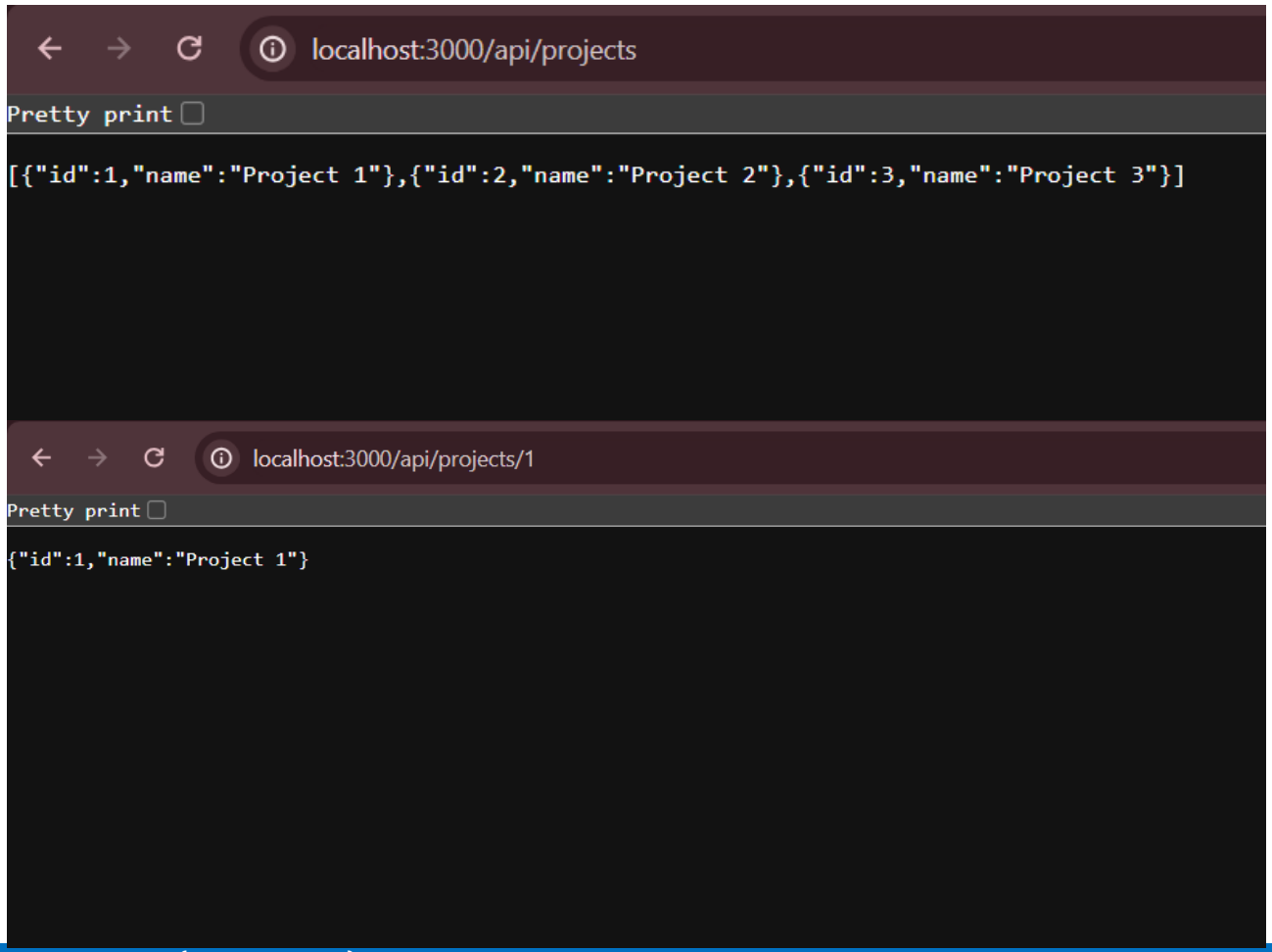
➢ Building an API in NODE

Code:

```
const express = require('express');
const app = express();
const PORT = 3000;

// Sample data
const projects = [
  { id: 1, name: 'Project 1' },
  { id: 2, name: 'Project 2' },
  { id: 3, name: 'Project 3' }
];

// Middleware to parse JSON bodies
app.use(express.json());

// Route to get all projects
app.get('/api/projects', (req, res) => {
  res.json(projects);
});

// Route to get a specific project by ID
app.get('/api/projects/:id', (req, res) => {
  const projectId = parseInt(req.params.id);
  const project = projects.find(project => project.id === projectId);
  if (project) {
    res.json(project);
  } else {
    res.status(404).json({ message: 'Project not found' });
  }
});

// Route to create a new project
app.post('/api/projects', (req, res) => {
  const { name } = req.body;
  if (!name) {
    return res.status(400).json({ message: 'Name is required for creating a
project' });
  }
  const newProject = { id: projects.length + 1, name };
  projects.push(newProject);
  res.status(201).json(newProject);
});

// Route to update an existing project
app.put('/api/projects/:id', (req, res) => {
  const projectId = parseInt(req.params.id);
  const { name } = req.body;
  if (!name) {
    return res.status(400).json({ message: 'Name is required for updating a
project' });
```

```
  }
  const project = projects.find(project => project.id === projectId);
  if (!project) {
    return res.status(404).json({ message: 'Project not found' });
  }
  project.name = name;
  res.json(project);
});

// Route to delete a project
app.delete('/api/projects/:id', (req, res) => {
  const projectId = parseInt(req.params.id);
  const projectIndex = projects.findIndex(project => project.id ===
projectId);
  if (projectIndex === -1) {
    return res.status(404).json({ message: 'Project not found' });
  }
  projects.splice(projectIndex, 1);
  res.json({ message: 'Project deleted successfully' });
});

// Start the server
app.listen(PORT, () => {
  console.log(`Server is running on http://localhost:${PORT}`);
});
```

OUTPUT



Practical 6

➢ Deploy your application

Step 1: Create react app

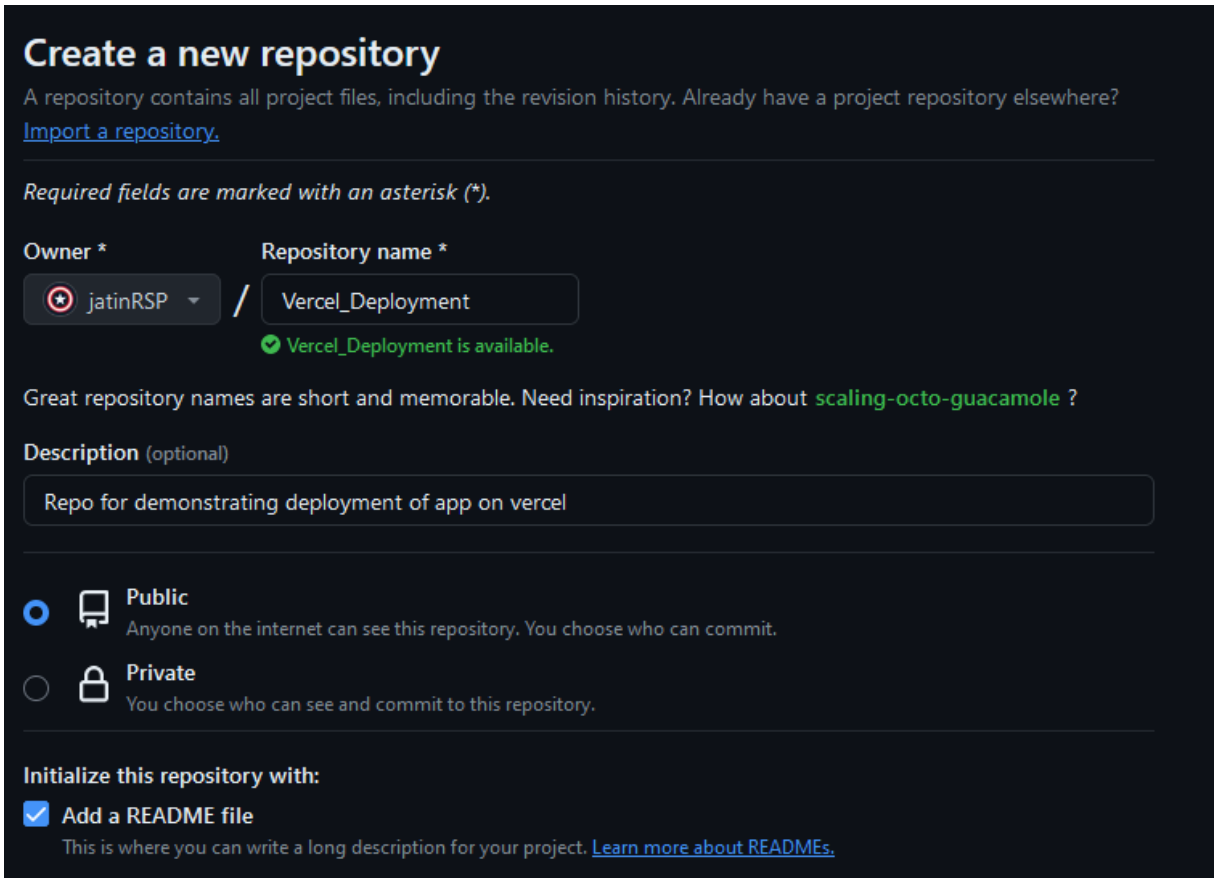
App.jsx

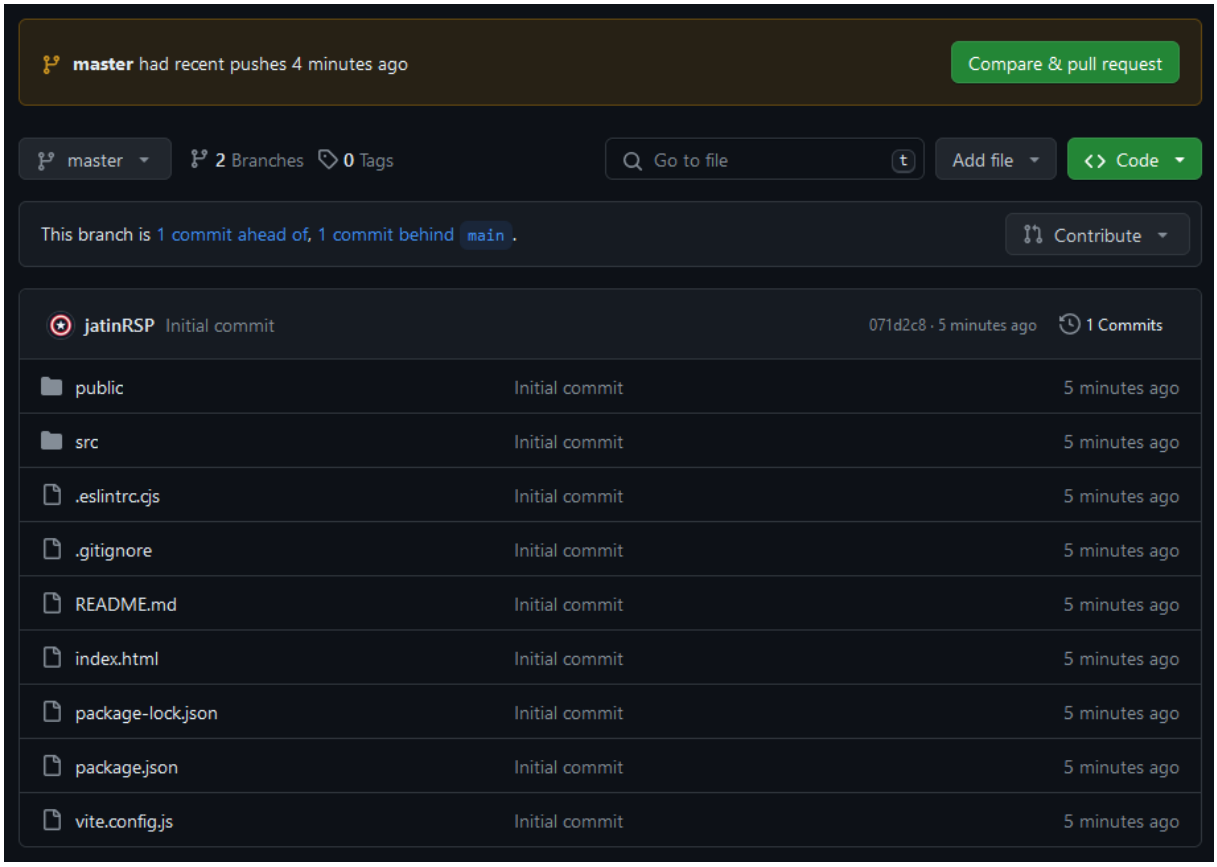
```jsx
import { useState } from "react";

function App() {
  return (
    <>
      <h1>Deploy web app on Vercel</h1>
    </>
  );
}

export default App;
```

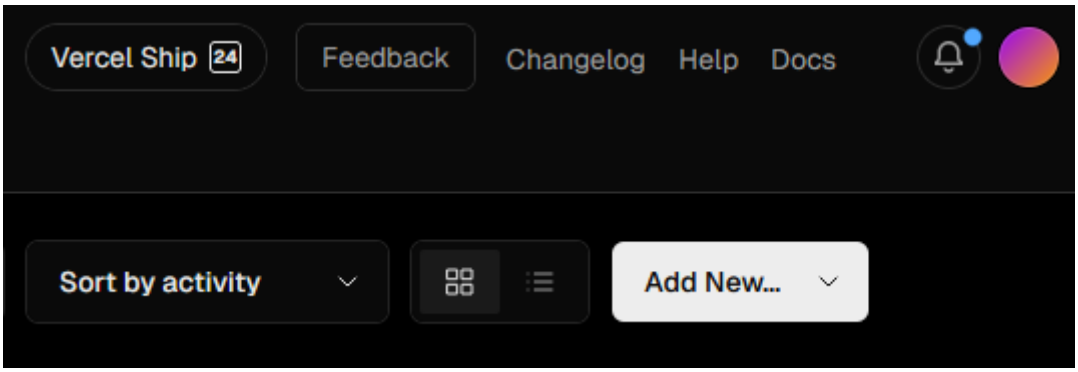
Main.jsx

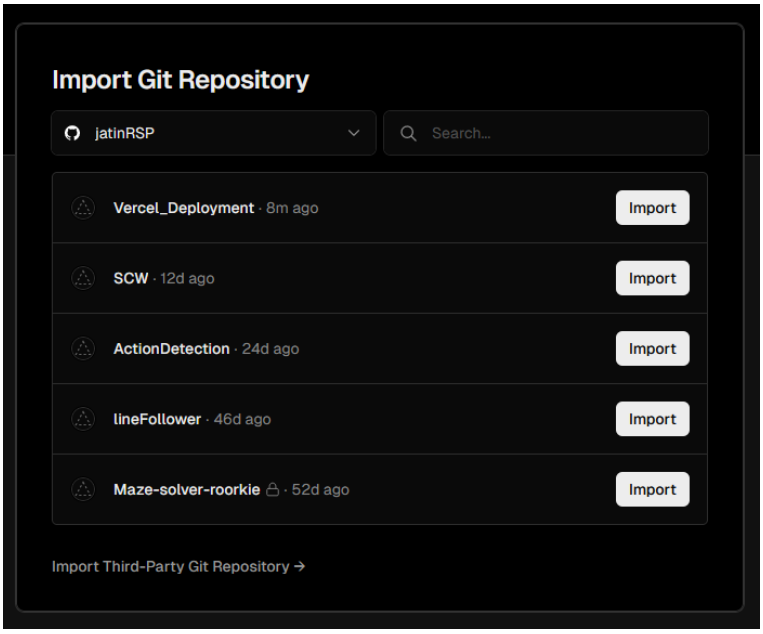
```jsx
import React from "react";
import ReactDOM from "react-dom/client";
import App from "./App.jsx";

ReactDOM.createRoot(document.getElementById("root")).render(<App />);
```

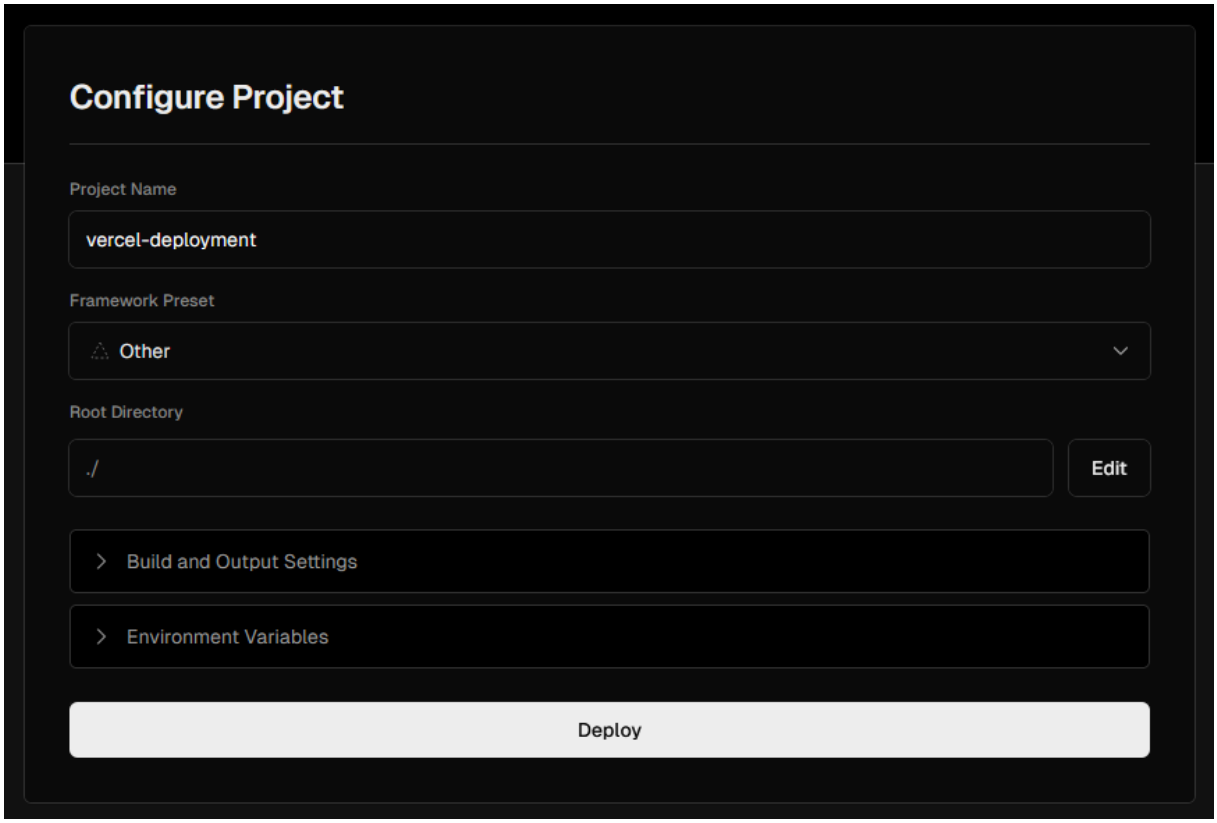
Step 2: Create github repo and add that react app into it




master had recent pushes 4 minutes ago
Compare & pull request
master
2 Branches
0 Tags
Go to file
t
Add file
Code
This branch is 1 commit ahead of, 1 commit behind main .
Contribute
jatinRSP Initial commit
071d2c8 · 5 minutes ago
1 Commits
public Initial commit 5 minutes ago
src Initial commit 5 minutes ago
.eslintrc.cjs Initial commit 5 minutes ago
.gitignore Initial commit 5 minutes ago
README.md Initial commit 5 minutes ago
index.html Initial commit 5 minutes ago
package-lock.json Initial commit 5 minutes ago
package.json Initial commit 5 minutes ago
vite.config.js Initial commit 5 minutes ago


Vercel Ship 24
Feedback
Changelog
Help
Docs
Sort by activity
Add New...


Import Git Repository
jatinRSP
Search...
Vercel_Deployment · 8m ago
Import
SCW · 12d ago
Import
ActionDetection · 24d ago
Import
lineFollower · 46d ago
Import
Maze-solver-roorkie · 52d ago
Import
Import Third-Party Git Repository →



Deploy web app on Vercel

Practical 7

➢ Create your first React code: hello world

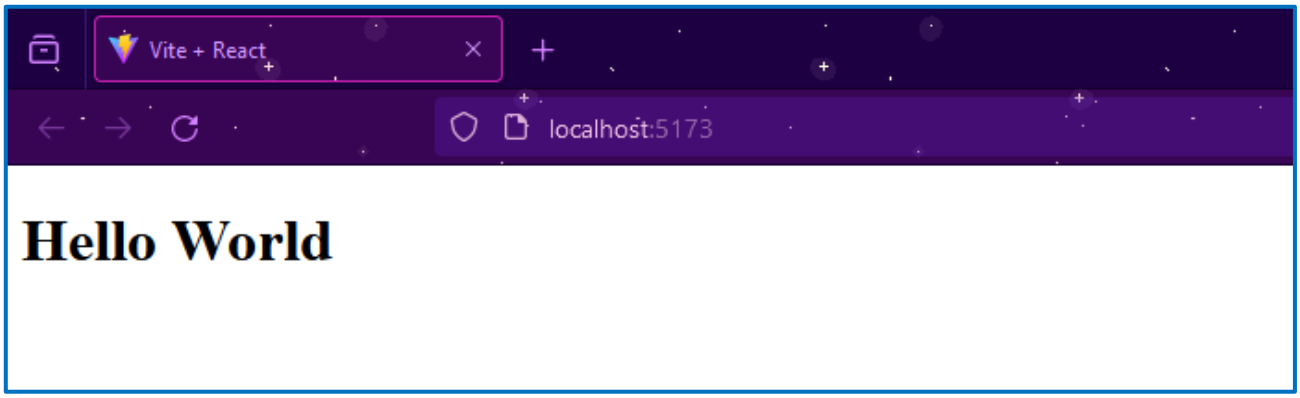
App.jsx

```jsx
import { useState } from "react";

function App() {
  const [count, setCount] = useState(0);

  return (
    <>
      <h1>Hello World</h1>
    </>
  );
}

export default App;
```

Main.jsx

```jsx
import React from "react";
import ReactDOM from "react-dom/client";
import App from "./App.jsx";

ReactDOM.createRoot(document.getElementById("root")).render(
    <App />
);
```

OUTPUT



Practical 8

➢ Working with properties in React.

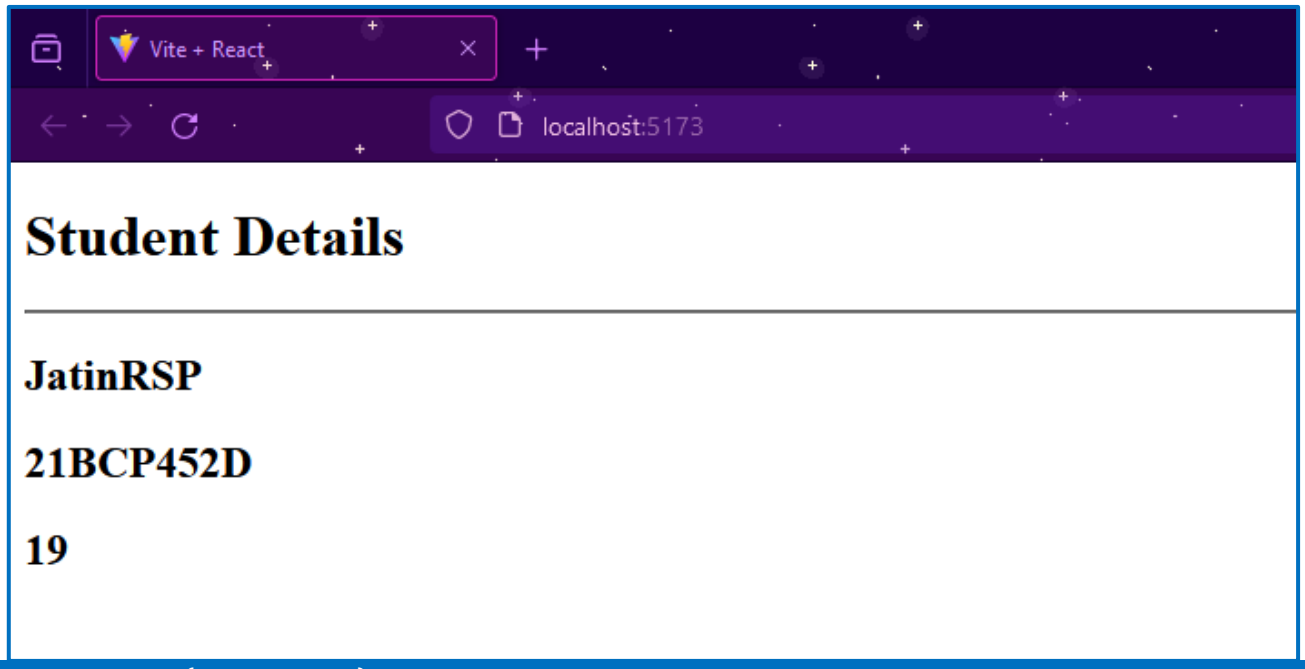
Student.jsx

```jsx
import React from "react";

function student(props) {
  return (
    <div>
      <h1>Student Details</h1>
      <hr />
      <h2>{props.name}</h2>
      <h2>{props.roll}</h2>
      <h2>{props.age}</h2>
    </div>
  );
}

export default student;
```

App.jsx

```jsx
import React from "react";
import Student from "./Student.jsx";

function App() {
  return (
    <>
      <Student name="JatinRSP" roll="21BCP452D" age="19" />
    </>
  );
}

export default App;
```

OUTPUT



Practical 9

➢ Working with react states

Form.jsx

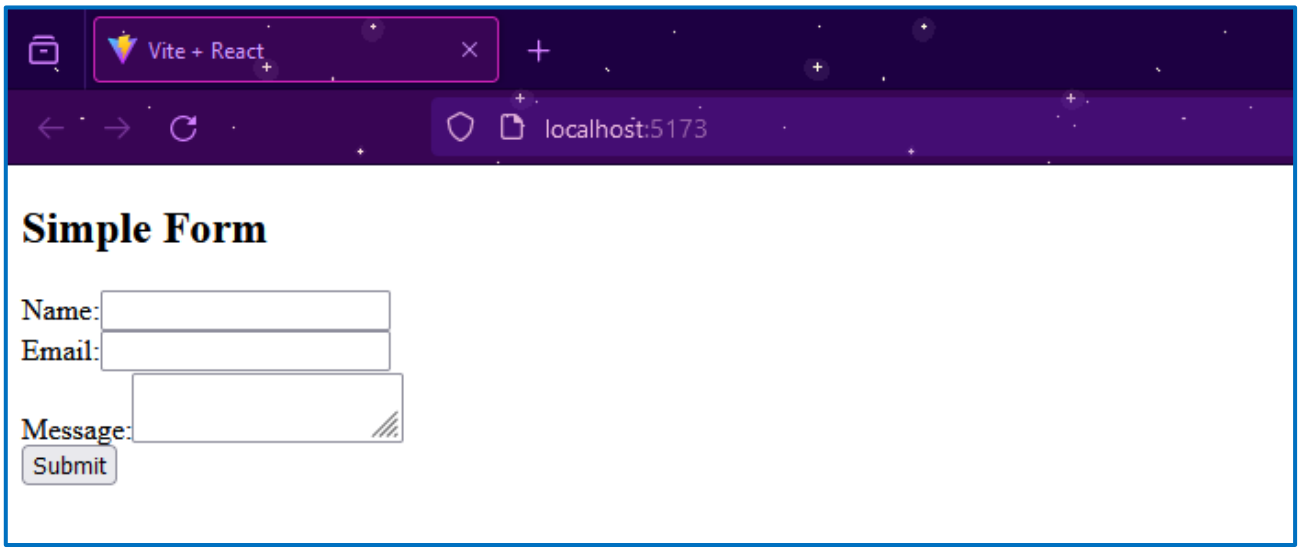
```jsx
import React, { useState } from "react";

function Form() {
  const [formData, setFormData] = useState({
    name: "",
    email: "",
    message: "",
  });

  const [submittedData, setSubmittedData] = useState(null);

  const handleChange = (e) => {
    const { name, value } = e.target;
    setFormData((prevState) => ({
      ...prevState,
      [name]: value,
    }));
  };

  const handleSubmit = (e) => {
    e.preventDefault();
    // Store the form data in submittedData state
    setSubmittedData(formData);
  };

  return (
    <div>
      <h2>Simple Form</h2>
      <form onSubmit={handleSubmit}>
        <div>
          <label htmlFor="name">Name:</label>
          <input
            type="text"
            id="name"
            name="name"
            value={formData.name}
            onChange={handleChange}
            required
          />
        </div>
        <div>
          <label htmlFor="email">Email:</label>
          <input
            type="email"
            id="email"
            name="email"
            value={formData.email}
            onChange={handleChange}
            required
          />
```

```
        </div>
        <div>
          <label htmlFor="message">Message:</label>
          <textarea
            id="message"
            name="message"
            value={formData.message}
            onChange={handleChange}
            required
          ></textarea>
        </div>
        <button type="submit">Submit</button>
      </form>
      {submittedData && (
        <div>
          <h3>Form Data</h3>
          <p>Name: {submittedData.name}</p>
          <p>Email: {submittedData.email}</p>
          <p>Message: {submittedData.message}</p>
        </div>
      )}
    </div>
  );
}

export default Form;
```

App.jsx

```
import React from "react";
import Form from "./Form.jsx";

function App() {
  return (
    <>
      <Form />
    </>
  );
}

export default App;
```

OUTPUT


Vite + React
localhost:5173
Simple Form
Name:
Email:
Message:
Submit

Practical 10

➢ Working with React Forms

Form.jsx

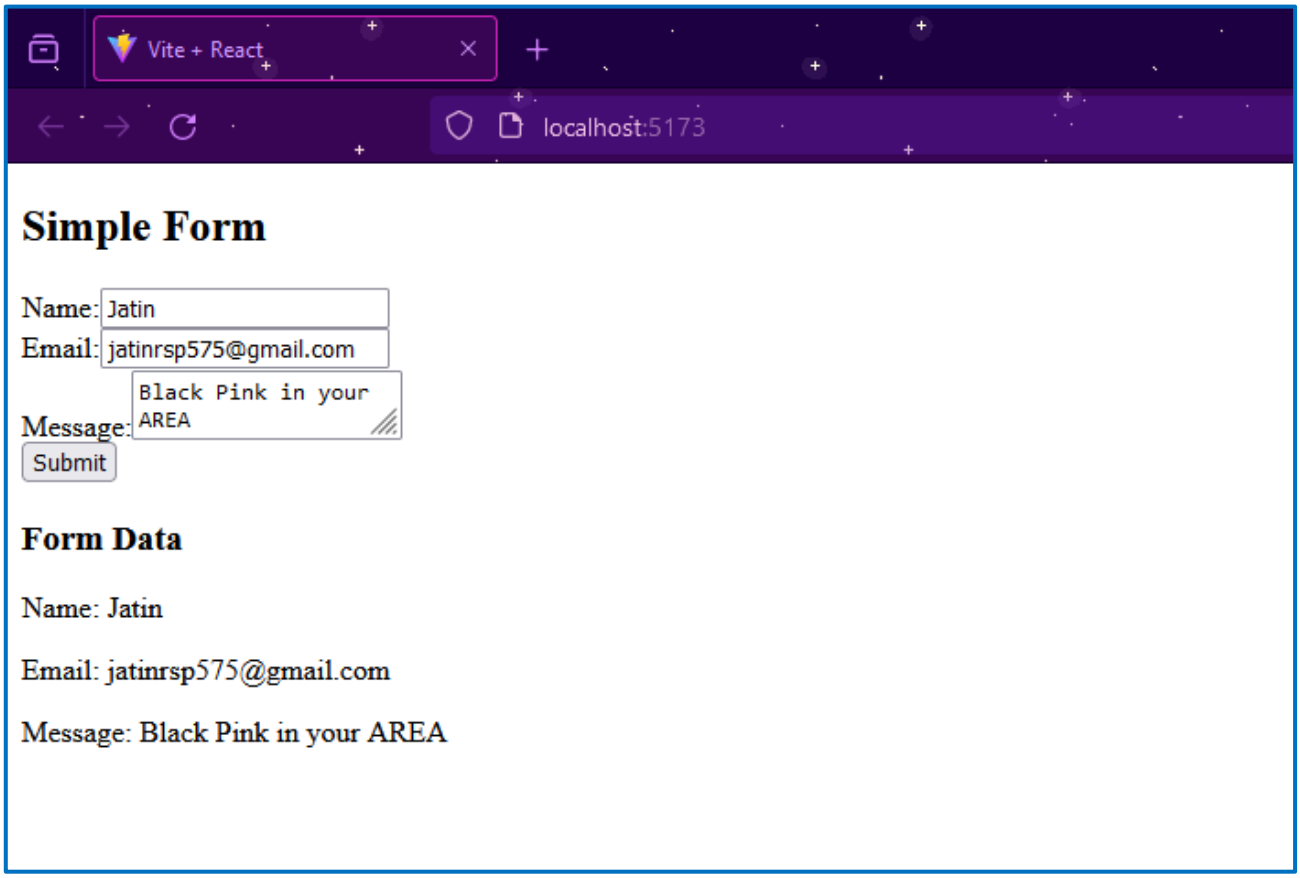
```jsx
import React, { useState } from "react";

function Form() {
  const [formData, setFormData] = useState({
    name: "",
    email: "",
    message: "",
  });

  const [submittedData, setSubmittedData] = useState(null);

  const handleChange = (e) => {
    const { name, value } = e.target;
    setFormData((prevState) => ({
      ...prevState,
      [name]: value,
    }));
  };

  const handleSubmit = (e) => {
    e.preventDefault();
    // Store the form data in submittedData state
    setSubmittedData(formData);
  };

  return (
    <div>
      <h2>Simple Form</h2>
      <form onSubmit={handleSubmit}>
        <div>
          <label htmlFor="name">Name:</label>
          <input
            type="text"
            id="name"
            name="name"
            value={formData.name}
            onChange={handleChange}
            required
          />
        </div>
        <div>
          <label htmlFor="email">Email:</label>
          <input
            type="email"
            id="email"
            name="email"
            value={formData.email}
            onChange={handleChange}
            required
          />
```

```
        </div>
        <div>
          <label htmlFor="message">Message:</label>
          <textarea
            id="message"
            name="message"
            value={formData.message}
            onChange={handleChange}
            required
          ></textarea>
        </div>
        <button type="submit">Submit</button>
      </form>
      {submittedData && (
        <div>
          <h3>Form Data</h3>
          <p>Name: {submittedData.name}</p>
          <p>Email: {submittedData.email}</p>
          <p>Message: {submittedData.message}</p>
        </div>
      )}
    </div>
  );
}

export default Form;
```

App.jsx

```
import React from "react";
import Form from "./Form.jsx";

function App() {
  return (
    <>
      <Form />
    </>
  );
}

export default App;
```

OUTPUT


Vite + React
localhost:5173
Simple Form
Name: Jatin
Email: jatinrsp575@gmail.com
Message: Black Pink in your AREA
Submit
Form Data
Name: Jatin
Email: jatinrsp575@gmail.com
Message: Black Pink in your AREA

Practical 11

➢ Creating basic Django web app

Aim: Build a simple webapp using Django.

Setup & Code & Output:

1. Open the cmd at desired path and make a directory named ‘ Django_Apps’.
2. Change directory to that Django_Apps.

```
C:\sem-6>cd Django_Application

C:\sem-6\Django_Application>
```

3. Create the virtual Environment.

```
C:\sem-6\AWT\NodeJs\Lab\Django Apps>python -m pip install --user virtualenv
Requirement already satisfied: virtualenv in c:\python312\lib\site-packages (20.25.1)
Requirement already satisfied: distlib<1,>=0.3.7 in c:\python312\lib\site-packages (from virtualenv) (0.3.8)
Requirement already satisfied: filelock<4,>=3.12.2 in c:\python312\lib\site-packages (from virtualenv) (3.13.1)
Requirement already satisfied: platformdirs<5,>=3.9.1 in c:\python312\lib\site-packages (from virtualenv) (4.2.0)
```

```
C:\sem-6\AWT\NodeJs\Lab\Django Apps>python -m virtualenv venv
created virtual environment CPython3.12.1.final.0-64 in 874ms
  creator CPython3Windows(dest=C:\sem-6\AWT\NodeJs\Lab\Django Apps\venv, clear=False, no_vcs_ignore=False, global=False)
  seeder FromAppData(download=False, pip=bundle, via=copy, app_data_dir=C:\Users\Mit\AppData\Local\pypa\virtualenv)
    added seed packages: pip==24.0
  activators BashActivator,BatchActivator,FishActivator,NushellActivator,PowerShellActivator,PythonActivator
```

4. Activate the virtual environment.

```
C:\sem-6\AWT\NodeJs\Lab\Django Apps>venv\Scripts\activate

(venv) C:\sem-6\AWT\NodeJs\Lab\Django Apps>python -m pip
```

5. Install the Django.

```
(venv) C:\sem-6\AWT\NodeJs\Lab\Django Apps>python -m pip install django
Collecting django
  Using cached Django-5.0.4-py3-none-any.whl.metadata (4.1 kB)
Collecting asgiref<4,>=3.7.0 (from django)
  Using cached asgiref-3.8.1-py3-none-any.whl.metadata (9.3 kB)
Collecting sqlparse>=0.3.1 (from django)
  Using cached sqlparse-0.5.0-py3-none-any.whl.metadata (3.9 kB)
```

Django Verison checking:

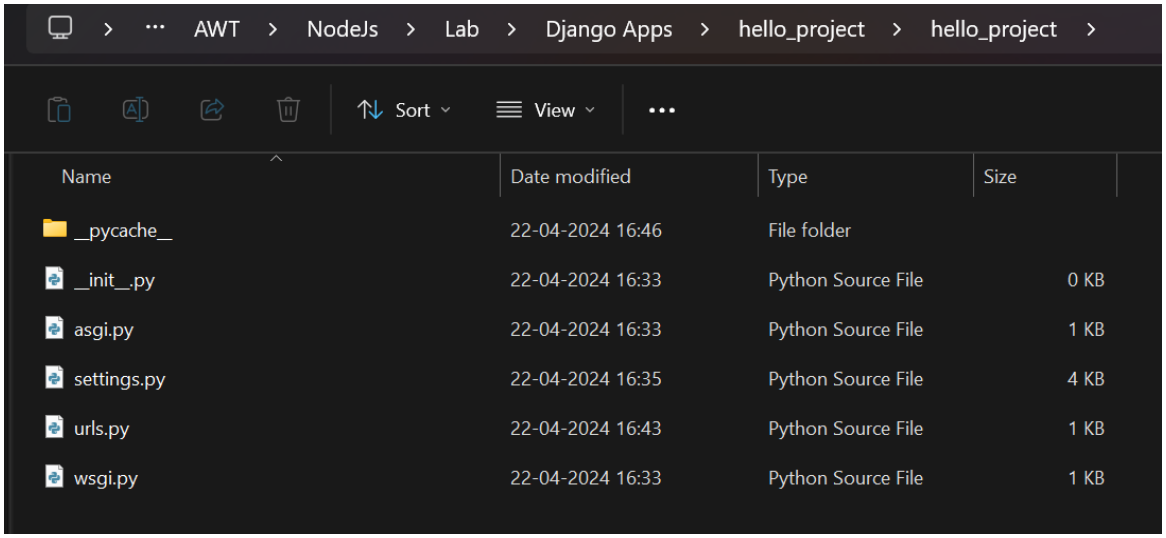
```
(venv) C:\sem-6\AWT\NodeJs\Lab\Django Apps>django-admin version
5.0.4
```

6. Create the Django Project.

```
(venv) C:\sem-6\AWT\NodeJs\Lab\Django Apps>django-admin startproject hello_project

(venv) C:\sem-6\AWT\NodeJs\Lab\Django Apps>cd hello_project

(venv) C:\sem-6\AWT\NodeJs\Lab\Django Apps\hello_project>django-admin startapp HelloWorld_App
```

7. Go inside this Django Project and create the Django App.

Name	Date modified	Type
hello_project	22-04-2024 16:46	File folder
venv	22-04-2024 16:27	File folder



Name	Date modified	Type	Size
__pycache__	22-04-2024 16:46	File folder	
__init__.py	22-04-2024 16:33	Python Source File	0 KB
asgi.py	22-04-2024 16:33	Python Source File	1 KB
settings.py	22-04-2024 16:35	Python Source File	4 KB
urls.py	22-04-2024 16:43	Python Source File	1 KB
wsgi.py	22-04-2024 16:33	Python Source File	1 KB

8. Now, Inside Django Project -> settings.py -> add app name into INSTALLED_APPS.

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

9. Write the webapp code, Django project -> Django App -> views.py

Views.py:

```
from django.shortcuts import render
from django.http import HttpResponse


# Create your views here.
def HelloWorld(request):
   return HttpResponse('<h1>Hello JatinRSP Whatsapp?? </h1>')
```

10. Make the connect between the Django project and Django app by adding the app to Django project-> url.py.

url.py (Project's url file)

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

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

11. Make the url.py inside the Django App and import the response function (which give response on http request.

url.py (Django App's url file)

```
from django.urls import path,include
from .views import HelloWorld

urlpatterns = [
   path('',HelloWorld,name='HelloWorld'),
]
```

12. Run the webapp : ‘ python manage.py runserver ’

```
(venv) C:\sem-6\AWT\NodeJs\Lab\Django Apps\hello_project>python manage.py runserver
Watching for file changes with StatReloader
Performing system checks...

Run 'python manage.py migrate' to apply them.
April 22, 2024 - 16:46:58
Django version 5.0.4, using settings 'hello_project.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CTRL-BREAK.
```

Output:

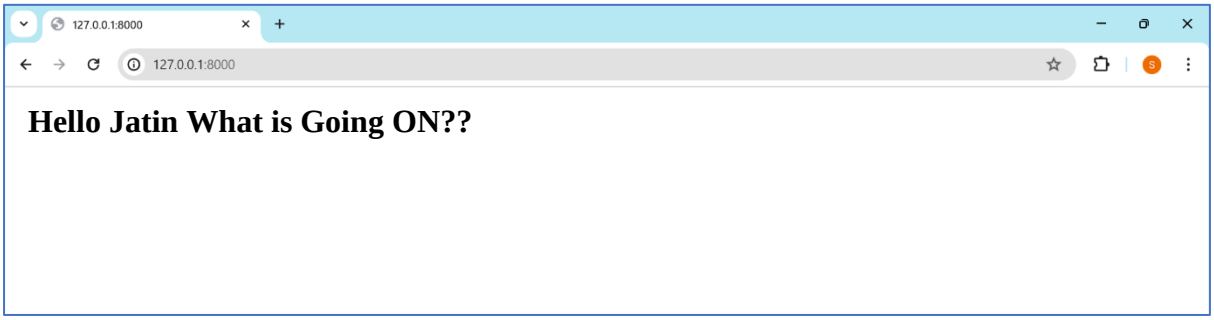
Webapp-2: Creating the webapp to login authorization webapp.

Setup & Code & Output:

- Installation of modules:

  pip install mysqlclient

  pip install mysql-connector-python



Practical 12

➢ Build a simple flask app

Code:

```python
from flask import Flask

# Create a Flask application instance
app = Flask(__name__)

# Define a route for the root URL '/'
@app.route('/')
def hello_world():
    return 'Hello, World!'

# Run the Flask application
if __name__ == '__main__':
    app.run(debug=True)
```

Output:

Hello, World!