Instruction

EV Charger Dashboard Project

This project consists of three parts:

1. **evcharger-dashboard-backend**: This contains the backend components.
2. **evcharger-dashboard-frontend**: This contains the frontend components.
3. **evcharger-availability-prediction**: This contains the machine learning components.

Setup Instructions

Step 1: Import the Database

1. Create the database "db_evcharger_0731" with command

```Plain Text
CREATE DATABASE db_evcharger_0731;
```

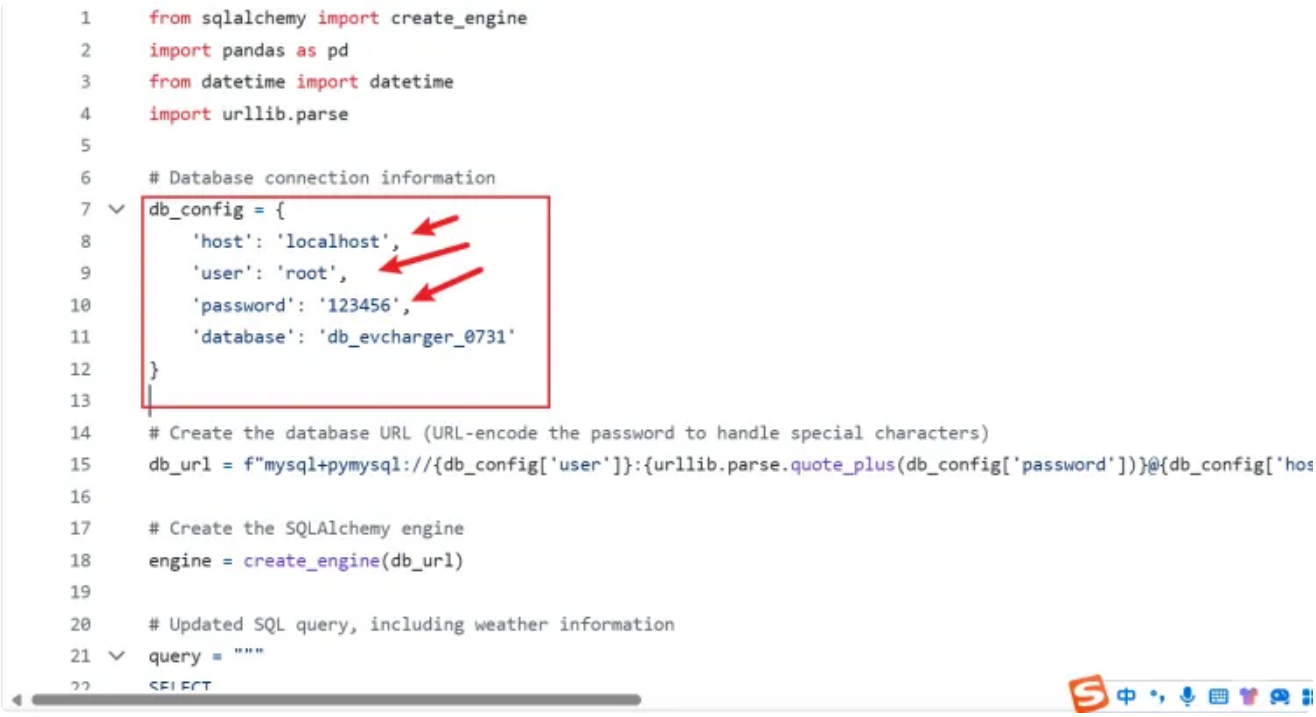
2. Locate the file `export_total.sql` in the submitted project folder.
3. Use the console to run the following command to import the database into your local machine:

```Plain Text
mysql -u your_username -p db_evcharger_0731 < export_total.sql
```

Replace `your_username` with your MySQL username.

Step 2: Update Machine Learning Script Database Configuration

1. Navigate to the `evcharger-availability-prediction` directory.
2. Open the file `data_cleaning_and_model_training.py`.
3. Update the database configuration information at the beginning of the script to match your local database settings.

4. 

```python
from sqlalchemy import create_engine
import pandas as pd
from datetime import datetime
import urllib.parse

# Database connection information
db_config = {
    'host': 'localhost',
    'user': 'root',
    'password': '123456',
    'database': 'db_evcharger_0731'
}

# Create the database URL (URL-encode the password to handle special characters)
db_url = f"mysql+pymysql://{db_config['user']}:{urllib.parse.quote_plus(db_config['password'])}@{db_config['hos

# Create the SQLAlchemy engine
engine = create_engine(db_url)

# Updated SQL query, including weather information
query = """
SELECT
```

Step 3: Install Dependencies for Machine Learning Module

1. In the `evcharger-availability-prediction` directory, locate the `requirements.txt` file.
2. Install the required dependencies using the following command:

```
pip install -r requirements.txt
```

Step 4: Run the Machine Learning Script

1. In the `evcharger-availability-prediction` directory, run the machine learning script:

```
python data_cleaning_and_model_training.py
```

Depending on your Python version, you may need to use `python3` instead of `python`.

Step 5: Update Backend Configuration

1. Navigate to the backend directory `evcharger-dashboard-backend\src\main\resources`.

2. Open the file `application.properties`.
3. Update the database configuration information to match your local database settings.

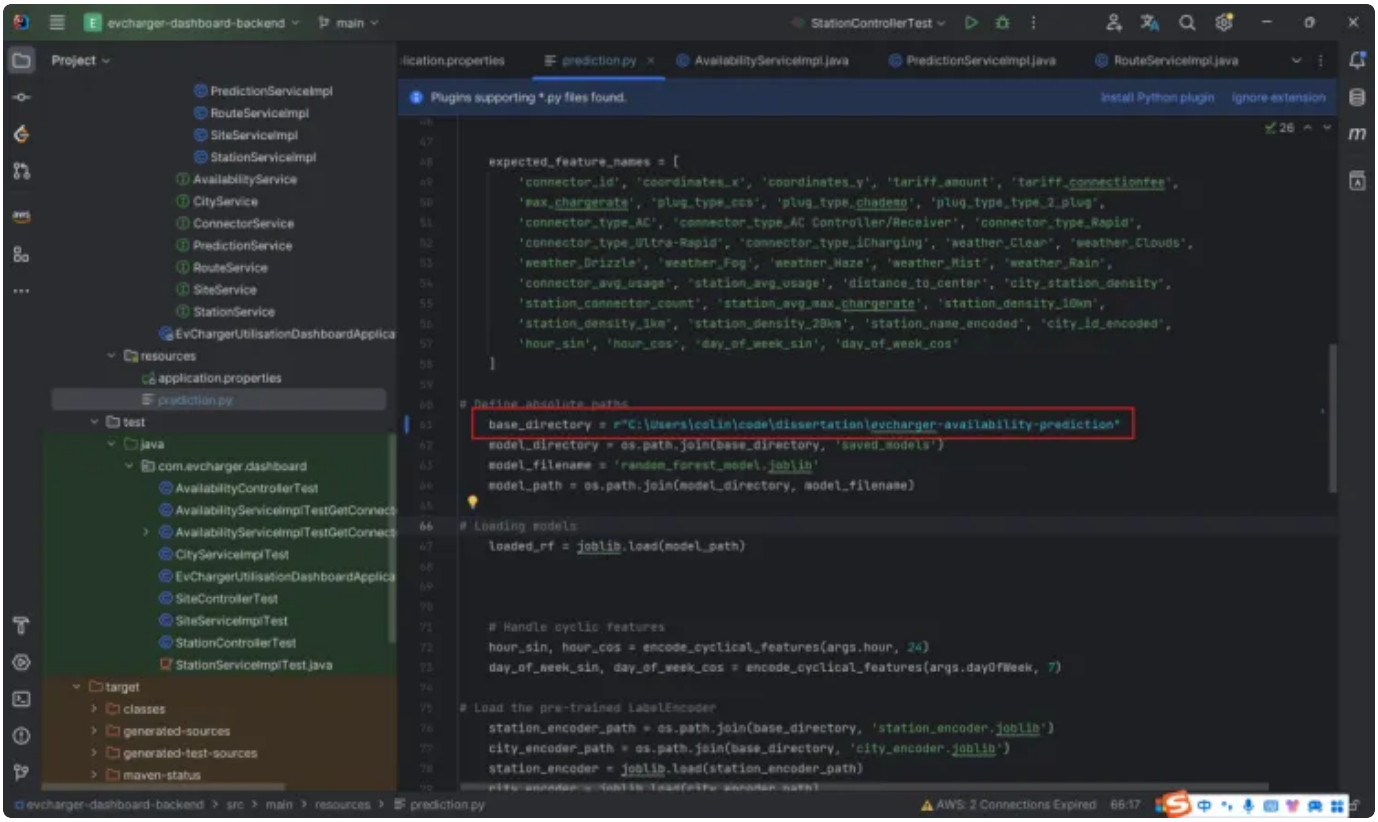
```
spring.application.name=EV Charger Utilisation Dashboard
spring.datasource.type=com.alibaba.druid.pool.DruidDataSource
spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver
spring.datasource.url=jdbc:mysql://localhost:3306/db_evcharger_0722?useSSL=false
spring.datasource.username=root
spring.datasource.password=123456
mybatis-plus.configuration.log-impl=org.apache.ibatis.logging.stdout.StdOutImpl
mybatis-plus.configuration.use-deprecated-executor=false
mybatis-plus.mapper-locations=classpath:/mapper/*.xml
server.port=8088
```

Step 6: Update Model Path in Backend

1. In the same directory, open `prediction.py`.
2. Modify the `base_directory` in the model loading path to reflect the absolute path of the `evcharger-availability-prediction` directory on your local machine./

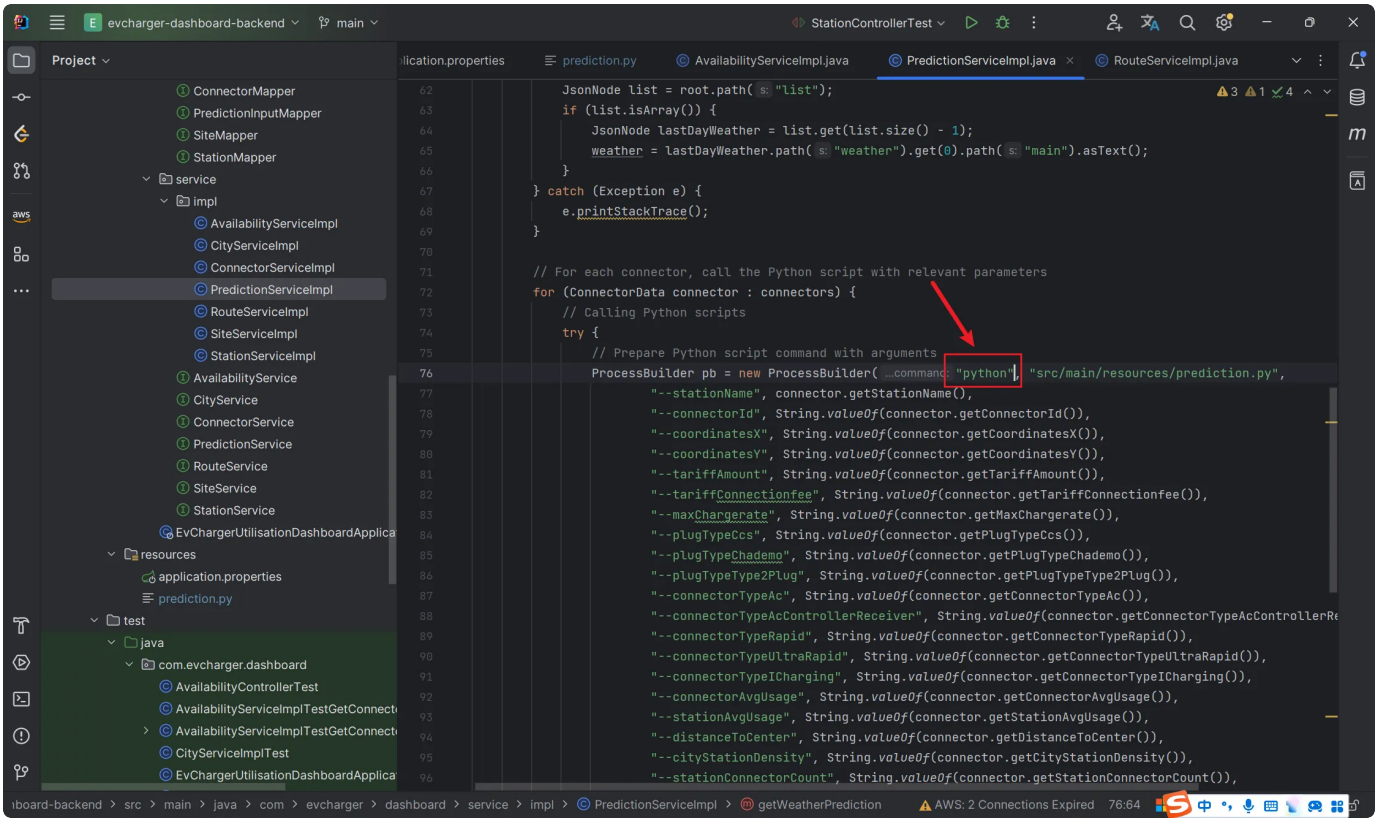
Plain Text

```
For Windows:
base_directory = r"<your_path>\evcharger-availability-prediction"

For Linux:
base_directory = "<your_path>/evcharger-availability-prediction"

For MacOS:
base_directory = "<your_path>/evcharger-availability-prediction"
```



Step 7: Adjust Python Command in Backend Service

1. Navigate to `evcharger-dashboard-backend\src\main\java\com\evcharger\dashboard\service\impl`.
2. Open `PredictionServiceImpl.java`.
3. Update the Python command (`python` or `python3`) based on your local Python version.



Step 8: Start the Backend Server

1. In the `evcharger-dashboard-backend` directory, start the backend server using the following command:

```
mvn clean install
mvn spring-boot:run
```

Step 9: Start the Frontend Server

1. Navigate to the `evcharger-dashboard-frontend` directory.
2. Install the necessary dependencies and start the frontend server using the following commands:

```
npm install
npm run serve
```

Step 10: Access the System

Open your browser and go to `http://localhost:8081` to access the EV Charger Dashboard system.

Step 11: Detailed Result

Detailed Results of prediction and analysis is in the evcharger–availability–prediction folder. They are shown in evcharger–prediction.pdf and analysis.pdf