Second phase projects:

Global Powerplant Database project

```
import pandas as pd

# Load the dataset
power_plants = pd.read_csv('global_power_plant_database.csv')

# Predict primary fuel type
primary_fuels = power_plants['primary_fuel'].value_counts()
print("Top Primary Fuel Types:")
print(primary_fuels.head())

# Predict capacity in MW
print(f"\nTotal Capacity (MW): {power_plants['capacity_mw'].sum():.2f}")
```

Temperature forecast project:

```
import pandas as pd
from sklearn.linear_model import LinearRegression
from sklearn.model_selection import train_test_split

# Load the dataset
temperatures = pd.read_csv('temperature_data.csv')

# Prepare data for max temperature model
X = temperatures.drop(['Next_Tmax', 'Next_Tmin'], axis=1)
y = temperatures['Next_Tmax']

# Split data into train and test sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)

# Train the max temperature model
```

```
max_temp_model = LinearRegression()
max_temp_model.fit(X_train, y_train)

# Prepare data for min temperature model
X = temperatures.drop(['Next_Tmax', 'Next_Tmin'], axis=1)
y = temperatures['Next_Tmin']

# Split data into train and test sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)

# Train the min temperature model
min_temp_model = LinearRegression()
min_temp_model.fit(X_train, y_train)
```

Loan Application Process:

```
import pandas as pd
from sklearn.linear_model import LogisticRegression
from sklearn.model_selection import train_test_split

# Load the dataset
loans = pd.read_csv('loan_prediction.csv')

# Encode categorical variables
loans = pd.get_dummies(loans, drop_first=True)

# Separate features and target
X = loans.drop('Loan_Status', axis=1)
y = loans['Loan_Status']

# Split data into train and test sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
```

```
# Train the model
model = LogisticRegression()
model.fit(X_train, y_train)
```