ANN Prediction Script Walkthrough

Overview

This walkthrough explains how to set up and run the ANN prediction script.

1. Prepare Your Environment

1. **Install required R packages:**

```
install.packages(c("caret","readxl","openxlsx"))
```

2. **Place `ann_prediction.R` in your project directory.**

2. Configure the Script

Edit `ann_prediction.R` to set:

- `pool_names`: List of pool identifiers matching filenames.

- `saved_model_dir`: Path to where `.rds` models are stored.

- `input_variables_dir`: Path to Excel files named `<PoolName> Input.xlsx` containing predictors.

- `output_dir`: Desired destination for result files.

3. Prepare Input Files

Ensure each input Excel file:

- Is named `<PoolName> Input.xlsx`.

- Contains columns for:

  - Weather features: `AWND`, `PRCP`, `HDD`, `HDD_sq`, `DB_HDD`
  - Weekday indicators: `Mon`, `Tue`, . . . , `Sun`
  - Seasonal transform: `Sine`
  - Temperature extremes: `TMAX`, `TMIN`

4. Execute the Script

In R or RStudio, run:

```
source("ann_prediction.R")
```

Monitor the console for messages like:

```
Processing pool: YourPoolName
Predictions saved for pool YourPoolName to /path/to/YourPoolName_Predicted_Results.xlsx
```

5. Review the Results

- Navigate to output_dir.

- Open each <PoolName>_Predicted_Results.xlsx to verify forecasted demand alongside input variables.

6. Integrate into Workflow

- Schedule the script via *cron* or Windows Task Scheduler for automated forecasts.

- Import the output files into dashboards or reporting tools for visualization and monitoring.