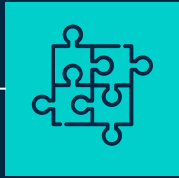


Time Series Forecasting Library

JT, Cameron, River, Noah,
Nick

In this presentation...



01

DEMO

A example use
case for the library



02

OUR PROCESS

How we built it

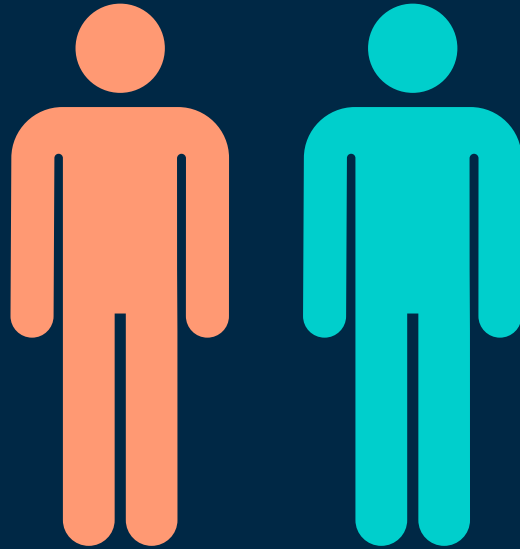


03

THE TEAM

How team work
made the dream
work

Flexibility, ease of use, and accessibility



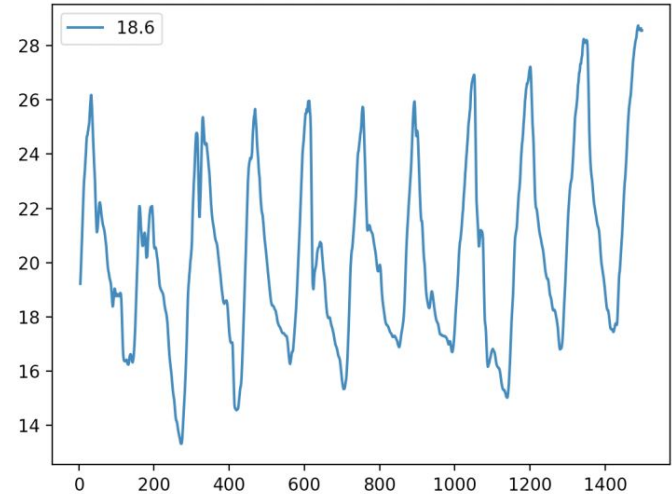
Demo

Time series forecasting
made simple

01

```
1  from tree import *
2
3  def main():
4
5      #initilize new tree
6      tree = TS_Tree()
7
8      #set root node to open a csv file
9      tree.replace_node("read_from_file", 0)
10
11     #add processing node to tree
12     tree.add_node("denoise", 0, increment=5.0)
13     tree.add_node("impute_outliers", 1)
14     tree.add_node("plot", 2)
15
16     #add modeling and forecasting to tree
17     tree.add_node("design_matrix", 2, data_start=20.0, data_end=10.0)
18     tree.add_node("mlp_model", 4, layers=[100,])
19     tree.add_node("mlp_forecast", 5, input_filename="../timeSeriesData/TimeSeriesData1/1_temperature_test.csv")
20
21     tree.print_tree()
22
23     #execute paths within the tree
24     cleaned_ts = tree.execute_path("timeSeriesData/TimeSeriesData1/1_temperature_train.csv", 3)
25     modeled = tree.execute_path(None, 6)
26
27     #save the tree to a file for later use
28     save_tree(tree, "example_tree.txt")
29
30 main()
31
```

```
read_from_file-0
└─ denoise-1
    └─ impute_outliers-2
        └─ plot-3
            └─ design_matrix-4
                └─ mlp_model-5
                    └─ mlp_forecast-6
```



Implementation

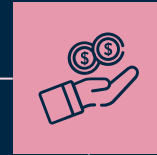
Our approach

02

Incremental development, Testing

Requirements

Starting with what is best for the user

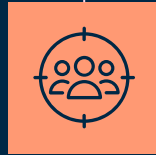


Analysis

Planning the structures to be used

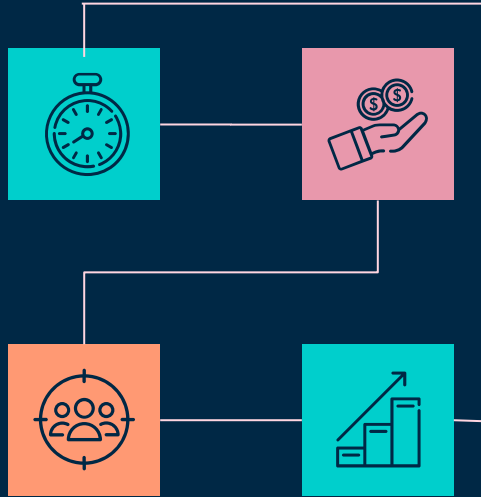
Implementation

Modular Approach



Testing

Nose testing framework



Components: A Modular Approach



File_I/O

Pandas read in and
write out



Pre_Processing

Contained in a single
file



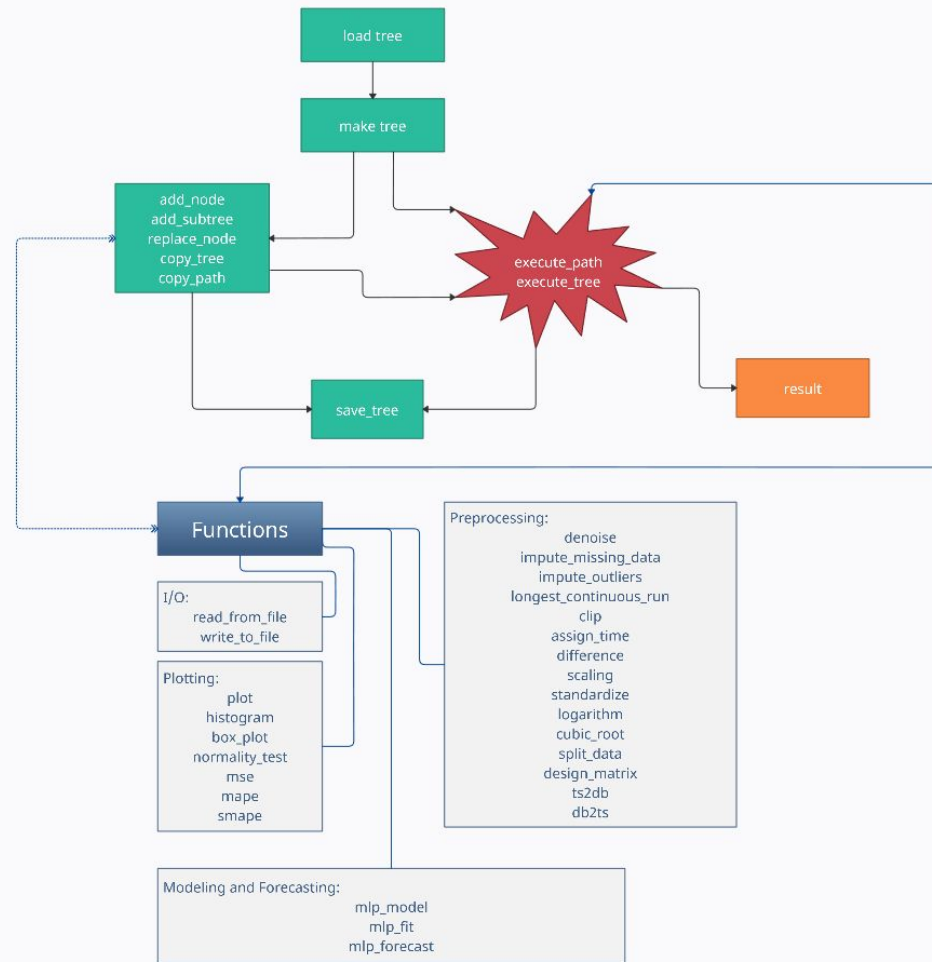
Tree functionality

Object Oriented



Modeling and forecasting

Straightforward
modeling

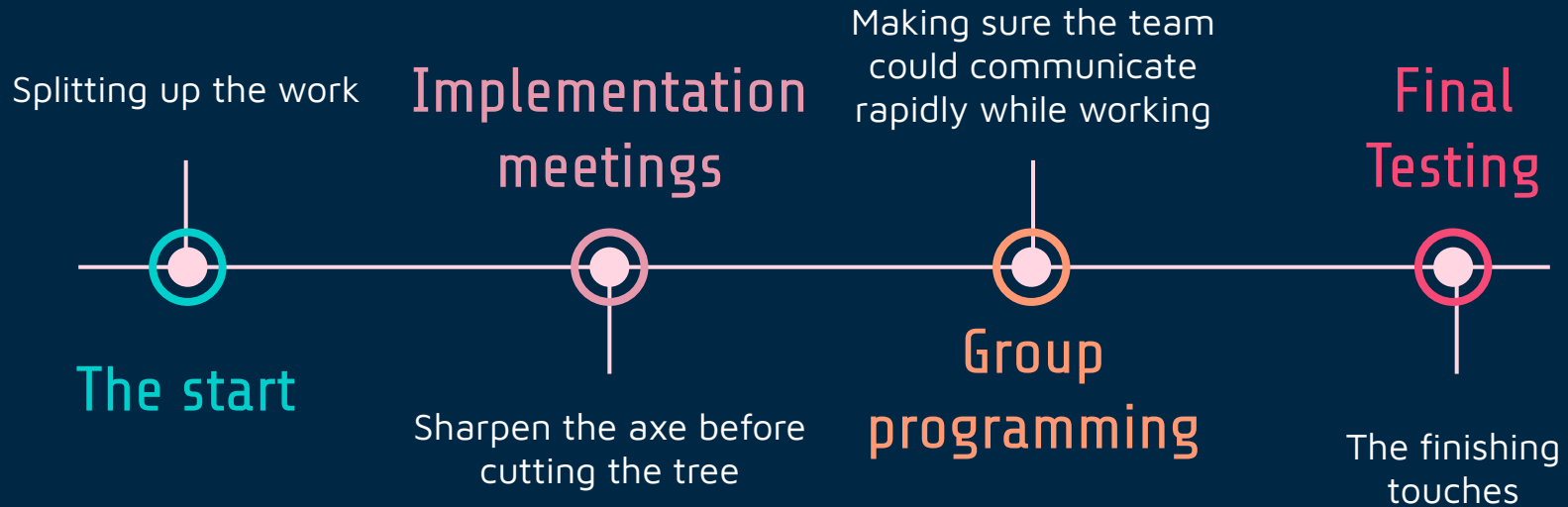


Our Team

Time series forecasting
made simple

03

OUR PROCESS



The background is a dark blue field decorated with a pattern of small squares and thin vertical lines. The squares are in three colors: pink, orange, and teal. Some squares are solid, while others are hollow with thin outlines. The vertical lines are thin and white, extending from the top or bottom of the frame. The overall aesthetic is modern and minimalist.

THANK YOU



Questions?