Prophet

Promise

2/20/2020

Contents

Introduction

▶ Prophet is a procedure for forecasting time series data based on an additive model where non-linear trends are fit with seasonality, plus holiday effects.

```
knitr::include_graphics('s6.PNG')
```

$$E\big[y_i \,\big|\, x_{i1}, \ldots, x_{ip}\big] =$$

or

Why Use Prophet

1. Accurate and fast
-used to produce reliable forecasts for planning and goal setting in many applications across Facebook
-It performs better than any other approach in the majority of cases.

2. Fully automatic
-Prophet provides reasonable forecast on messy data with no manual effort.
-it is robust to outliers, missing data, and dramatic changes in your time series.

Why Use Prophet

3. Tunable tables
-procedure includes many possibilities for users to tweak and adjust
forecasts.
-you can use human-interpretable parameters to improve your
forecast by adding your domain knowledge.

4. Available in R and Python
-with our R knowledge, we should find Prophet easy to work with

Prophet in R

```
knitr::include_graphics('s1.PNG')
```

```
1  # R
2  > install.packages('prophet', type="source")
```

-if you are on a mac, first download R toolchain installer

```
knitr::include_graphics('s7.PNG')
```

How do I use the installer?

1. Download it from the project's **release page** or through http://go.illinois.edu/r-macos-rtools-pkg.
2. Open the installer by either double click or right clicking to bring up menu and selecting "Open".
3. From here, navigate through it like a normal macOS installer.

That's it.

Prophet in R

```r
knitr::include_graphics('s3.PNG')
```

```r
1  # R
2  df <- read.csv('../examples/example_wp_log_peyton_manning.csv')
```

```r
knitr::include_graphics('s4.PNG')
```

```r
1  # R
2  m <- prophet(df)
```

Prophet in R

```
knitr::include_graphics('s5.PNG')
```

```
1  # R
2  future <- make_future_dataframe(m, periods = 365)
3  tail(future)
```

Sources

- https://facebook.github.io/prophet/docs/installation.html
- https://facebook.github.io/prophet/docs/quick_start.html#r-api
- https://github.com/rmacoslib/r-macos-rtools#how-do-i-use-the-installer