

A nighttime aerial photograph of the Hong Kong skyline, showing numerous illuminated skyscrapers and buildings. The Victoria Harbour is visible in the center, reflecting the city lights. The image is partially covered by a semi-transparent blue rectangle on the left side, which contains the text.

HONG KONG

Here is where the presentation
begins

Introduction



Dynamic Pricing



1st Run

2nd Run

3rd Run

EDA

Data Pulling
Feature Engineering

MODELING

What Models?
How it failed

ARIMA

Failed Results

EDA

What was different?

MODELING

What was the results?

TABLE OF CONTENTS

Locations Selected

Cheung Chau
Hong Kong Airport
King's Park



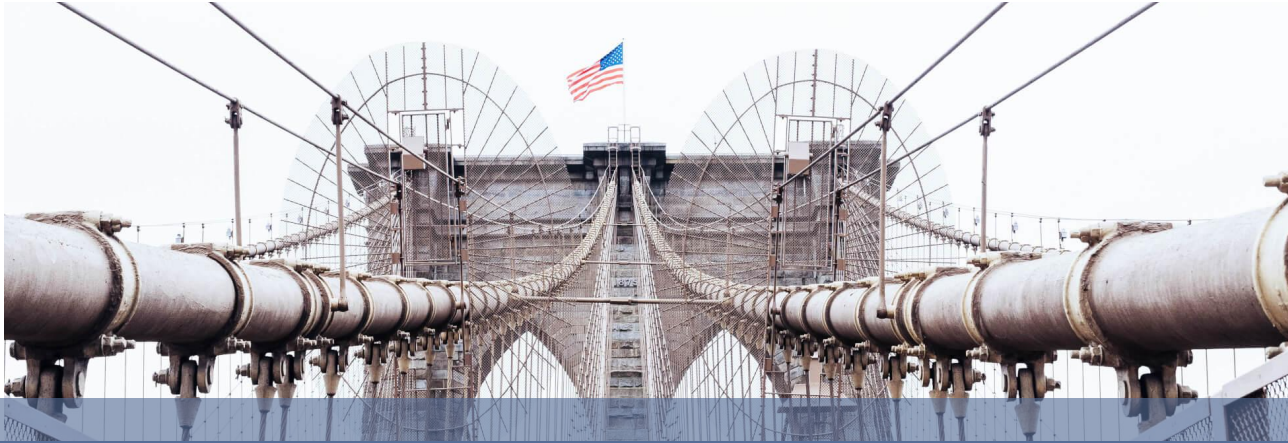
How I selected? - Looks nice on Google maps



DATA PULLED

Maximum Temperature
Minimum Temperature
Mean Temperature
Sunshine Values
Wind Speed
Wind Angles
Dates in float format

EDA - Feature Engineering



Date Transformation

Date were in float.
Changes were made to
change to datetime

Seasons

One-hot encoding of
season, Spring, Summer,
Autumn, Winter

Scaling

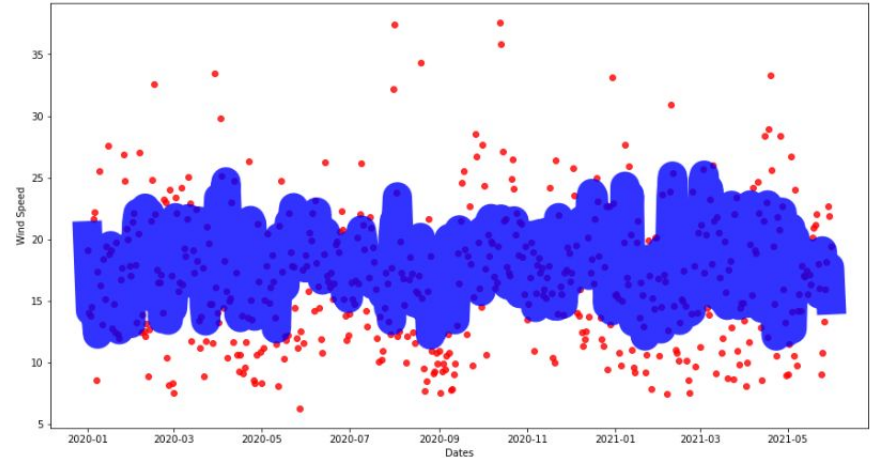
Max-min
Standard Scaling

	Year	Month	Day	Temperature	Day_Mm	Day_SS	Wind	Temp_Diff	Sun	Wind_log	Spring	Summer	Autumn	Winter	Month_str	Day_str	Date
258	2018	9	16	26.266668	0.517241	0.057767	74.699997	8.166668	0.0	4.313480	0	0	1	0	09	16	2018-09-16
259	2018	9	17	27.266668	0.551724	0.173301	42.250000	3.866665	1.3	3.743604	0	0	1	0	09	17	2018-09-17
577	2019	8	1	26.199999	0.000000	-1.677051	43.450001	2.633331	0.0	3.771611	0	1	0	0	08	01	2019-08-01

Failed Results



Best score for Ridge Regression on no scaling is - 0.13836111614135033 , and test score is - 0.15358482114740568 ,
arameters are - {'alpha': 20, 'max_iter': 10000}

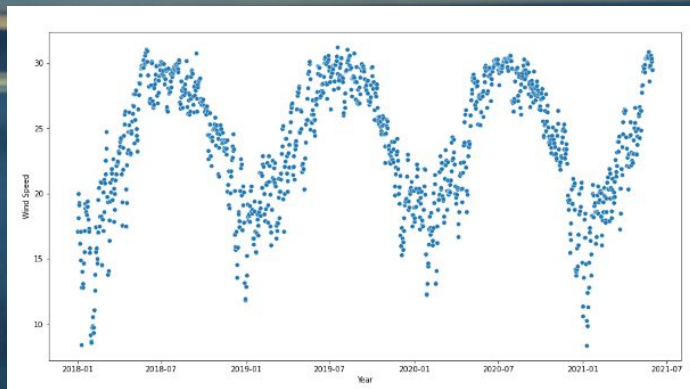


Best score for Random Forest on no scaling is - 0.0899727716130025 , and test score is - 0.13256196614653915
meters are - {'n_estimators': 20}

A nighttime photograph of a city street, likely in a Mediterranean or European city, featuring multi-story buildings, palm trees, and streetlights. The image is used as a background for a presentation slide. A semi-transparent dark blue rectangular box is overlaid on the lower-left portion of the image, containing the text "So will ARIMA work?".

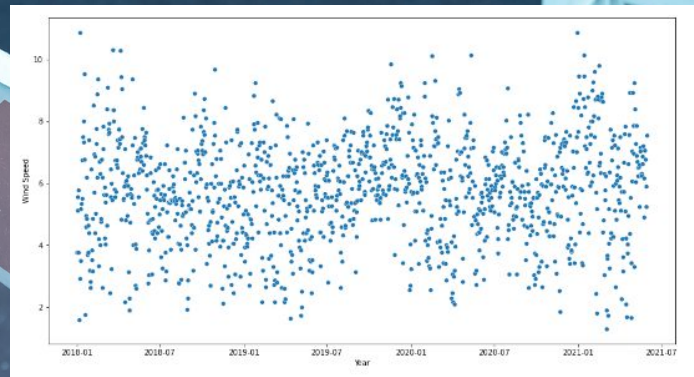
So will ARIMA work?

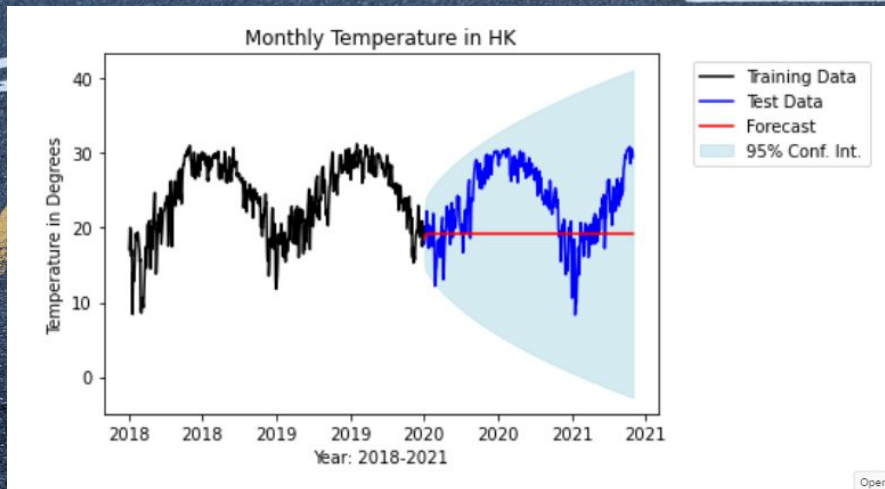
Relooking EDA



Wind vs time

Temperature vs time





NOPE! Didn't work!

ARIMA

A photograph of the Manhattan Bridge, showing its iconic blue steel towers and suspension cables. The bridge spans a city street, with brick buildings visible on either side. A semi-transparent blue rectangular overlay is positioned in the center of the image, featuring the text 'LSTMs' in white. A street lamp is visible in the foreground on the left.

LSTMs

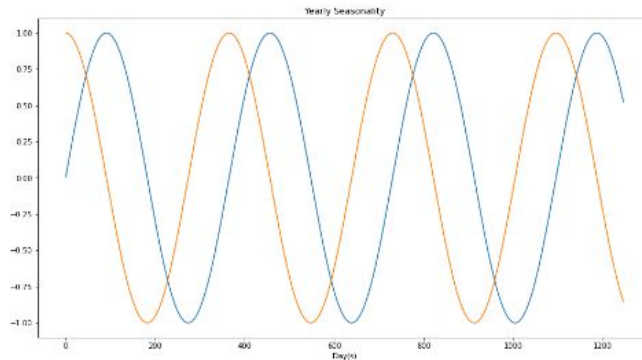
EDA AGAIN

01

Wind Values can be converted from Speed + Angle to X and Y Vector

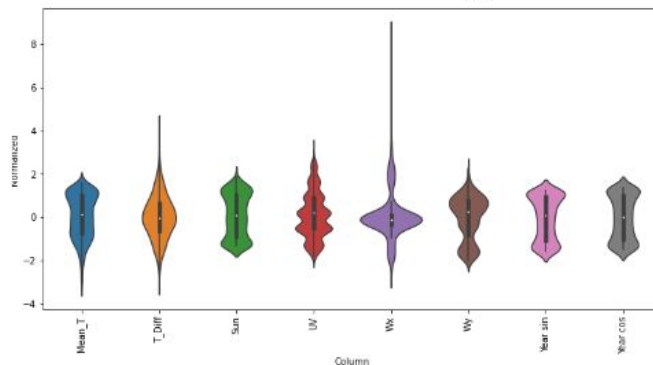
02

Datetime can be converted into a cosine and sine wave for periodicity

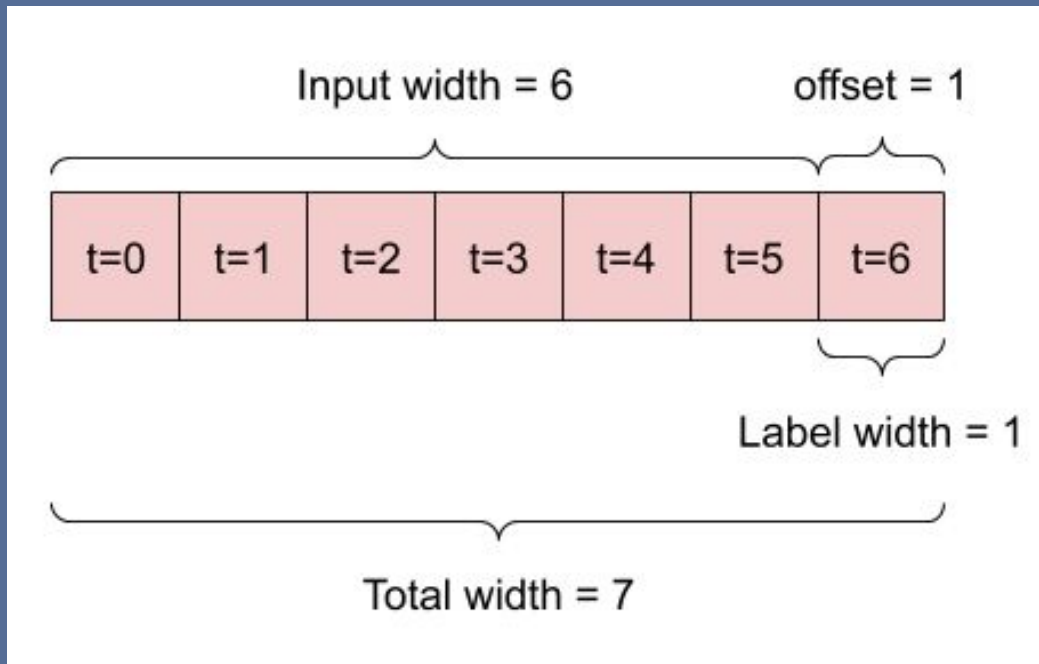


03

Normalize data with $(x - \text{mean}) / \text{std}$



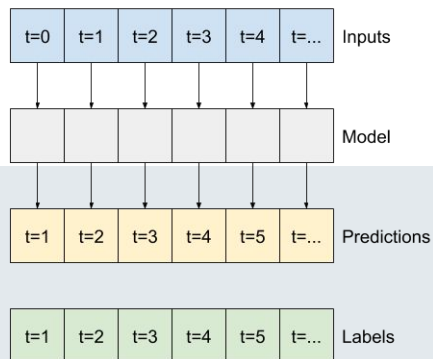
Windowing for time steps



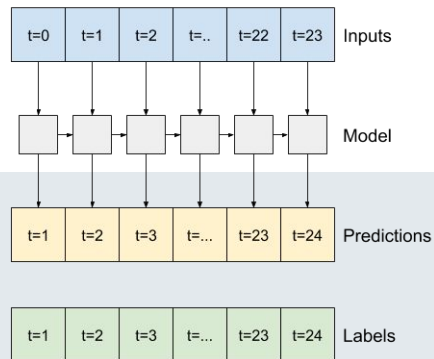
Single Step Model

Model

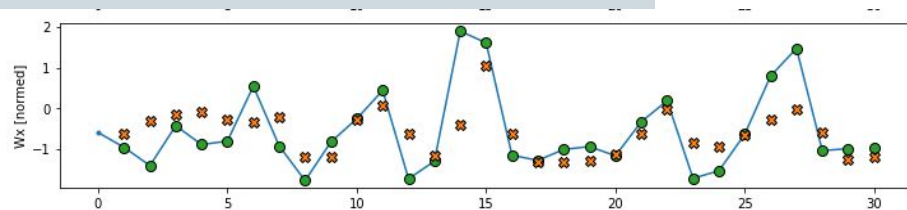
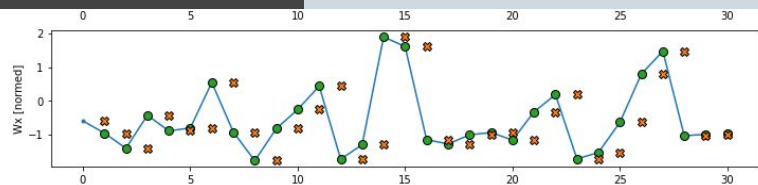
Baseline



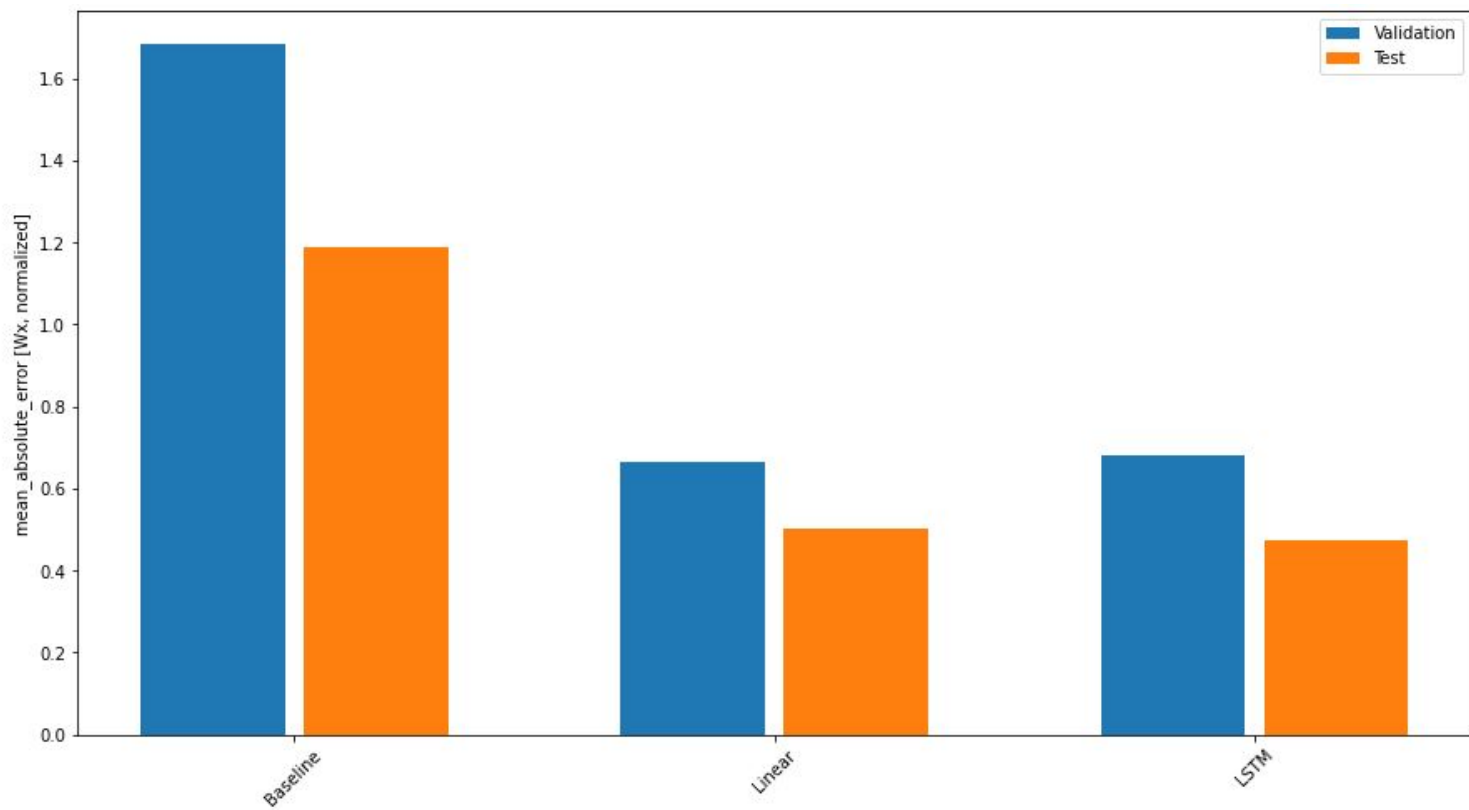
LSTM



Results

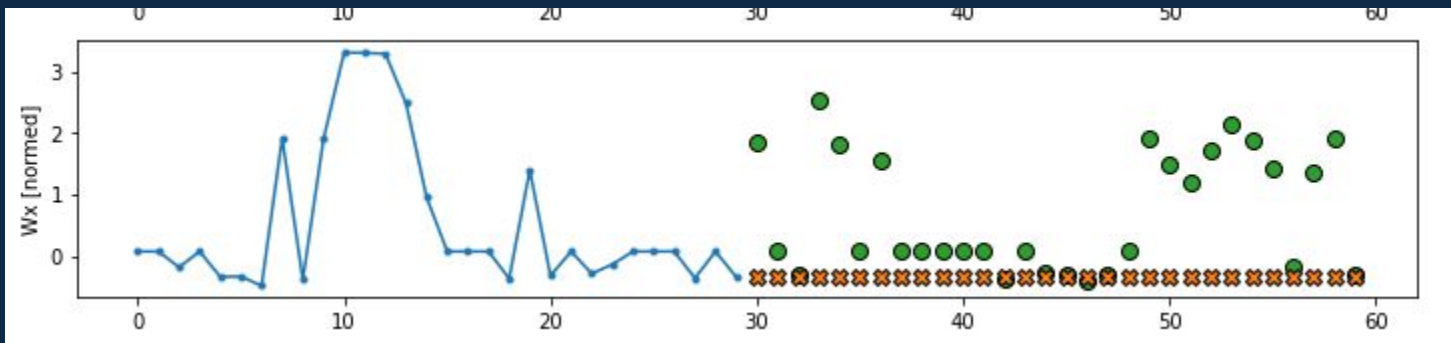


RMSE

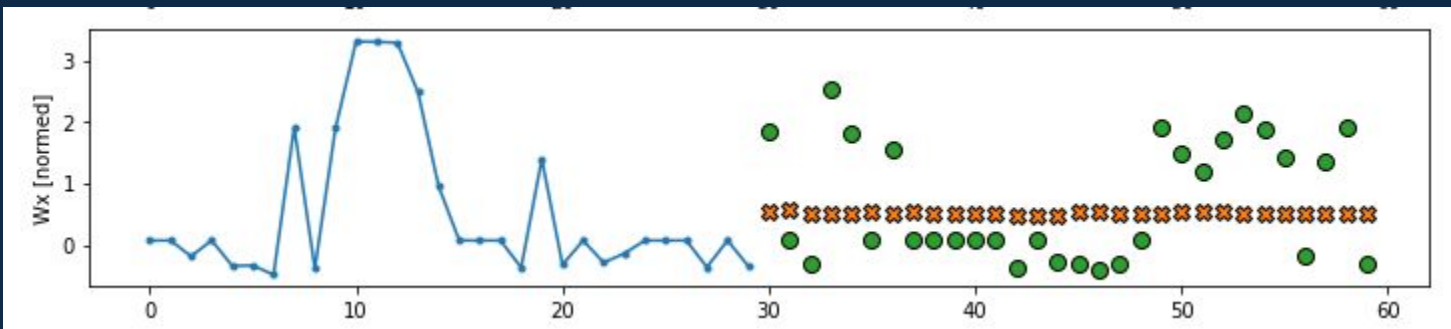


Multistep Model

Baseline



LSTM



Conclusion and Drawbacks

Due to the lack of feature variables, more could be done to enhance the data model to achieve a better fit.

For the current project, I am using a basic LSTM model, more can be done to include more layers to enhance the parameters further.

Stronger LSTM models can be explored upon to increase better fitting.

Wind measurements in coastal areas might not be a good fit because of the data varies too much on a single time step

TANK YOU

VIA 9GAG.COM



memegenerator.net