LIONEL MESSI VS CRISTIANO RONALDO

GOAL SCORING ANALYSIS

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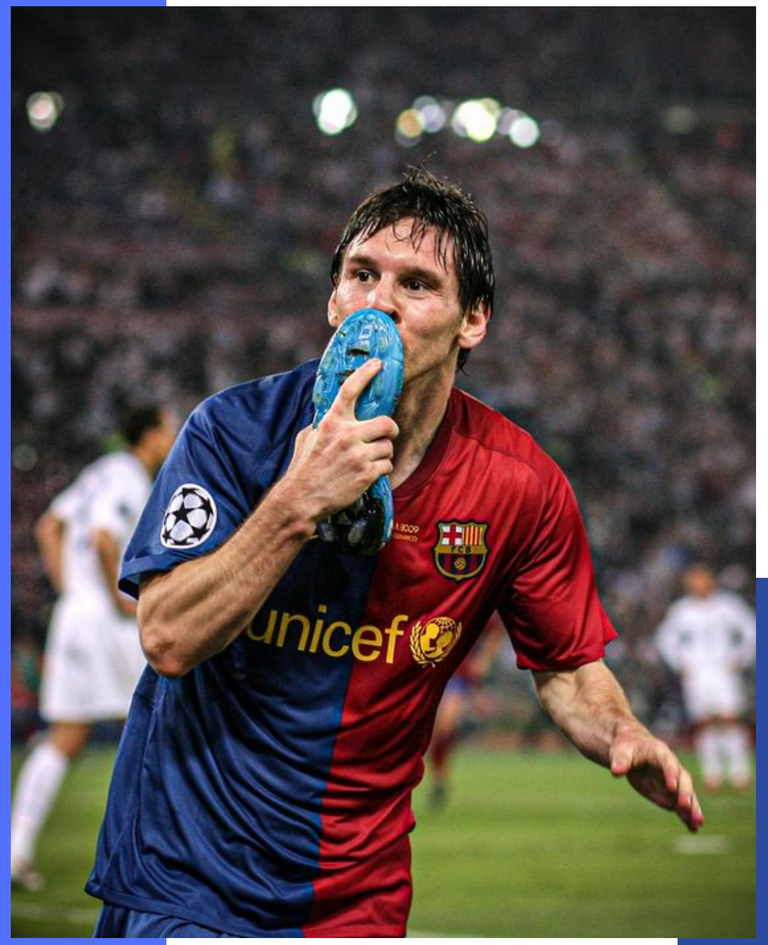
AGENDA

1. GOAL SCORING RECORDS
2. OUR AIM AND DATASET
3. TIME SERIES FORECASTING TECHNIQUES
4. RESULTS AND CONCLUSIONS



LIONEL MESSI

ALL TIME LEADING GOAL SCORER OF BARCELONA AND ARGENTINA

- First Official Goal on 1st May 2005 for Barcelona
- First Hat-Trick on 10 March 2007
- Absolute Record of 91 Goals in a Calendar Year
- 105 Minutes per Goal

CRISTIANO RONALDO

ALL TIME GOAL SCORER OF REAL MADRID AND PORTUGAL

- First Official Goal in 10 October 2002 for Sporting
- 113 Minutes per Goal
- 63 Hat-Tricks for Career
- All Time Top Scorer of Champions League

OUR AIM

USING THE MONTHLY GOAL RECORDS OF MESSI AND RONALDO UP TO 2019 MAKE PREDICTIONS FOR THE REST OF THE SEASONS AND COMPARE TO REAL VALUES

ABOUT DATASET

WE USED A DATASET FROM KAGGLE WHERE EACH ROW REPRESENTS A GOAL OF MESSI OR RONALDO WITH CORRESPONDING DATE, POSITION, TEAM, OPPONENT AND HOW THE GOAL WAS SCORED.

THE DATA WAS CLEANED AND THEN WE SEPARATED THE RECORDS FOR MESSI AND RONALDO.

IS DATA STATIONARY?

ADF

AUGMENTED DICKEY-FULLER TEST SHOWED THAT SERIES FOR MESSI WAS STATIONARY AND SERIES FOR RONALDO WAS NOT.

KPSS

KPSS TEST SHOWED THE SAME RESULTS FOR BOTH OF THE SERIES AS ADF TEST RESULTS.

MODELS WE USED

SARIMA

We used an autoregressive integrated moving average model based on ACF and PACF plots for both datasets and made the predictions for goals of last seasons.

SHOWED BETTER MSE FOR MESSI

VAR

The vector autoregressive model was used to understand the pattern in the relationship of Messi's goals to Ronaldo's goals.

UNEXPECTED RESULTS

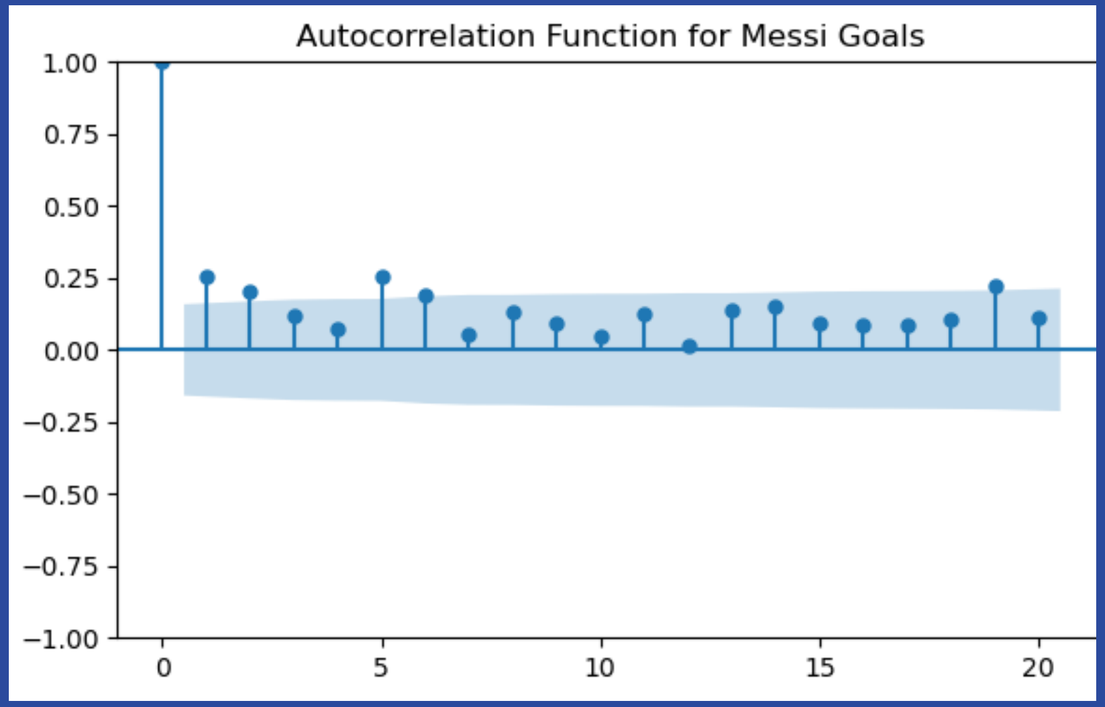
HOLT WINTER'S

Holt Winter's or exponential smoothing method was also used to make predictions for the goals of last seasons.

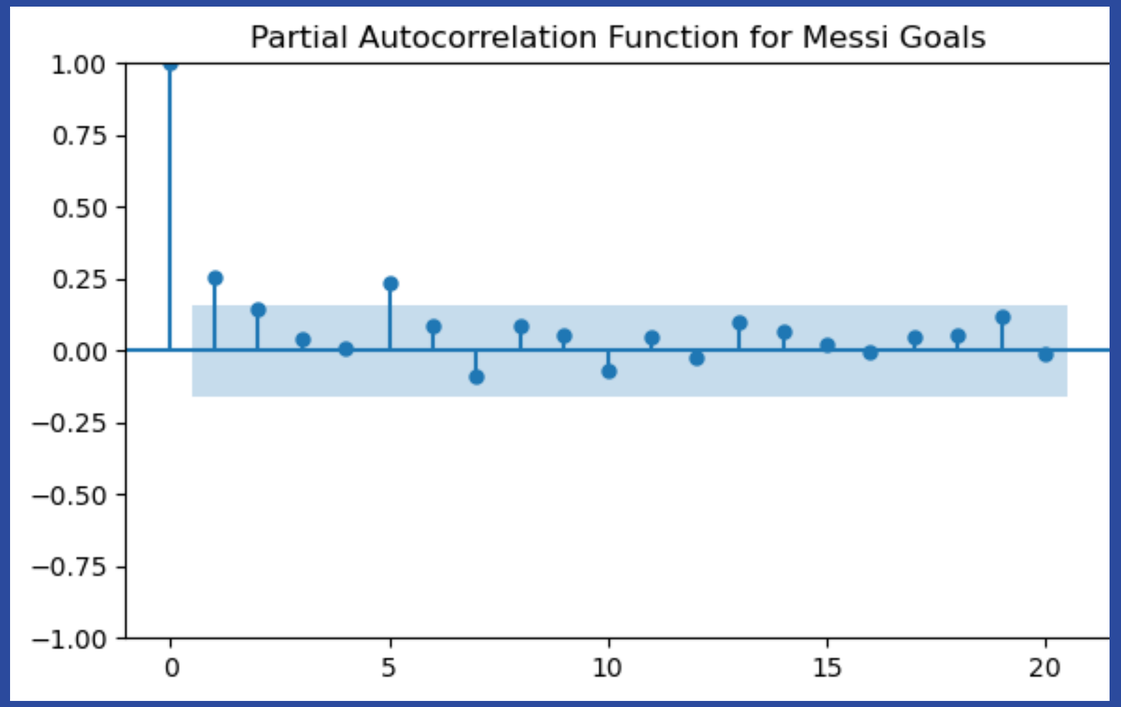
SHOWED BETTER MSE FOR RONALDO

MESSI SERIES

ACF

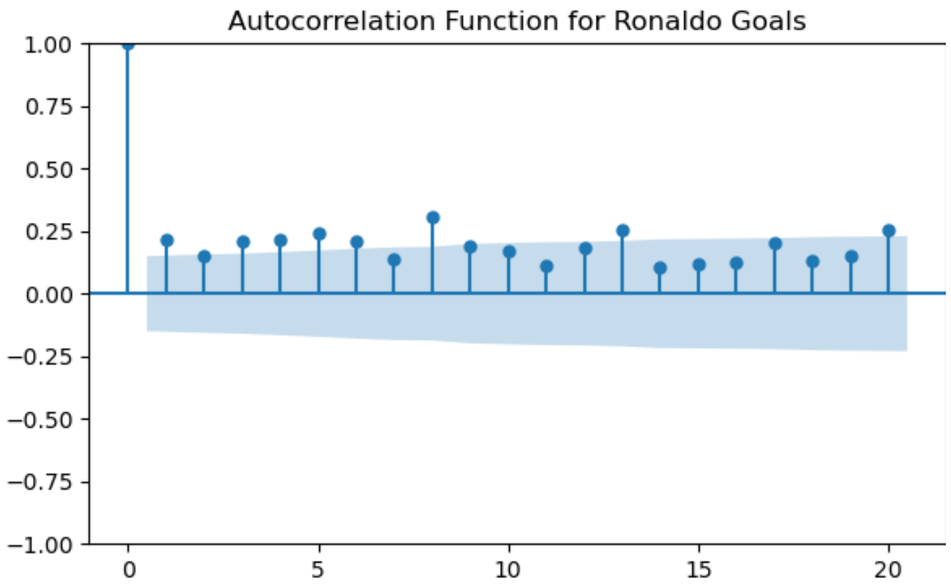


PACF

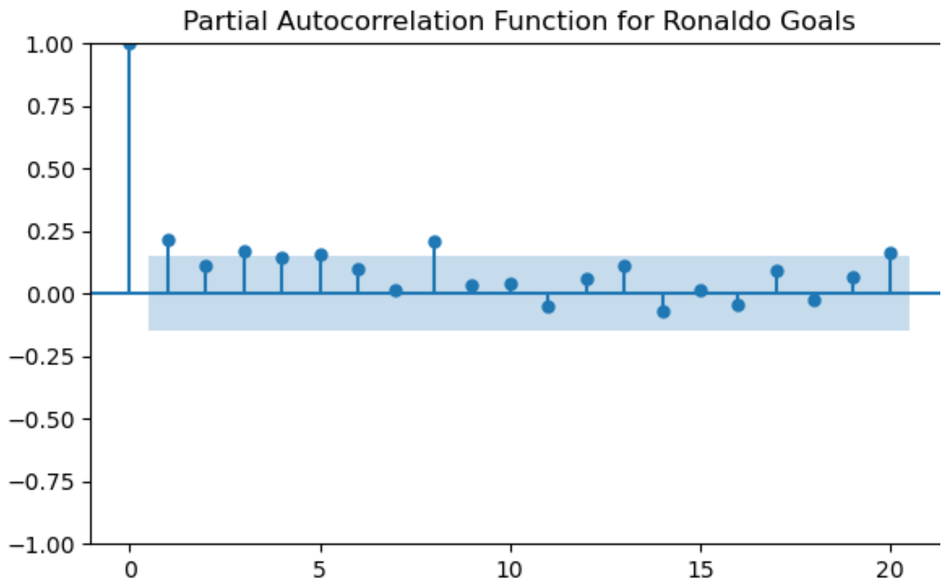


RONALDO SERIES

ACF

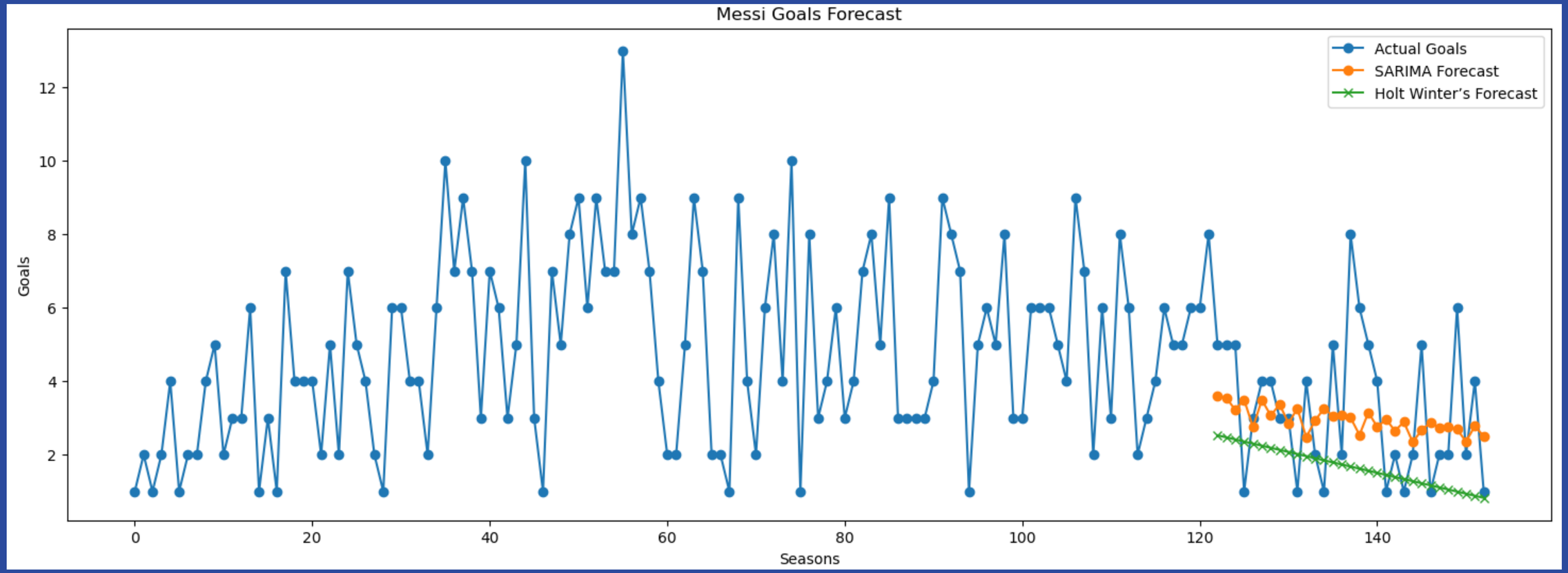


PACF



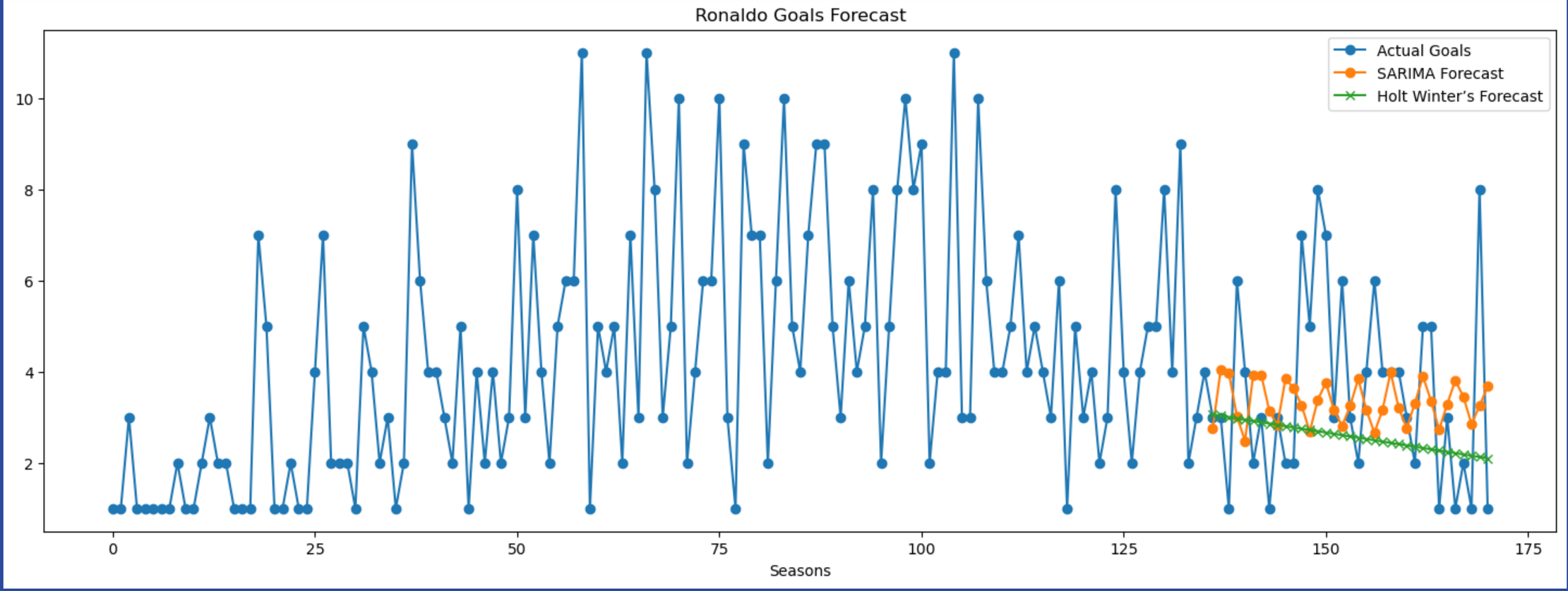
FORECASTS FOR MESSI

SARIMA(4, 0, 4)(1, 0, 1, 12) AND HOLT WINTER'S FORECASTS COMBINED



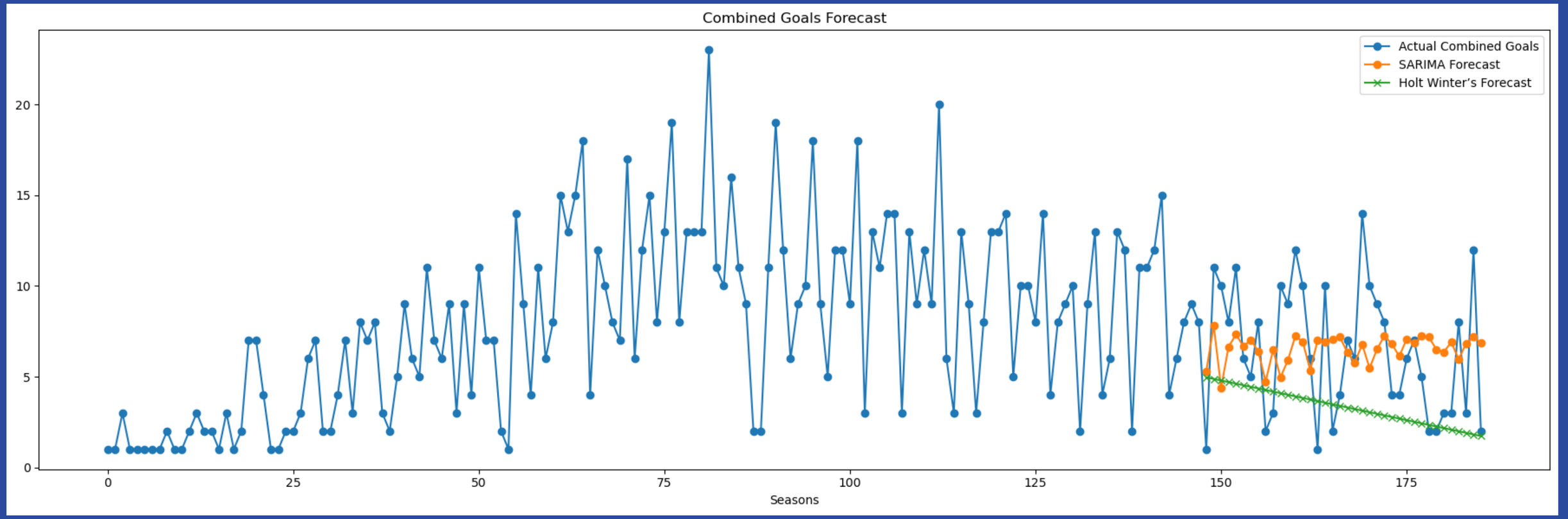
FORECASTS FOR CRISTIANO

SARIMA(4, 1, 4)(1, 0, 1, 12) AND HOLT WINTER'S FORECASTS COMBINED



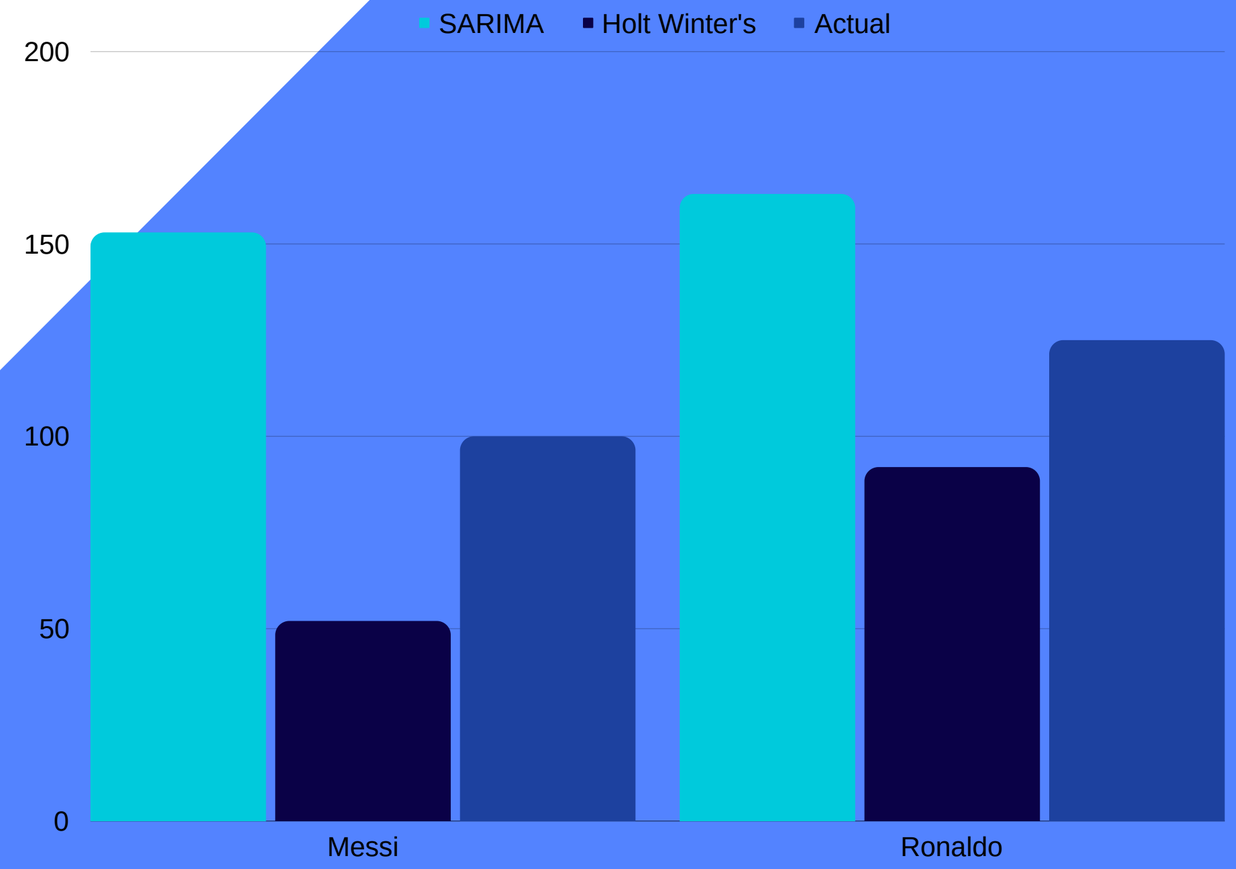
ANALYSIS OF COMBINED GOALS

SARIMA(4, 1, 4)(1, 0, 1, 12) AND HOLT WINTER'S FORECASTS COMBINED

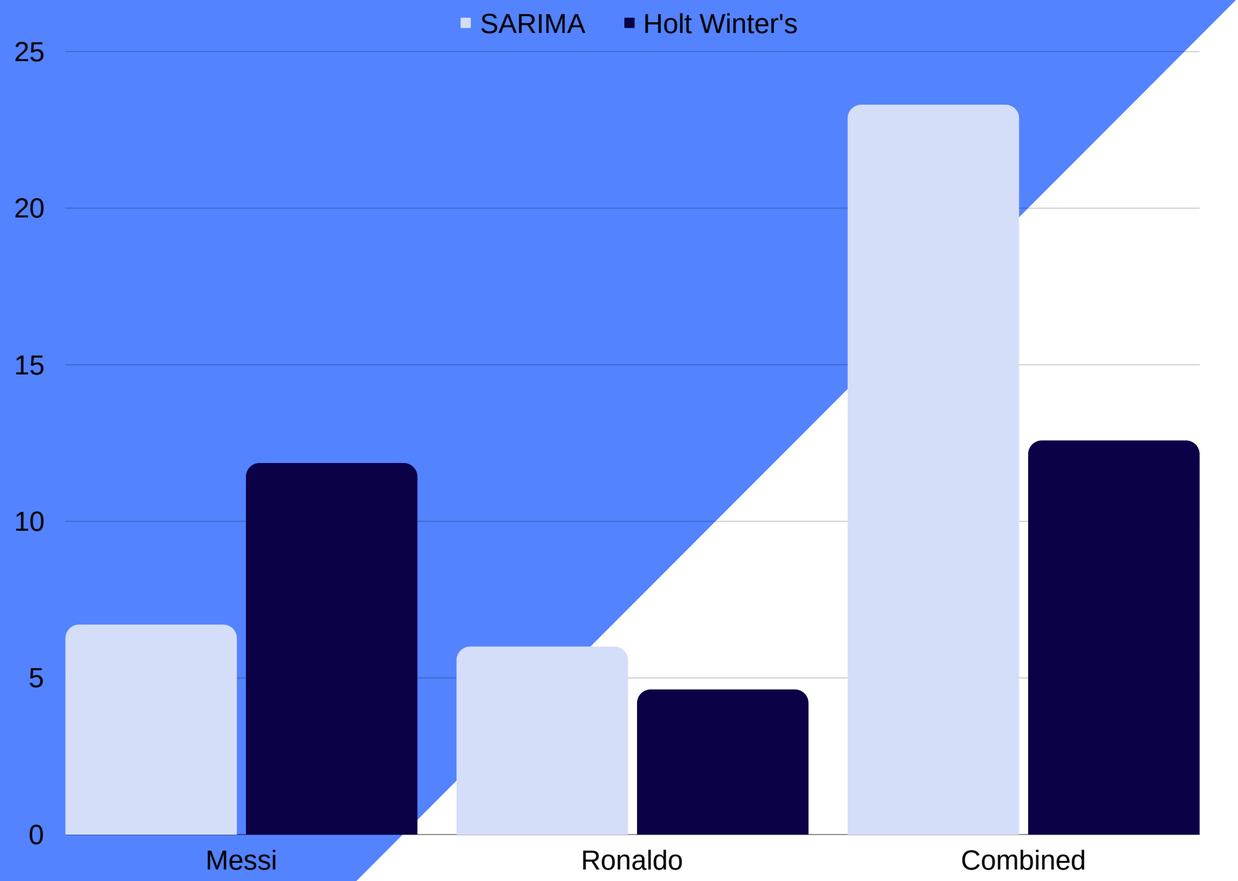


WHICH MODEL PERFORMED BEST

Forecasted VS Actual

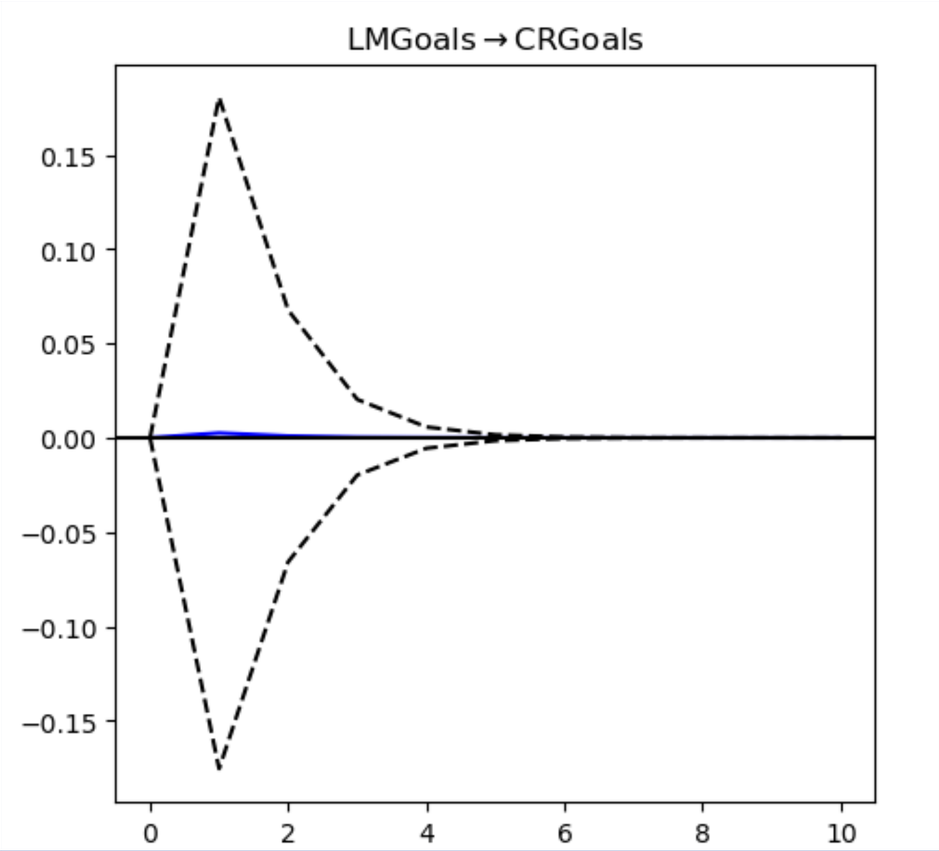


MSE of The Forecasts

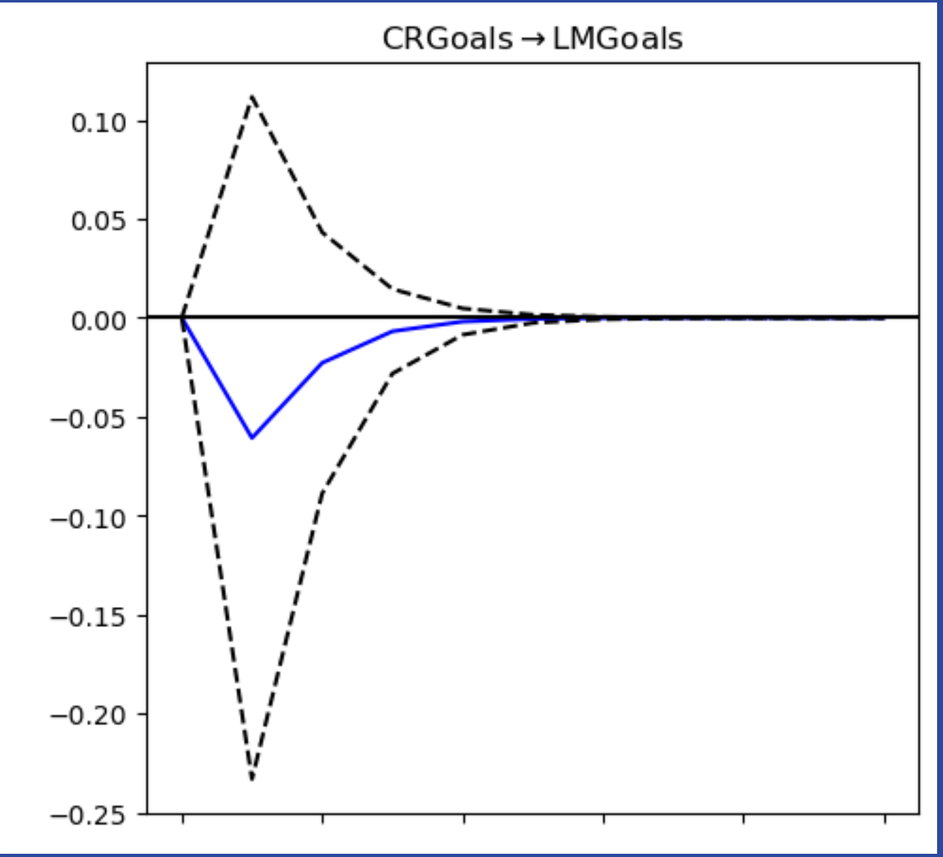


VAR RESULTS

MESSI TO RONALDO



RONALDO TO MESSI



THANK YOU!

IF YOU HAVE ANY QUESTIONS,
PLEASE ASK THEM!