

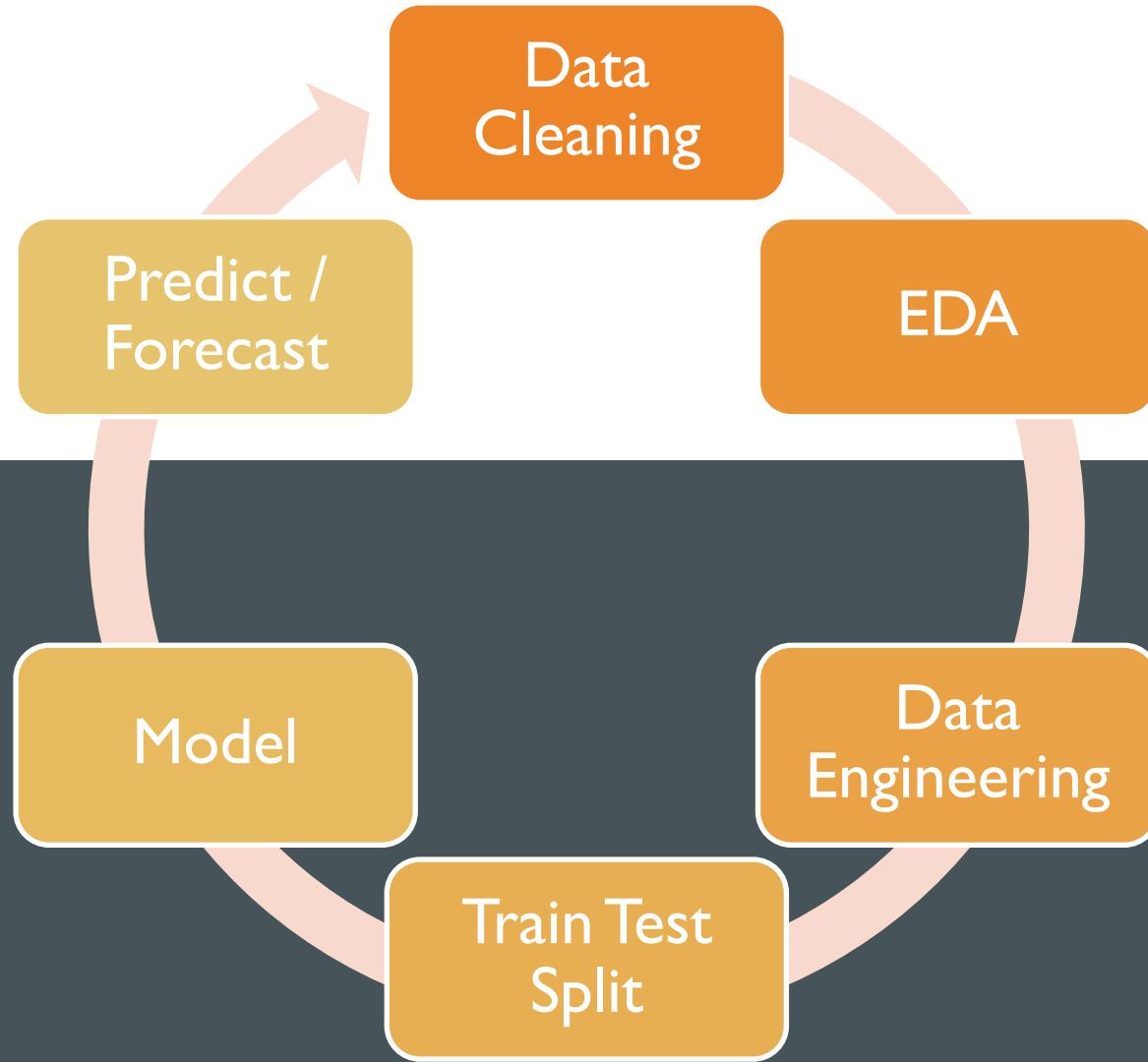
# COVID-19

JIGME SHERPA &  
MEAGAN ROSSI

MARCH 27, 2020

# WORKFLOW

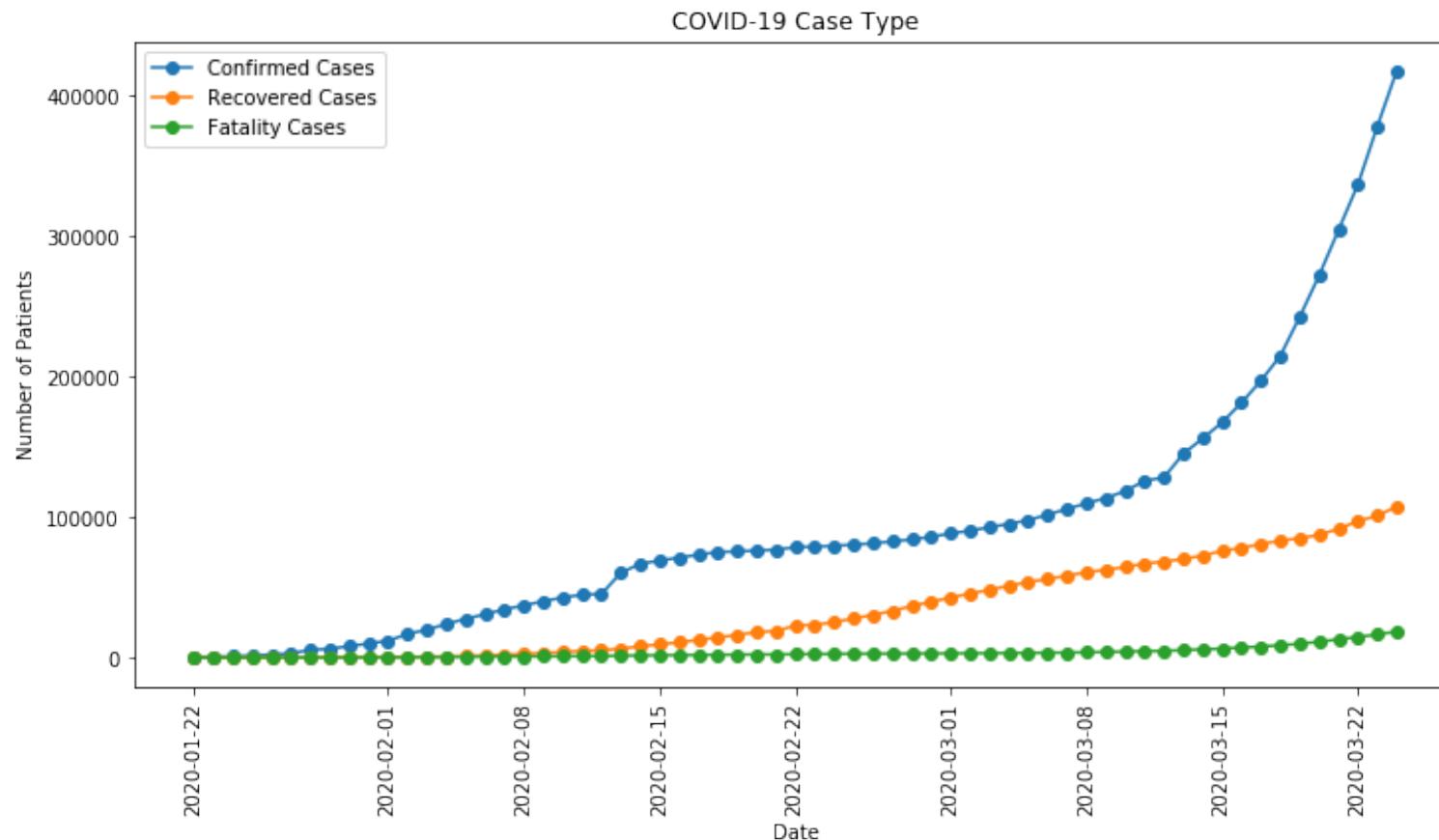
AGILE PROJECT MANAGEMENT



# GLOBAL COVID-19 CASES

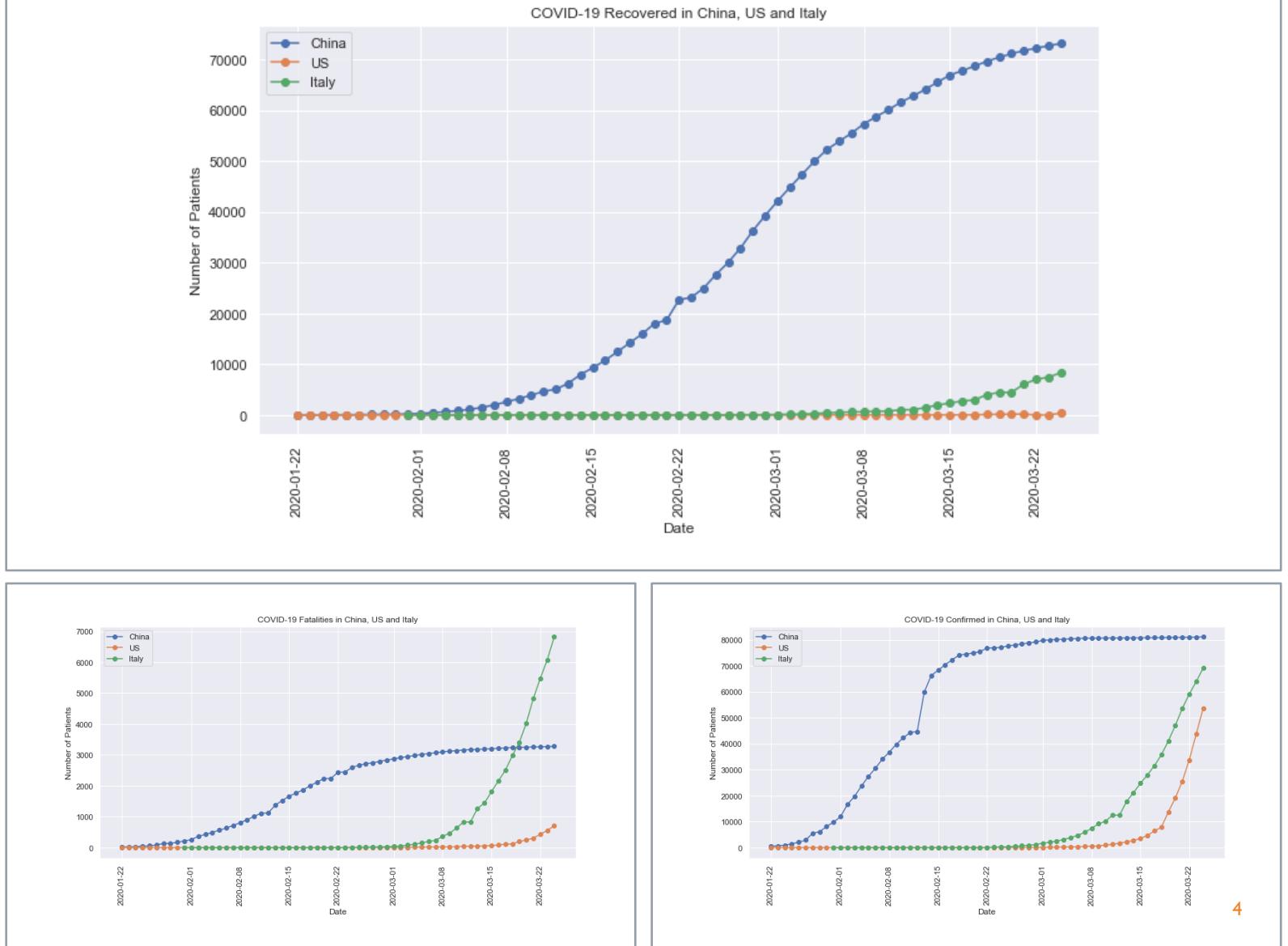
AS OF 3/22/2020

Description	Case Count
Total number of countries	205
Total number of Confirmed	417,966
Total number of Recovered	107,705
Total number of Fatalities	18,615



# CASES IN CHINA, US & ITALY

- Recovered, Fatalities and Confirmed
- China was able to ‘flatten the curve’



# Statistic

ADF Test Statistic
P-value
No. of Observations
Lags Used
Critical Value 1%
Critical Value 5%
Critical Value 10%

## Confirmed Cases

0.512

0.99

1

48

-3.57

-2.92

-2.60

## Confirmed, Logged

-9.60

1.99

0

49

-3.57

-2.92

-2.60

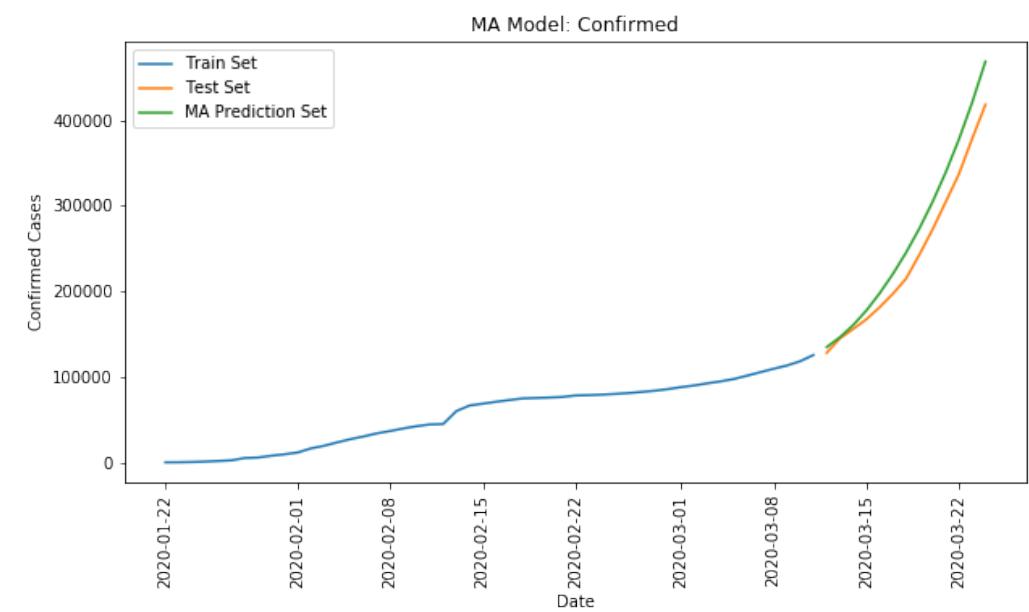
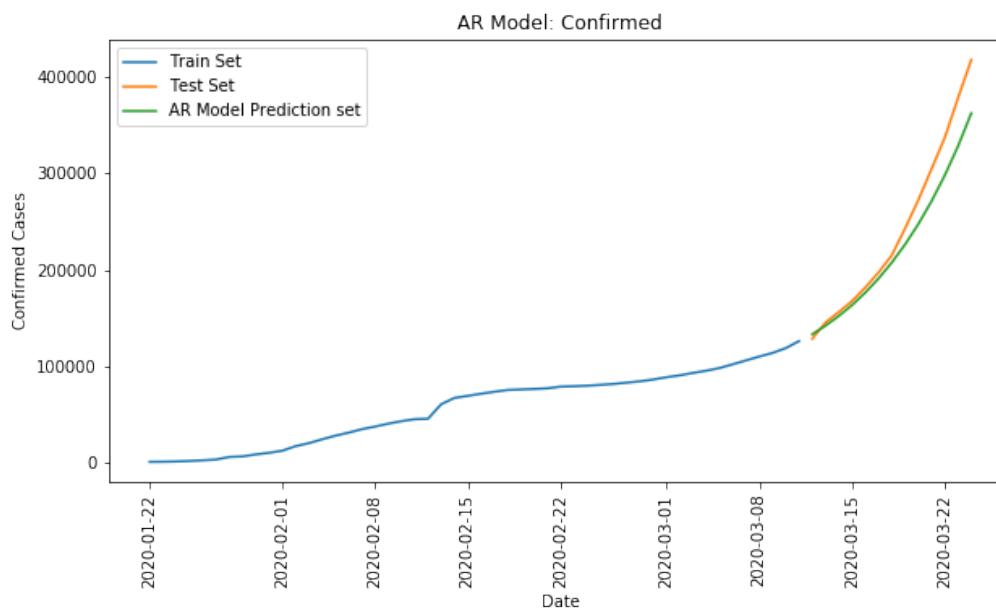
# DICKEY-FULLER TEST

Log data to aim for stationarity

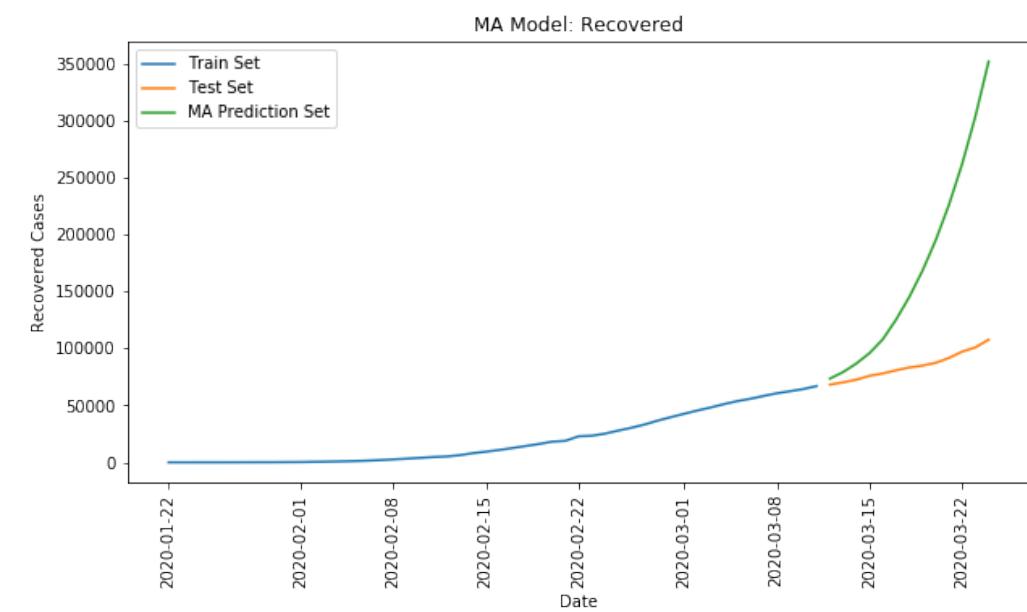
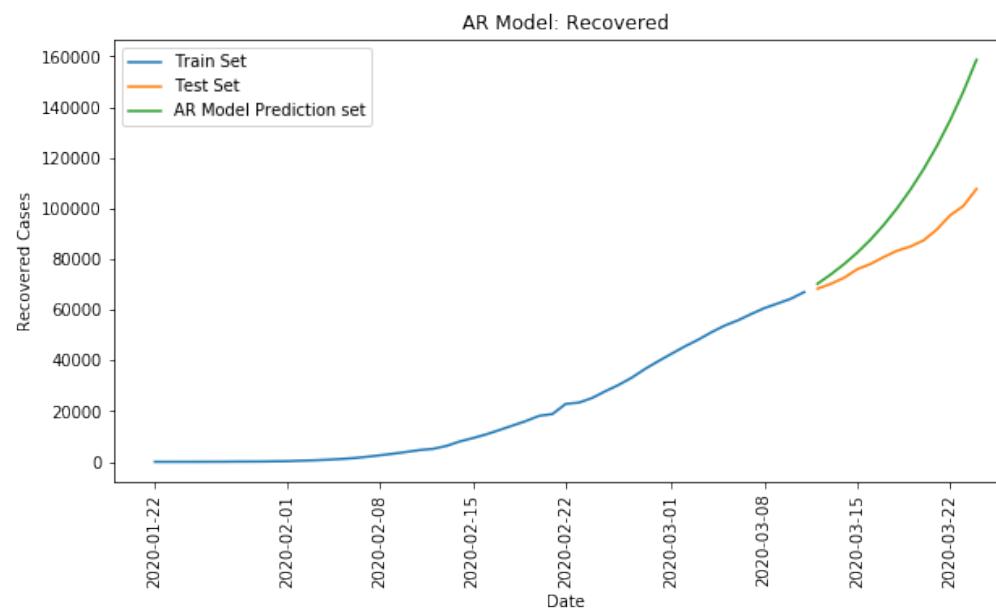
If test statistic < critical value,  
reject the null hypothesis  
(series is stationary)

# AR & MA MODEL PREDICTIONS

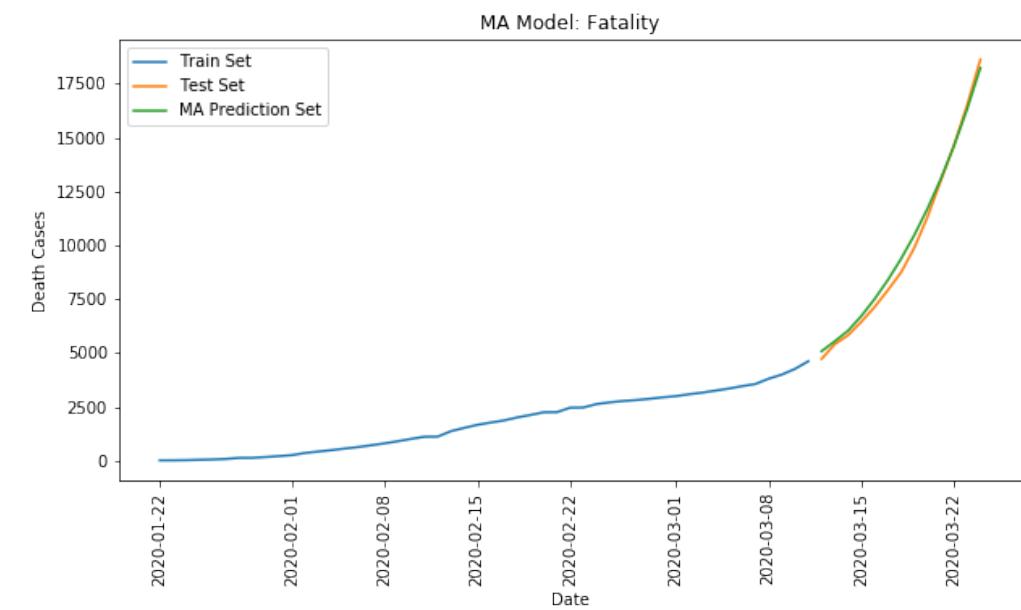
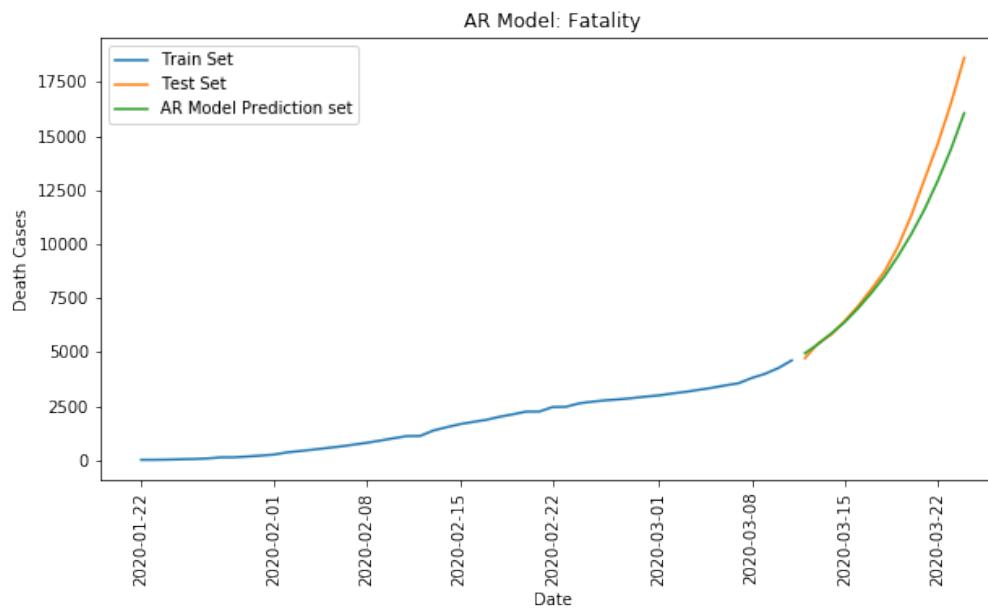
## CONFIRMED



# AR & MA MODEL PREDICTIONS: RECOVERED

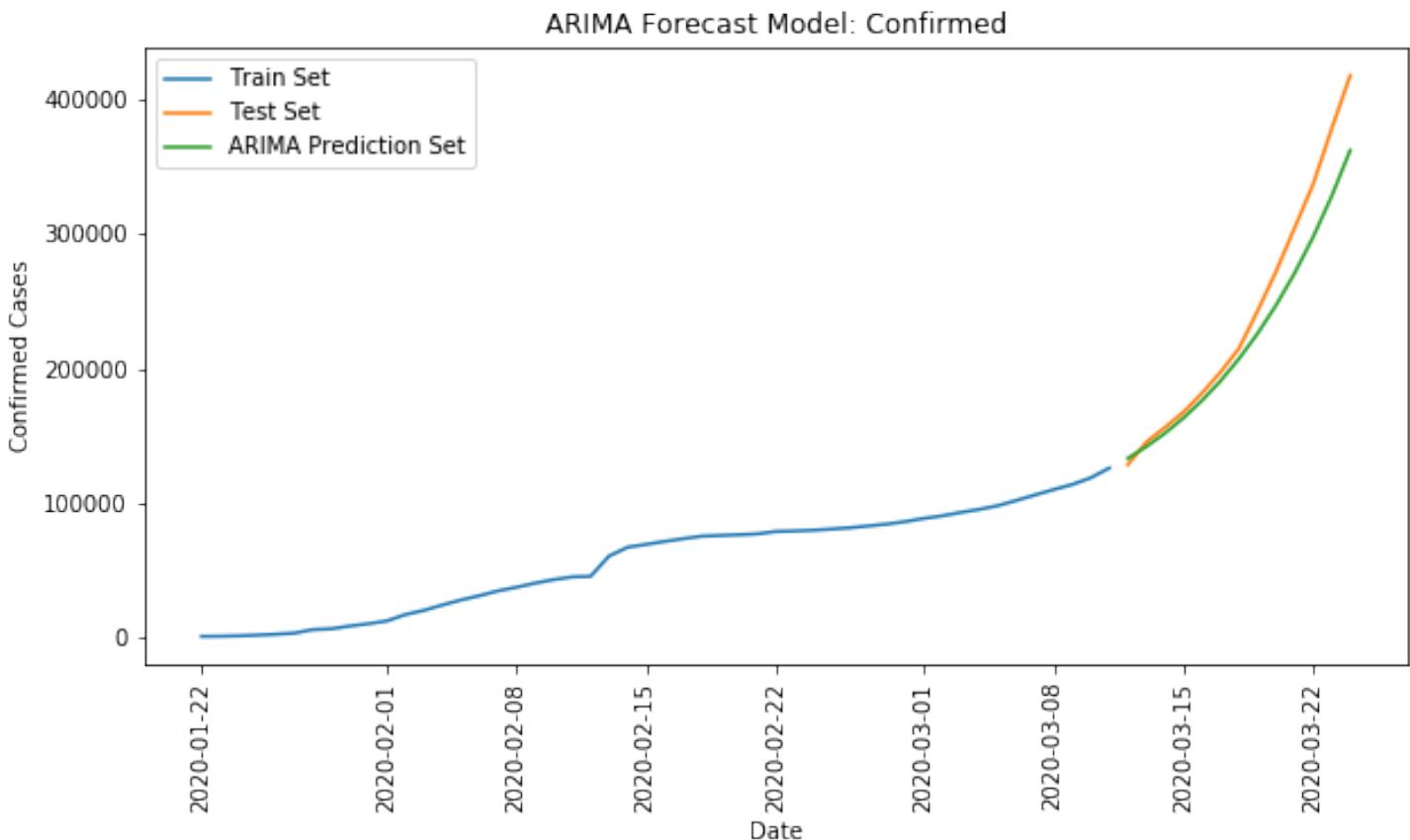


# AR & MA MODEL PREDICTIONS: FATALITY

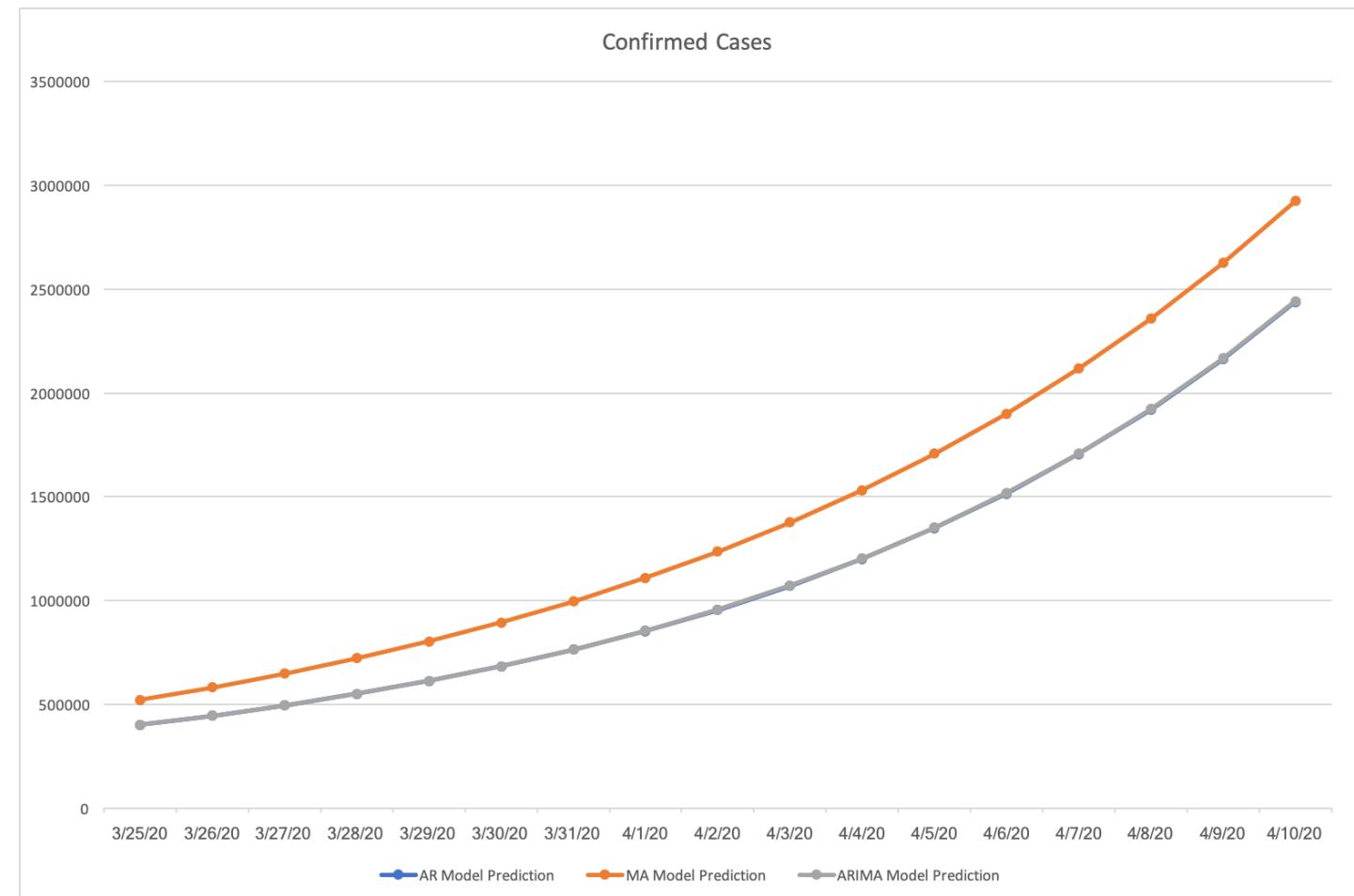
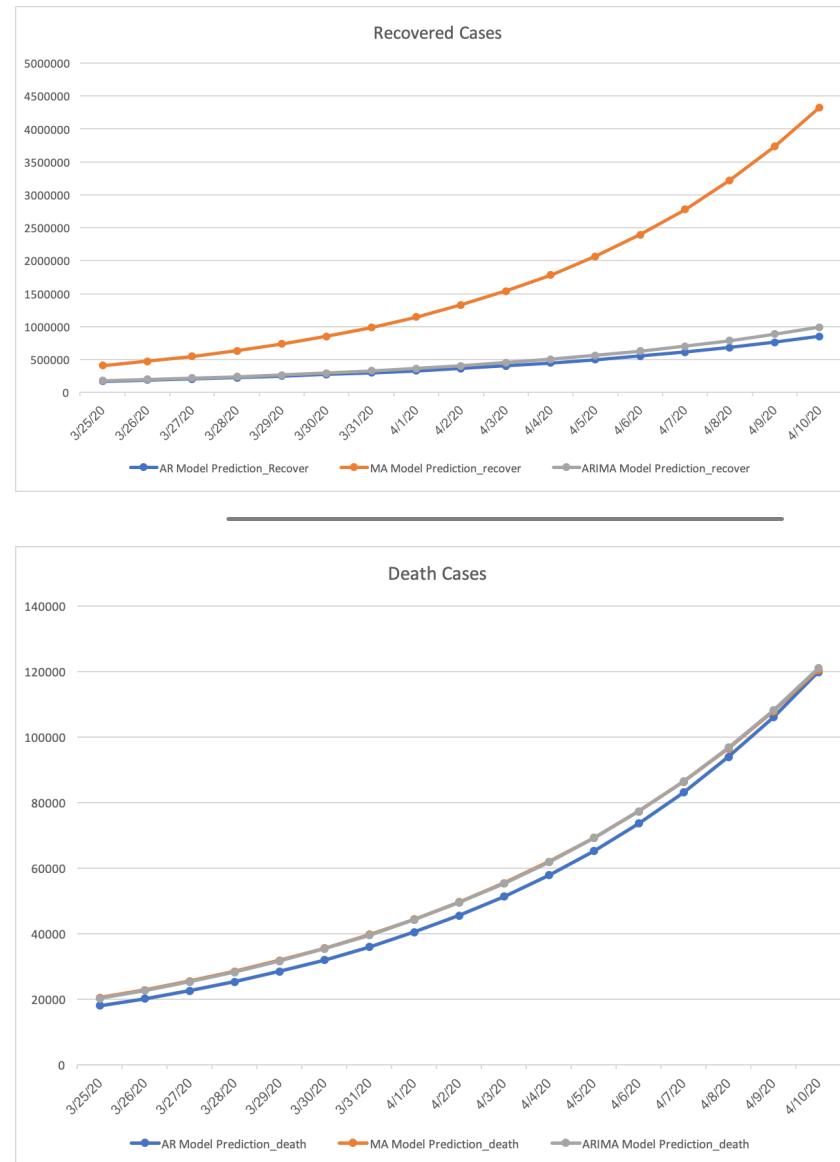


## ARIMA FORECAST MODEL: CONFIRMED

- Autoregressive Integrated Moving Average
- Relate the present value of a series to past values and past prediction errors
- Best model:
  - Highest log likelihood
  - Lowest AIC
- Order =  $(p,d,q) = (1,1,2)$



## MODEL PREDICTIONS & FORECASTING





## Data

Incorporate real-time feed



## Analysis

Add granular country data



## Model

Evaluate impact of exogenous interventions

FUTURE EXPLORATION

Thank you

