Solution Sheet

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COURSE: MTECH IN ARTIFICIAL INTELLIGENT AND MACHINE LEARNING

1. Which model have you used for probability prediction? Explain your model.

   I have used two models and for final results taken the model with lowest mean square error.

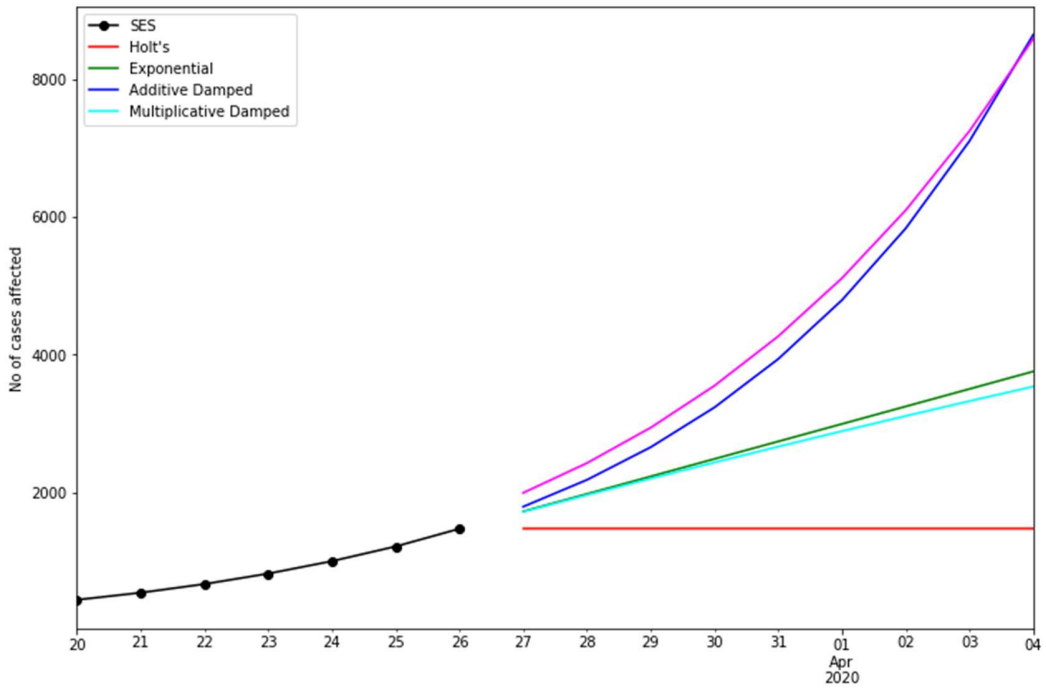
   Model 1: Deep neural network with seven layers and 77,577 trainable parameters the loss function is mean squared error, and the optimizer is Adam. I have used sigmoid activation function in the final layer since the neural network is modeled as a regression model

   Model 2: It is a linear model called Bayesian Ridge Regression. Bayesian Ridge estimates a probabilistic model of the regression problem. There are four more hyperparameters, $\alpha 1$, $\alpha 2$, $\lambda 1$ and $\lambda 2$ of the gamma prior distributions over α and λ.

   Preprocessing: for preprocessing the categorical variables are one hot encoded and the numerical variables are normalized using MinMAX scaler

2. Which model have you used for Diuresis Time series prediction? Explain your model.

For time series analysis I have used simple exponential smoothing with holts, SES, adaptive damped, exponential, Multiplicative Damped methods and graphed the results. The time series analysis can predict till April 4th, 2020

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Corona virus time series prediction

2020-03-27    1718.513726
2020-03-28    1962.168004
2020-03-29    2200.949196
2020-03-30    2434.954765
2020-03-31    2664.280222
2020-04-01    2889.019170
2020-04-02    3109.263339
2020-04-03    3325.102625
2020-04-04    3536.625125
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