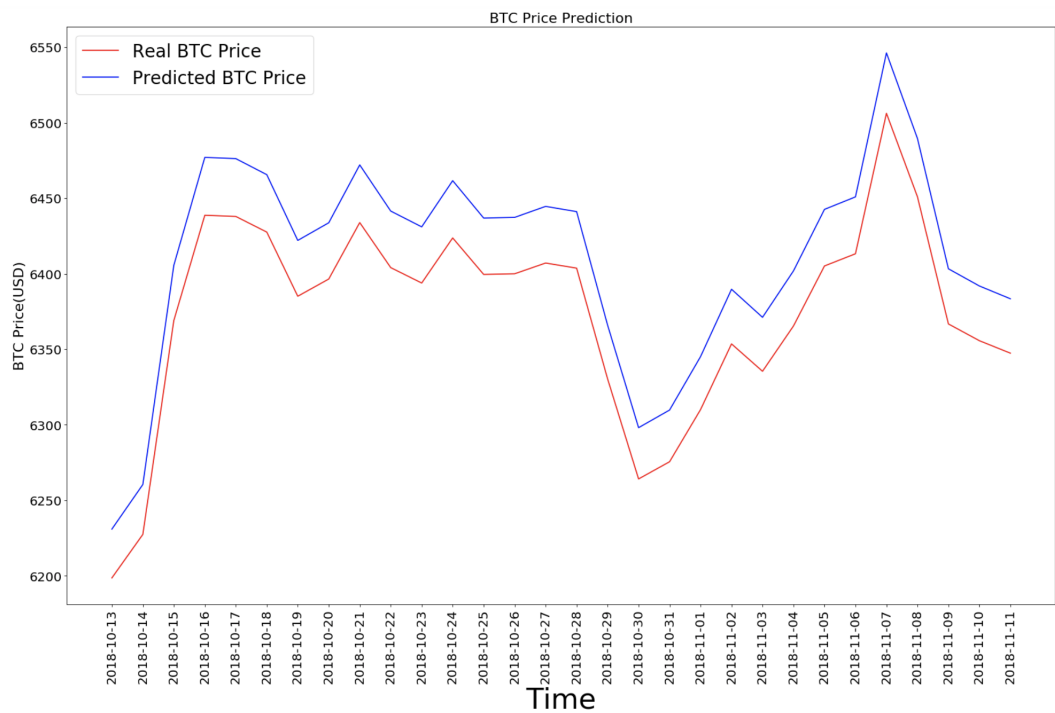


## Task 1

For the first task a model that predicts the price of bitcoin must be created. Since the timestamps in the dataset are in Unix time, first I converted that column in datetime. Then I considered to take the mean BTC price during a day, so I grouped the records in the dataset and computed the mean of the prices for each day. I consider as training set all the records in the dataset, but the last 30 days will be used as test set. The trainins set was shifted by a day, in order to have the prediction for the next day. I scale the training set using the MinMaxScaler and then I create the model. The model is sequential, with an LSTM layer instantiated with 4 units, and 'tanh' as activation function. Then I added a Dense layer. The optimizer used was 'adam' and the loss was MSE. Then the training data was fit using 5 as batch size and 15 epochs. Then the normalization and reshaping steps were done also for the test set, and used as input to the predict function. Thanks to the MinMaxScaler, the predicted values were transformed back in real prices, and plot in order to have a comparison with the real BTC prices for the last 30 days.



The jupyter notebook with the code is called *HW\_first\_task.ipynb*.