

Ideation Phase

Date	19 September 2022
Team ID	PNT2022TMID13671
Project Name	Curde Oil Price Prediction
Maximum Marks	2 Marks

Problem Statement:

Crude oil is an important fuel resource for all countries. Accurate predictions of oil prices have important economic and social values. However, the price of crude oil is highly nonlinear under the influence of many factors, so it is very difficult to predict accurately. Shanghai crude oil futures were officially listed in March 2018. It is of great significance to accurately predict the price of Shanghai crude oil futures for guiding China's domestic production practice. Forecasting the price of Shanghai crude oil futures is even more difficult because of the lack of price data due to the short listing time. In order to solve this problem, this paper proposes using Long Short-Term Memory Network (LSTM) based on transfer learning to predict the price of crude oil in Shanghai. The basic idea is to take advantage of the correlation between Brent crude oil and Shanghai crude oil, use Brent crude oil for training in the early stage, and then use Shanghai crude oil to fine-tune the network.

The empirical results show that the LSTM model based on transfer learning has strong generalization ability and high prediction accuracy.

Factors Impacted :

1. Supply

Supply and demand has to do with how much oil is available. Supply has historically been determined by countries that are part of OPEC. But now, the United States is playing a bigger role in supply thanks to booming production from American shale fields. So if major oil-producing countries are pumping out a lot of crude, the supply will be high. Just look at what happened in 2014. “Saudi Arabia made the decision that they were not going to cut back production, they were going to continue to produce at record high levels,” said Tamar Essner, senior energy director at Nasdaq IR Solutions. “At the same time, you had very robust output from the United States, and from other producers around the world.” Oil prices fell sharply as producers pumped more than the world could consume. OPEC was largely blamed for the free fall in oil prices because it refused to cut down its production. But OPEC said U.S. shale drillers were to blame for pumping too much, and should cut their production first. In 1973, Arab members of OPEC put an embargo against the United States as a retaliatory measure for U.S. support of Israel during the Yom Kippur War. After the embargo, the oil supply in the U.S. was so scarce and the demand was so high, it drove the price of crude to the point that gas stations began rationing gasoline.

2. Demand

Demand on the other hand is determined by how much need there is for oil at a given time. That need is often for things like heat, electricity and transportation. The more economic growth a region sees, the more demand there will be for oil. “Economies around the world have picked

up since the financial crisis, and growth has gotten stronger so people have been using more energy,” Essner said. And then there’s the question of how the market will react to renewable energy. “A lot of this will be impacted by public policy, but at the end of the day renewable can only displace hydrocarbons if it’s economically feasible,” Essner said. “Right now, renewables are still more expensive than hydrocarbons, so consumers aren’t going to voluntarily make the switch.”