REINFORCEMENT LEARNING ON STOCK MARKET INVESTING

Stocks are one of the most dynamic environments which makes it quite difficult to determine the future with accuracy. However, stochastically we may be able to optimize the overall return from the stocks. As Reinforcement Learning uses stochastic models (via Markov Decision Process) to optimize the overall return, we try to explore various RL models to get a good overall return.

Stock market may exhibit some trend and seasonality but can exhibit high degree of unpredictability due to various reasons. Few of the well know scenarios are listed below:

* Covid-19 pandemic
* Israel-Palestine war
* Russia-Ukraine war
* Diplomatic dispute between India and Canada

Even across stocks, we can see that small-cap stocks are highly volatile due to pump and dump strategies adopted by market manipulators. Large-cap (and mid-cap to some extend) are comparatively immune to market manipulation strategies.

To derive best **ROI** (**R**eturn **O**n **I**nvestment), it is crucial to figure of the best time to **BUY** and best time to **SELL**. This implicitly also mean that we must know how long should we hold the stock before selling it off.

To aid us in decision making about the stocks, we have **Technical Indicators** to our rescue. These are various time series models which can tell us about the best time to BUY/SELL our stocks. These are not 100% accurate models, but when used together can provide us some better insights about the stock and can help in maximizing the overall return.

Few of the commonly used technical indicators have been listed below:

* MACD
* RSI
* BOLLINGER BAND

In tandem, people also use the support and resistance levels to figure out the best price to invest or exit from the market.

<WE CAN ADD SOME INFORMATION ABOUT THE VARIOUS INDICATORS HERE>

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