Before we proceed into our relevant discussion, we will talk about the essential pre-requisites. However, feel free to use any source of your choice to read about these topics.

Financial Derivatives:

Futures:

In finance, a **futures contract** (sometimes called **futures**) is a standardized legal agreement to buy or sell something at a predetermined price at a specified time in the future, between parties not known to each other. The asset transacted is usually a commodity or financial instrument. The predetermined price the parties agree to buy and sell the asset for is known as the *forward price*. The specified time in the future—which is when delivery and payment occur—is known as the *delivery date*. Because it is a function of an underlying asset, a futures contract is a derivative product.

Options:

In finance, an **option** is a contract which conveys its owner, the *holder*, the right, but not the obligation, to buy or sell an underlying asset or instrument at a specified strike price prior to or on a specified date, depending on the form of the option. Options are typically acquired by purchase, as a form of compensation, or as part of a complex financial transaction. Thus, they are also a form of asset and have a valuation that may depend on a complex relationship between underlying asset value, time until expiration, market volatility, and other factors. Options may be traded between private parties in *over-the-counter* (OTC) transactions, or they may be exchange-traded in live, orderly markets in form of standardized contracts. The amount payable to buy the contract is called the premium.

Moneyness of Options:

The moneyness of an option contract is a classification method wherein each option (strike) gets classified as either – In the money (ITM), At the money (ATM), or Out of the money (OTM) option. This classification helps the trader to decide which strike to trade, given a particular circumstance in the market. Let's now define Intrinsic Value:

For a call option,
$$Intrinsic\ Value\ =\ Strike\ Value - Spot\ Value$$

For a Put option,
$$Intrinsic\ Value\ =\ Spot\ Value\ -\ Strike\ Value$$

If Intrinsic value if -ve, the option is said to be (Out of The Money) OTM. In this scenario, the contract is non-beneficial to the owner with loss exactly equal to the premium value.

If Intrinsic value is close to zero, the option is said to be (At of The Money) ATM. In this scenario, the contract is non-beneficial to the owner with a loss exactly equal to the premium value.

If the Intrinsic value is positive it's called (In the Money), the owner has a chance of profit, once this positive value exceeds the premium cost. Options contracts are only exercised, if they end as ITM.

Open Interest and Volume:

Open interest information tells us how many contracts are open and live in the market. Volume on the other hand tells us how many trades were executed on the given day. Open interest is a measure of the flow of money into a futures or options market. Increasing open interest represents new or additional money coming into the market while decreasing open interest indicates money flowing out of the market. The open interest number only changes when a new buyer and seller enter the market, creating a new contract, or when a buyer and seller meet—thereby closing both positions.

PCR(Put Call Ratio) is defined as follows:

$$PCR\ (OI)\ =\ Put\ open\ interest\ on\ a\ given\ day/Call\ open\ interest\ on\ the\ same\ day$$

$$PCR\ (Volume)\ =\ Put\ trading\ volume/call\ trading\ volume$$

Basic Knowledge of Programming:

A basic understanding of Programming is required.