MONTE CARLO STIMULATION FOR NIFTY 50 PROJECT

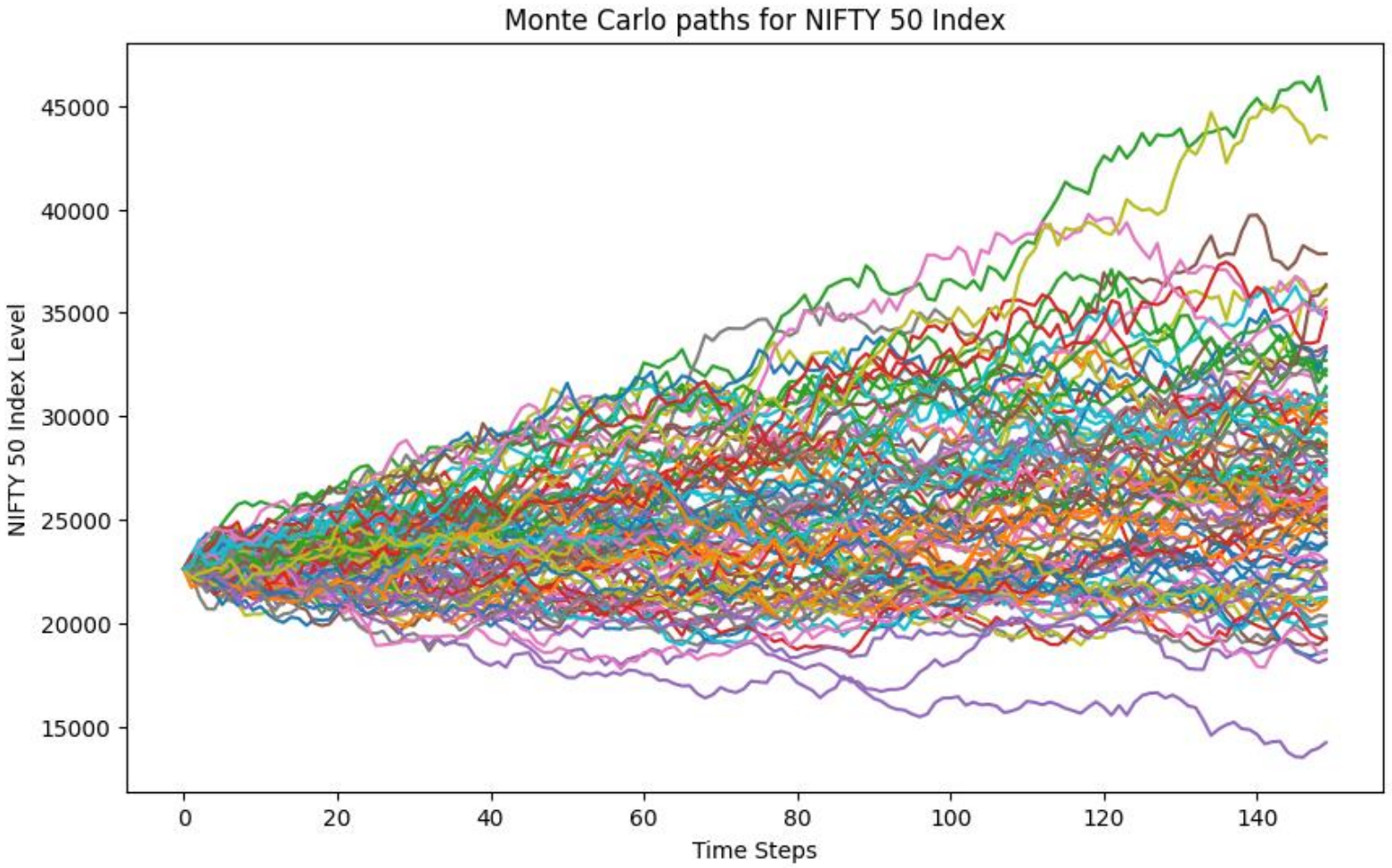
The Monte Carlo approach is a statistical method used for modeling the probability of different outcomes in a process that cannot easily be predicted due to the intervention of random variables. It's widely used in various fields such as finance, engineering, project management, and research.

Monte Carlo Simulation Method-
The future paths of the NIFTY 50 index are simulated using the GBM model with these historical values

Assumptions:
1)The drift and volatility are based on historical returns and volatility.
2)The model assumes that future movements of the NIFTY 50 index follow a stochastic process with constant drift and volatility, which may not always hold true in real markets.

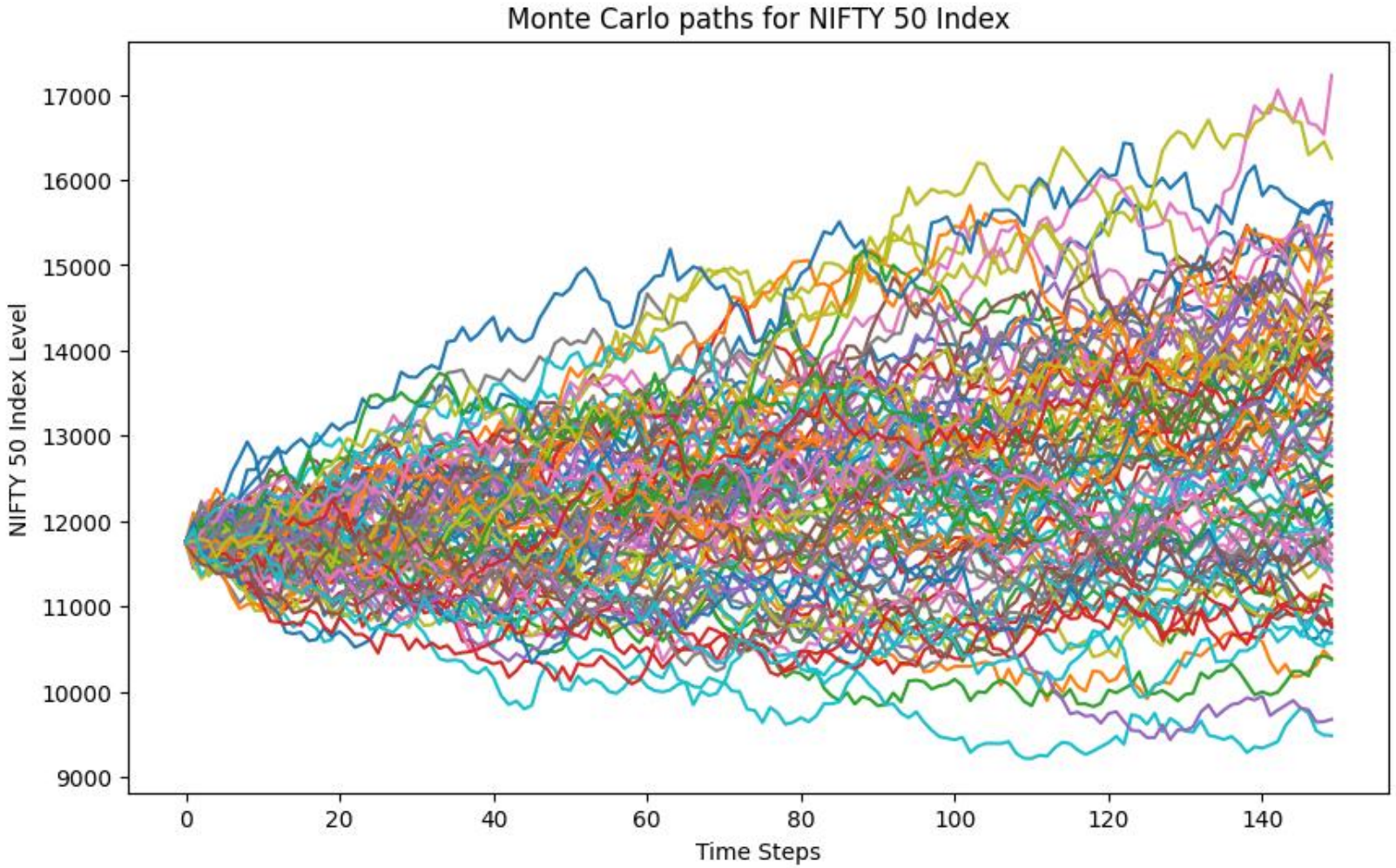
Components-
X-axis (Time Steps):
•Represents the passage of time in discrete intervals.
Y-axis (Asset Prices):
•Represents the simulated asset prices at each point in time.
Each Line (Path):
•Each line represents one **Monte Carlo simulation path** or one possible future outcome of the asset price on the assumption of random variable outcomes.
Volatility and Drift:
•The extent to which the paths spread out is driven by the **volatility** (σ)of the asset. Higher volatility leads to a wider spread of paths.
•The general upward or downward trend of the paths reflects the **expected return** (μ). A positive drift will cause the paths to generally move upward over time, while a negative drift will cause the paths to trend downwards.

MONTE CARLO STIMULATION FOR 2019-2024



Higher Risk and Potential Reward:- The graph suggests a scenario with higher market volatility and greater potential rewards, but also higher risks, as seen from the wide divergence of possible outcomes.

MONTE CARLO STIMULATION FOR 2014-2019



Lower Risk and Potential Reward:-
The graph suggests a scenario with lower market volatility, where the index might grow more steadily, offering lower risk but also lower potential rewards.