|  |
| --- |
| This form **must be submitted in your online course room immediately after the course begins**. Failure to submit your group formation and topic selection will result in cancellation from the course at the start of Week 2. If you are proposing your own topic, you are required to send this form to Student Support using the Help Center chatbot prior to the M1 deadline for instructor approval. |

|  |  |
| --- | --- |
| **Full Legal Name** | KUMAR SHANTANU |
| **Email Address** | Kumarshan25@gmail.com |

|  |  |
| --- | --- |
| **Name of group member(s)**  (*\*If working alone, input “Solo”)* | KUMAR SHANTANU (SOLO) |

|  |  |
| --- | --- |
| **Select your track/topic from the dropdown menu** | 9. Options Trading |
| *If response above is “Other”, insert your proposed topic here* |  |

|  |
| --- |
| This section **is required** to provide additional information regarding your topic as this will help instructors determine if they would be a good fit to mentor your group for the duration of the project. If you opted to propose your own topic, this information will be used for approval purposes (ie. whether you have access to necessary data, etc.). |
| **Option Trading Strategies Leveraging Volatility of the Underlying Asset**  This thesis aims to explore and develop option trading strategies by leveraging the volatility of the underlying asset, with a particular focus on the relationship between implied and realized volatility. The research will be conducted through a cross-sectional analysis of Options Chain Data, addressing the following key questions:  1. Relationship Between Implied and Realized Volatility:  - How can the disparity or convergence between implied volatility (IV) and realized volatility (RV) be harnessed to develop profitable trading strategies?    2. Utilization of Skew in Trading Strategies:  - How can the skew, measured by the ratio of implied volatility for 25 Delta puts (or calls) versus 50 Delta puts, inform and enhance trading strategies?  3. Backtesting Trading Strategies:  - How do these strategies perform when backtested on historical options chain data, and what insights can be derived from these tests?  4.Exploring Machine Learning for ITM Predictions:  - How can machine learning models, trained on volatility-related metrics, predict the likelihood of options ending up in the money (ITM)? This will involve using an extensive dataset, comprising gigabytes of options chain data, to train and validate models. [Caution: AMBITIOUS AND PROBABLY WRONG]  I will deliberately avoid attempting to predict market regimes, given the inherent difficulties and unreliability in such forecasts. Take for example the financial crisis of 2008. The economy was already in recession during 2007 however IMF predicted that US economy would grow by 0.6% in 2008 and this growth will further improve during 2009. However, in reality, the US Economy grew by 0.1% in 2008 and by -2.5% in 2009. Forget about forecasting recessions (or regimes), we are poor in realizing that we are already in a recession.  As this topic is in its preliminary stages, I can promise that the topic will evolve and change a lot. |

|  |  |
| --- | --- |
| **Statement of integrity:** *By typing my name in the text box below, I confirm that I am willingly entering into group formation with the students listed above and have confirmed the common interest in the topic for this project. I understand that failure to collaborate effectively with the other students of the group will result in grades of 0 and automatic isolation. If I am proposing my own topic I am required to submit this form to the Help Center chatbot prior to the course start date for instructor approval.* | |
| **Full Legal Name** | KUMAR SHANTANU |
| **Date Submitted** | 04/09/2024 |