

## UNC AI Bootcamp

### Project Outline for AI-Powered Covered Calls Service

#### Introduction and Objective

- Background: Brief explanation of covered calls as an investment strategy.
- Problem Statement: The need for a sophisticated, AI-driven approach to optimize covered call strategies for retirees seeking income without liquidating assets.
- Project Objective: Develop an AI program that identifies optimal covered call opportunities to maximize income while minimizing risk.

#### Data Model Implementation (25 points)

- Data Acquisition and Preparation (10 points):
  - Outline the process for obtaining stock and options data, emphasizing access to real-time data from sources like polygon.io.
  - Describe data cleaning and preprocessing steps, focusing on selection criteria for short-term, in-the-money, and out-of-the-money covered calls.
- Model Development and Evaluation (15 points):
  - Detail the AI models considered for predicting covered call outcomes based on historical data, market conditions, and volatility indexes like VIX.
  - Explain model training, validation, and evaluation methods, aiming for predictive accuracy that supports investment decisions.

#### Data Model Optimization (25 points)

- Optimization Process (15 points):
  - Document iterations in model development, including adjustments in response to market events like Federal Reserve decisions and earnings announcements.
  - Showcase the impact of optimizations on model performance and investment outcomes.
- Performance Summary (10 points):
  - Present a comprehensive summary of the model's capabilities in identifying low-risk, high-reward covered calls, supported by backtesting results.

#### GitHub Documentation (25 points)

- Repository Management (10 points):
  - Ensure the GitHub repository is organized, with a clear structure for code, data, and documentation. Implement `.gitignore` for a clean repository.
- Project Documentation (15 points):
  - Create a detailed README that serves as an executive summary, including project objectives, methodology, key findings, and instructions for replicating the analysis.

#### Presentation Requirements (25 points)



- Executive Summary (5 points):
  - Highlight the innovation and potential impact of the AI-powered covered call service on retirement income strategies.
- Data and Methodology Overview (5 points):
  - Detail the data sourcing, cleaning, and the analytical approach taken to develop the AI model.
- Project Approach (5 points):
  - Explain the AI model selection, training process, and the rationale behind the chosen methodology.
- Results and Insights (5 points):
  - Share key findings, model performance, and real-world applicability for retirees. Include visualizations and examples to illustrate successful strategies.
- Future Directions (5 points):
  - Discuss potential improvements, additional features, and new market opportunities for the AI service.

### **Preparation and Submission**

- Schedule rehearsal sessions to refine presentation delivery.
- Prepare to submit the GitHub repository URL on presentation day for grading.