

# Assignment 6

## MGMT 675: Generative AI for Finance

**Exercise 20: Train nanoGPT on Shakespeare.** Follow the instructions in the slides to train a character-level GPT on Shakespeare's complete works using Karpathy's [nanoGPT](#). Run the training on CPU with the suggested hyperparameters. After training, generate a sample of pseudo-Shakespearean text. Submit a screenshot of the training loss over iterations (`Exercise20-Screenshot.png`), a generated text sample of at least 500 characters (`Exercise20-GeneratedText.txt`), and a half-page reflection on what the model learned and where it fails (`Exercise20-Reflection.pdf`).

**Exercise 21: Custom Financial Chatbot with Open Router.** Build a custom chatbot as a Streamlit app using the OpenRouter API with the free `mistralai/mistral-7b-instruct` model from Hugging Face. Customize the chatbot for a specific financial role by writing a system prompt that instructs the model to act as a financial advisor specializing in personal portfolio allocation. The system prompt should tell the model to always ask about the user's risk tolerance, time horizon, and investment goals before making recommendations, and to present allocations as percentage splits across asset classes (e.g., stocks, bonds, real estate, cash). Run the app locally and have a multi-turn conversation in which you ask for portfolio advice. Submit the code (`Exercise21-Code.zip`), a screenshot of the running app showing at least three exchanges (`Exercise21-Screenshot.png`), and a half-page evaluation of the model's advice quality compared to what you would expect from a larger model like Claude (`Exercise21-Evaluation.pdf`).

**Exercise 22: Headline Sentiment Classification.** Collect 20 recent financial news headlines (from sources like Reuters, Bloomberg, or Yahoo Finance). Using Claude or the OpenRouter API, classify each headline as positive, negative, or neutral for the stock mentioned. Also have Claude rate the magnitude (1–5) and relevance (low/medium/high). Compare Claude's classifications with the actual stock price movement on the day of the headline. Submit the 20 headlines, Claude's classifications, the actual price movements, and a summary of Claude's accuracy (`Exercise22.xlsx`). Submit a screenshot of Claude's classification output for at least five headlines (`Exercise22-Screenshot.png`).

**Submission.** Upload a zip file containing each file requested above with the filename shown in parentheses. Name the zip file Assignment6.zip.