LLM-FINE TUNED FINANCIAL ADVISOR

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- A Financial LLM Advisor utilizes advanced fine-tuning techniques on large language models to specifically cater to the financial sector, enhancing precision in tasks such as market analysis, risk assessment, customer service and any personal financial advice.

- These models are becoming integral in finance for automating complex tasks, providing insights from large data sets, and improving decision-making processes through high-level predictive analytics.

GOALS AND OUTCOME

1. The aim is to develop a model that can interpret and analyze financial text with high accuracy, assist in decision making, and personalize financial advice based on user data for credit cards, investments, stocks, portfolio management and financial risk.

2. Expected benefits include the ability to process vast amounts of financial data quickly and accurately, offer advice related to stock markets, and provide customized financial advice, improving client satisfaction.

POTENTIAL DATASETS

Historical financial data from sources such as Yahoo Finance, SEC filings, and user-generated financial advice from forums like Reddit posts. Additionally, data from financial news articles and investment blogs may be incorporated.

1. https://huggingface.co/datasets/winddude/reddit_finance_43_250k
2. https://huggingface.co/datasets/gbharti/finance-alpaca

instruction string · lengths 9 ────── 489	input string · lengths 0 ── 2.63k	output string · lengths 0 ─── 17k
Can a credit card company raise my rates for making a large payment?		No. Credit card companies will typically not care about your individual credit card account. Instead they look either at a "package" of card accounts opened at…
Should we prepay our private student loans, given our particular profile?		Based on your numbers, it sounds like you've got 12 years left in the private student loan, which just seems to be an annoyance to me. You have the cash to pay…
Should Emergency Funds be Used for Infrequent, but Likely, Expenses?		I would suggest that you use Emergency Funds for things that have a Low likelihood of happening but if they do happen can be devastating. I used to work as a…
When's the best time to sell the stock of a company that is being acquired/sold?		This is but one opinion. Seek others before your act. "When someone puts a million dollars in your hand, close your hand." A 50% gain in two weeks is huge.
Home loan transferred to Freddie Mac — What does this mean?		Lenders may sell your mortgage to other lenders for a fee. For example, your lender might sell your mortgage to the highest bidder who may want to purchase…
Why do I get a much better price for options with a limit order than the ask price?		There are people whose strategy revolves around putting orders at the bid and ask and making money off people who cross the spread. If you put an order in between…
How to execute a large stock purchase, relative to the order book?		I normally just do a buy limit at the price I want to buy it at. Then it executes when it's that price or lower, but there's still a chance you might purchase some…
Where should my money go next: savings, investments, retirement, or my mortgage?		As the others said, you're doing everything right. So, at this it's not a matter of what you should do, it's a matter of what do you want to do? What would make…
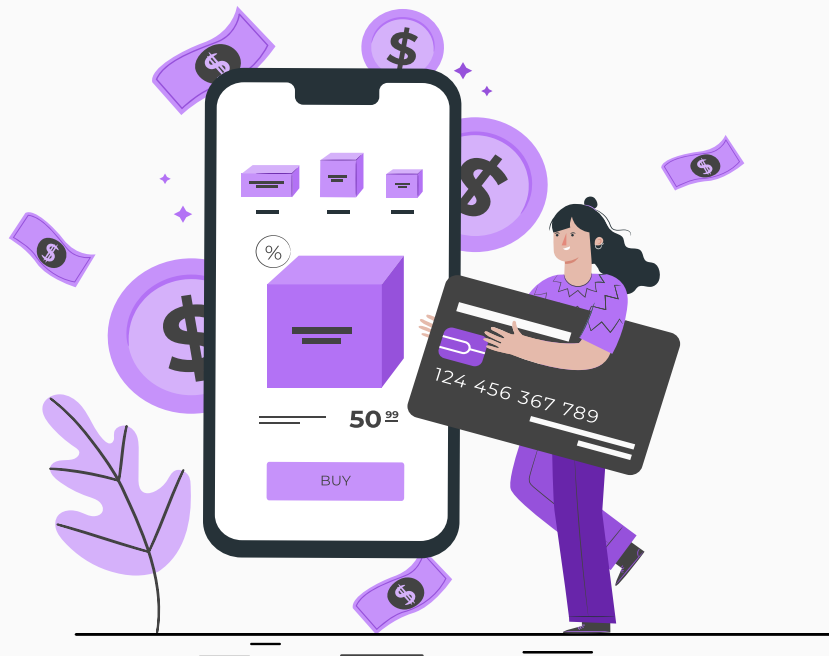
METHODOLOGY

Feature Pipeline:

- Financial news data is processed through a streaming pipeline and stored in a Vector DB (Qdrant).

Training Pipeline:

- A pre-trained LLM generates a Q&A dataset from the news data for fine-tuning.
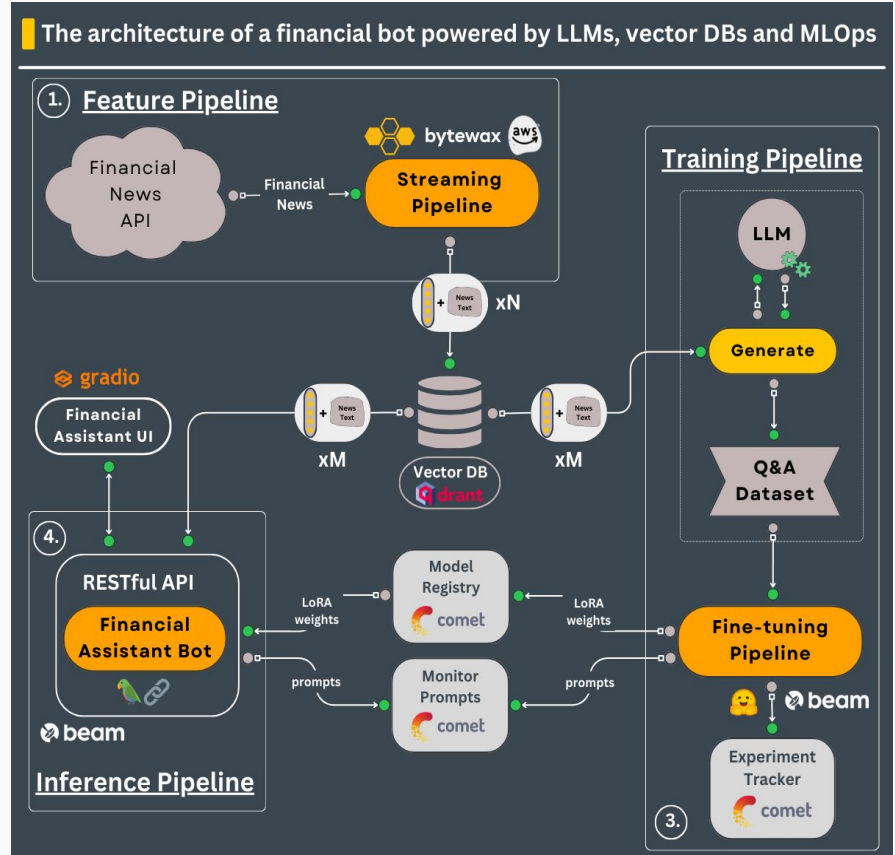
Model Fine-tuning and MLOps:

- LoRA weights adjust the model parameters, with tracking done by Comet.

Inference Pipeline:

- The fine-tuned model is deployed via a RESTful API to power the financial assistant bot.

Real-time Response:

- The bot accesses the Vector DB to provide relevant responses based on user prompts.

The architecture of a financial bot powered by LLMs, vector DBs and MLOps

1. Challenges specific to financial models include handling the sensitivity of financial data, and ensuring compliance with financial regulations.

2. Risks include potential breaches in data security, the high stakes of erroneous financial advice, and ethical concerns over automated financial decisions.

3. Model Hallucinations and incorrect predictions.

4. LLM choice and RAG model Evaluation

CONCLUSIONS

A

Enhanced Decision-Making and Efficiency:
The Financial LLM Advisor can significantly improve the accuracy and speed of decision-making processes in the financial sector by automating complex tasks.

B

Personalized Financial Guidance for Individuals:
The Financial LLM Advisor offers tailored financial insights and advice to individuals, helping them make informed decisions about investments, savings, and risk management.

C

Scalable and Accessible Financial Services:
By leveraging advanced LLM fine-tuning, the project can make high-quality financial analysis and advice more accessible, allowing businesses and individuals to benefit from expert-level insights.

THANK YOU