DeepFinLLM User Prompt Query Guide for Financial Queries

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1 Introduction

DeepFinLLM is an advanced financial advisor powered by large language models, offering personalized investment insights with 94.12% accuracy and 0.82-second response time. It leverages real-time data from the Financial Modeling Prep (FMP) API and a user-friendly web interface to deliver tailored financial advice. This guide helps users craft effective financial queries and understand DeepFinLLM's fallback mechanism for resolving ambiguous requests, ensuring precise and relevant recommendations. Whether you're planning for retirement, trading cryptocurrencies, or seeking low-risk bonds, this guide enhances your interaction experience.

2 Crafting Financial Queries

Effective financial queries yield precise investment advice. DeepFinLLM processes queries using cosine similarity ($\theta = 0.7$), expanding vague inputs to improve relevance by 20%. Follow these best practices to optimize your queries:

- **Specify Asset Types**: Identify stocks, ETFs, bonds, cryptocurrencies, or other asset classes (e.g., "tech ETFs" instead of "investments").

- **Include Timeframes**: Clarify periods (e.g., "for 2025" or "past 6 months").

- **Define Risk Preferences**: State risk tolerance (e.g., "low-risk bonds" or "high-growth stocks").

- **Articulate Goals**: Specify objectives (e.g., "retirement planning" or "short-term trading").

- **Add Constraints**: Mention budgets or restrictions (e.g., "under $5,000").

2.1 Query Examples

Table 1 presents examples of vague queries and their refined versions, covering diverse financial scenarios to guide users in crafting effective inputs.

2.2 Why Specificity Matters

Specific queries enable DeepFinLLM to leverage FMP API data effectively, delivering tailored insights. For example, "best stocks" may return generic results, while "top 3 healthcare stocks with high dividends for 2026" targets precise assets, timeframes, and goals, aligning with your financial objectives.

Table 1: Sample Financial Queries

Vague Query	Refined Query
What are good investments?	Top 5 tech ETFs for diversification in 2025?
Best stocks to buy?	Top 3 healthcare stocks with high dividends for 2026?
Safe investments for me?	Low-risk corporate bonds for a 3-year retirement plan under $10,000?
Crypto to invest in?	Top 2 cryptocurrencies with stable growth for Q3 2025?
What's good for quick returns?	High-growth small-cap stocks for short-term trading in 2025?
Retirement options?	Best index funds for a 10-year retirement plan with moderate risk?
Income investments?	Municipal bonds with high yields for passive income in 2025?
What to buy now?	Energy sector ETFs with strong performance over the past 12 months?
Good portfolio options?	Balanced portfolio of stocks and bonds for a $20,000 investment in 2025?
Future investments?	Emerging market ETFs for long-term growth by 2030?

3 Fallback Mechanism for Query Ambiguity

DeepFinLLM's fallback mechanism ensures vague or unclear queries are resolved efficiently, improving response relevance by 18% across 1,000 test queries. This section details its operation, benefits, and real-world applications.

3.1 What is the Fallback Mechanism?

The fallback mechanism activates when DeepFinLLM detects ambiguous queries (e.g., "best investments"), which lack sufficient detail for precise responses. It uses two strategies—clarification prompts and risk profile inference—to align responses with user intent, making the system accessible to beginners and experts alike.

3.2 How It Works

The mechanism follows a structured process:

- **Step 1: Detect Ambiguity**: DeepFinLLM computes cosine similarity ($\theta = 0.7$) between the query and financial terms. Queries with scores below θ are flagged as vague, indicating low confidence in matching user intent.

- **Step 2: Generate Clarification Prompts**: The system prompts the user to refine the query with specific questions, such as "Do you mean stocks, ETFs, or bonds?" or "Are you seeking short-term gains or long-term stability?"

- **Step 3: Risk Profile Inference**: DeepFinLLM retrieves user preferences (e.g., risk tolerance, past queries) from MongoDB, secured with AES-256 encryption. For instance, if a user previously queried low-risk assets, the system prioritizes bonds or ETFs in its prompts or responses.

- **Step 4: Deliver Tailored Response**: Based on user clarification and inferred preferences, DeepFinLLM generates a response, achieving 18% higher relevance than unrefined queries.

3.3 User Benefits

- **Clarity**: Prevents misinterpretation of vague queries, ensuring relevant advice.

- **Personalization**: Tailors responses to user history, even for unclear inputs.

- **Efficiency**: Reduces the need for multiple query iterations by proactively refining intent.

- **Accessibility**: No technical expertise required-just respond to prompts.

3.4 Example Interactions

Below are five scenarios demonstrating the fallback mechanism across different financial contexts:

- **Scenario 1: General Investment**

  - **User Query**: "What should I invest in?"

  - **DeepFinLLM Prompt**: "Could you specify stocks, ETFs, or bonds? Your past queries suggest a preference for low-risk assets. Would you like bond recommendations?"

  - **User Response**: "Yes, bonds for retirement."

  - **DeepFinLLM Response**: "Here are the top 3 low-risk bond ETFs for a 5-year retirement plan: [Vanguard Total Bond Market ETF, iShares Core U.S. Aggregate Bond ETF, details]."

- **Scenario 2: Cryptocurrency Trading**

  - **User Query**: "Good crypto to buy?"

  - **DeepFinLLM Prompt**: "Are you looking for established coins like Bitcoin or emerging altcoins? Your history shows interest in volatile assets. Would you like altcoin suggestions for Q3 2025?"

  - **User Response**: "Emerging altcoins."

  - **DeepFinLLM Response**: "Top 2 altcoins with growth potential for Q3 2025, considering 5–15% risk: [Solana, Polkadot, details]."

- **Scenario 3: Retirement Planning**

  - **User Query**: "Retirement investments?"

  - **DeepFinLLM Prompt**: "Do you prefer index funds, bonds, or a mixed portfolio? Your profile indicates moderate risk tolerance. Would you like index fund options for a 10-year plan?"

  - **User Response**: "Index funds."

  - **DeepFinLLM Response**: "Recommended index funds for a 10-year retirement plan: [S&P 500 Index Fund, Total Market Index Fund, details]."

- **Scenario 4: Short-Term Trading**

  - **User Query**: "Quick profit investments?"

- **DeepFinLLM Prompt**: "Are you interested in stocks, options, or ETFs for short-term gains? Your past queries favor high-growth sectors. Would you like tech stock recommendations?"

- **User Response**: "Tech stocks."

- **DeepFinLLM Response**: "Top 3 tech stocks for short-term trading in 2025: [NVIDIA, Tesla, details]."

- **Scenario 5: Income Generation**

  - **User Query**: "How to earn income?"

  - **DeepFinLLM Prompt**: "Are you seeking dividend stocks, bonds, or REITs for income? Your history shows interest in stable returns. Would you like dividend stock options?"

  - **User Response**: "Dividend stocks."

  - **DeepFinLLM Response**: "Top 3 high-dividend stocks for 2025: [Johnson & Johnson, Procter & Gamble, details]."