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www.jzus.zju.edu.cn; engineering.cae.cn; www.springerlink.com
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E-mail: jzus@zju.edu.cn

Supplementary materials for

Yu KANG, Xin YANG, Ge WANG, Yuda WANG, Zhanyu WANG, Mingwen LIU, 2025. Can large language models effectively process and execute financial trading instructions? *Front Inform Technol Electron Eng*, 26(10):1832-1846. https://doi.org/10.1631/FITEE.2500285

1 Raw research report examples

The following is an excerpt from the original text of the research report by Sina Finance (taking the research report of JinkoSolar as an example)

…

The company achieved operating revenue of 29.485 billion yuan in the first three quarters, representing a year-on-year growth of 7.99%. Net profit attributable to shareholders was 10.637 billion yuan, up 8.16% year-on-year. In the third quarter alone, the company achieved operating revenue of 8.954 billion yuan, representing a year-on-year increase of 1.43%, and net profit attributable to shareholders of 3.076 billion yuan, a year-on-year decrease of 9.31%. In the second interim profit distribution plan for 2024, the company intends to distribute a cash dividend of 16.50 yuan (including tax) per 10 shares to all shareholders, totaling 2.001 billion yuan (including tax).

…

2 User interaction example

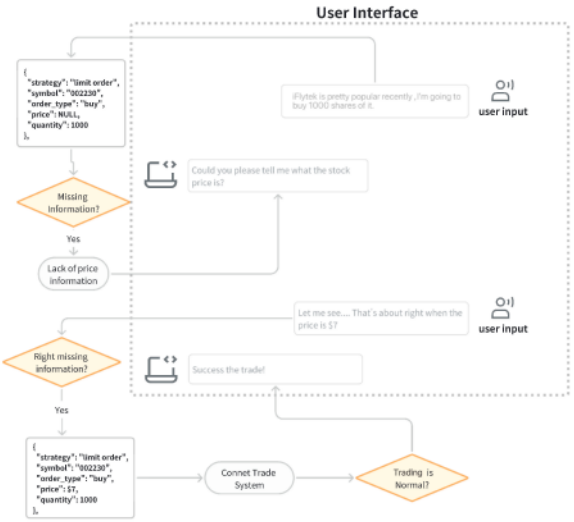


Fig. S1 Execution workflow example. It demonstrates a stock trading order execution process, including user interaction for missing price info and system-driven trade completion

3 UI interface

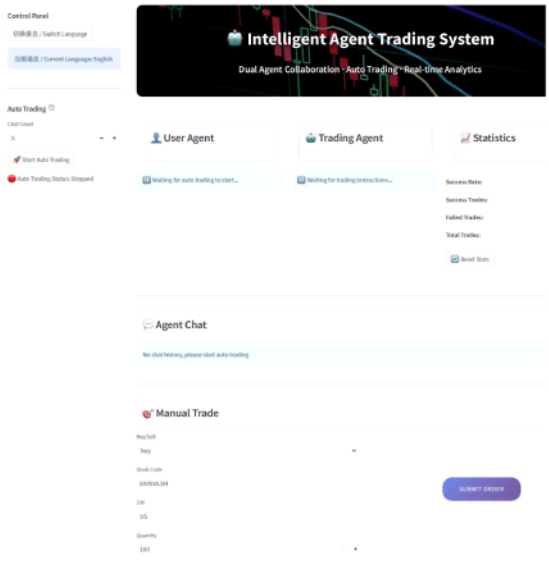


Fig. S2 User interface of the intelligent agent trading system. The system features an agent collaboration architecture with User Agent, Trading Agent, Statistics panel, and Manual Trade modules

4 Prompt

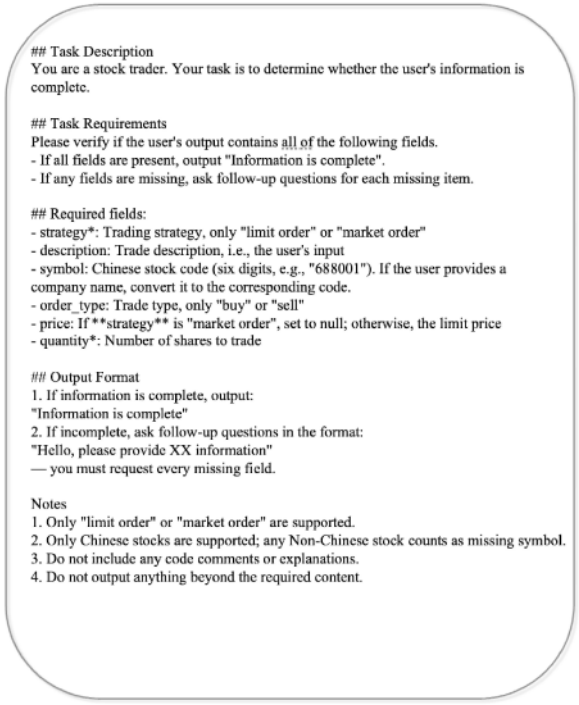
We introduced a series of carefully designed prompts that form the core of our agent's reasoning and instruction generation capabilities.

Fig. S3: Trading agent core task prompt: This figure depicts the primary instruction mechanism that defines the agent's trading role and operational parameters based on user queries and market context. The system evaluates required data fields, including strategy, symbol, order type, and quantity, to identify the most relevant trade execution parameters, returning complete SQL statements that align with the operational requirements for automated trading.

Fig. S4: Trading instruction generation prompt: This figure illustrates the contextual instruction framework that generates specific order types based on market movement scenarios. The system analyzes trading positions and price movements to identify the most appropriate order instructions, returning precise trading commands that align with risk management strategies and market conditions.

Fig. S5: Financial reasoning assistant prompt: This figure demonstrates the structured reasoning mechanism that breaks down complex financial problems into logical steps. The system evaluates financial questions and correct answers to identify the most relevant analytical approach, returning step-by-step reasoning and detailed justifications that align with sound financial principles.

Fig. S6: Extended trading instruction prompt: This figure presents the comprehensive reasoning framework that provides additional context and detailed analysis for trading scenarios. The system examines extended market contexts and multiple variables to identify nuanced trading instructions, returning sophisticated order strategies that align with complex trading environments.



Task Description
You are a stock trader. Your task is to determine whether the user's information is complete.

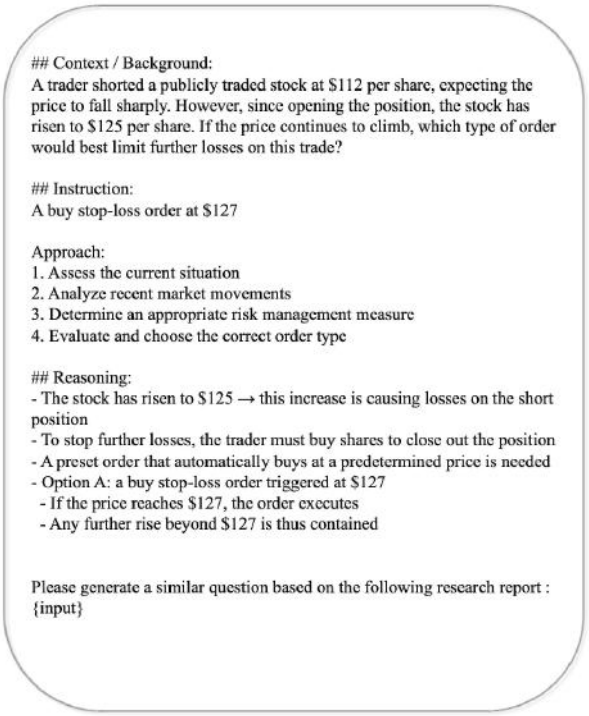
Task Requirements
Please verify if the user's output contains all of the following fields.
- If all fields are present, output "Information is complete".
- If any fields are missing, ask follow-up questions for each missing item.

Required fields:
- strategy*: Trading strategy, only "limit order" or "market order"
- description: Trade description, i.e., the user's input
- symbol: Chinese stock code (six digits, e.g., "688001"). If the user provides a company name, convert it to the corresponding code.
- order_type: Trade type, only "buy" or "sell"
- price: If **strategy** is "market order", set to null; otherwise, the limit price
- quantity*: Number of shares to trade

Output Format
1. If information is complete, output:
"Information is complete"
2. If incomplete, ask follow-up questions in the format:
"Hello, please provide XX information"
— you must request every missing field.

Notes
1. Only "limit order" or "market order" are supported.
2. Only Chinese stocks are supported; any Non-Chinese stock counts as missing symbol.
3. Do not include any code comments or explanations.
4. Do not output anything beyond the required content.

Fig. S3 Core task prompt defining the trading agent's role and required data fields



Context / Background:
A trader shorted a publicly traded stock at $112 per share, expecting the price to fall sharply. However, since opening the position, the stock has risen to $125 per share. If the price continues to climb, which type of order would best limit further losses on this trade?

Instruction:
A buy stop-loss order at $127

Approach:
1. Assess the current situation
2. Analyze recent market movements
3. Determine an appropriate risk management measure
4. Evaluate and choose the correct order type

Reasoning:
- The stock has risen to $125 → this increase is causing losses on the short position
- To stop further losses, the trader must buy shares to close out the position
- A preset order that automatically buys at a predetermined price is needed
- Option A: a buy stop-loss order triggered at $127
  - If the price reaches $127, the order executes
  - Any further rise beyond $127 is thus contained

Please generate a similar question based on the following research report :
{input}

Fig. S4 Example trading instruction prompt with context and stop-loss order

```
## Task Definition
You are a financial reasoning assistant, and you are skilled at reasoning the
research report. Now you will be given:
1. A question (problem statement)
2. An answer option that is correct

## Requirements:
1. Analyze the given question and the chosen correct answer.
2. Break down the thought process in two parts:
   Approach: Step-by-step high-level plan to solve the problem logically.
   Reasoning: Detailed explanation of why the correct answer works,
referring to the facts given in the question.

## Output
The format must be:
Approach:
1. Step 1
2. Step 2
...
Reasoning:
- Point 1
- Point 2
...
## Input
Here is the input:
Question: {question}
Correct Answer: {options}

Now produce the Approach and Reasoning.
```

Fig. S5 Financial reasoning prompt for step-by-step analysis

```
## Context / Background:
A trader shorted a publicly traded stock at $112 per share, expecting the
price to fall sharply. However, since opening the position, the stock has
risen to $125 per share. If the price continues to climb, which type of order
would best limit further losses on this trade?

## Trading Instruction:

A buy stop-loss order at $127

## Approach:

Assess the current situation
Analyze recent market movements
Determine an appropriate risk management measure
Evaluate and choose the correct order type

## Reasoning:

The stock has risen to $125 → this increase is causing losses on the short
position. To stop further losses, the trader must buy shares to close out the
position. A preset order that automatically buys at a predetermined price is
needed. If the price reaches $127, the order executes. Any further rise
beyond $127 is thus contained

## Output

Please generate a real trading instruction in oral tongue similar to the
question based on the following research report:
{input}
```

Fig. S6 Extended trading instruction prompt variant