

Chapter 4 - Prompting strategies and approaches

With applications

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Master 1, IREF-ERDS

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If I had an hour to solve a problem and my life depended on it, I would use the first 55 minutes determining the proper question to ask.

Albert Einstein

Fortunately, you have more time to ask questions... :-)
And the previous chapter gave you a first basis for asking

AI literacy

- How to find the right AI for the job (see Chapter 2)
- How to craft better prompts (starting with Chapter 3)
- Understanding hallucinations (Don't forget Softmax)
- Iterate iterate, start over, iterate...

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Basic Prompt Construction

Foundation Elements

Key Components

- Clear objective statement
- Context provision
- Output format specification
- Scope definition

Benefits

- Improved accuracy
- Consistent outputs
- Reduced ambiguity
- Better results

Good Prompt

Analyze quantitative easing impact on bond yields:

- 1 Define QE mechanisms
- 2 Explain theoretical relationships
- 3 Provide 2008-2014 empirical evidence
- 4 Include US/Eurozone examples

Bad Prompt

What happens to bonds during QE?

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Role and Context Prompting

Framework Components

Role Elements

- Expert perspective
- Knowledge depth
- Professional context
- Authority level

Context Elements

- Situation parameters
- Target audience
- Time horizon
- Scope boundaries

Analysis Framework

As chief economist at investment bank:

- Analyze BRICS currency volatility
- Impact on trade flows
- Investment implications
- Risk management strategies

For: Institutional investors

Depth: Technical analysis

Timeline: 6-12 months

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Structural Elements

- Step sequencing
- Logical flow
- Explicit reasoning
- Verification points

Implementation

- Break down complex problems
- Build sequential logic
- Validate each step
- Connect conclusions

Chain-of-Thought Example

Supply Shock Analysis

Analysis Steps

Analyze negative supply shock impacts:

1. Supply curve effects 2. Price and output impacts 3. Central bank response 4. Medium-term equilibrium

Each step requires:

- Economic reasoning
- Theoretical framework
- Mathematical interpretation
- Alternative scenarios

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Few-Shot Learning

Core Components

Key Elements

- Example selection
- Pattern demonstration
- Format consistency
- Progressive complexity

Benefits

- Improved accuracy
- Clear expectations
- Consistent format
- Better results

Example 1

Market: High-frequency trading

Analysis:

- Rapid price adjustments
- Minimal arbitrage

Conclusion: Strong-form efficiency

Example 2

Market: Emerging market

Analysis:

- Delayed adjustments
- Persistent arbitrage

Conclusion: Weak-form efficiency

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Output Structuring

Framework Components

Structure Elements

- Format definition
- Section requirements
- Quantitative guidelines
- Presentation standards

Implementation

- Clear organization
- Specific requirements
- Measurable metrics
- Consistent formatting

Analysis Framework

1. Executive Summary (100 words)
 - Key findings
 - Recommendations
2. Economic Impact (300 words)
 - Labor market effects
 - Consumption patterns
 - Inflation implications
3. Fiscal Analysis (200 words)
 - Implementation costs
 - Funding mechanisms
 - Budget impact

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Parameter Types

- Multiple constraints
- Conditional requirements
- Quality controls
- Scope limitations

Implementation

- Clear boundaries
- Specific conditions
- Validation methods
- Output requirements

Framework Parameters

Parameters:

- Retail lending focus
- Max loan: \$50,000
- Credit score: 600-750

Components:

- 1 Credit Risk Model
 - Traditional + alternative data
 - 3 ML approaches
 - Validation metrics
- 2 Regulatory Compliance
 - Data privacy
 - Fair lending
 - Anti-money laundering

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Temperature and Sampling Control

Understanding Parameters

Temperature Settings

- 0.2: Conservative
- 0.5: Balanced
- 0.8: Creative

Applications

- Economic forecasting
- Scenario analysis
- Risk assessment

Scenarios

Temperature 0.2 (Conservative):

- Current trends only
- Established forecasts
- Historical patterns

Temperature 0.5 (Moderate):

- Policy changes
- Market shifts
- Economic cycles

Temperature 0.8 (Creative):

- Black swan events
- Structural changes
- Paradigm shifts

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System Elements

- Role definition
- Expertise level
- Response style
- Quality standards

Meta-Prompting

- Behavioral guidelines
- Output format
- Validation rules
- Error handling

System Message Example

Econometric Analysis

System Configuration

You are a senior econometrician specializing in time series analysis.

Maintain:

- Technical precision
- Statistical rigor
- Methodology transparency
- Assumption documentation

Query: Analyze ARIMA models for post-pandemic inflation forecasting

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Best Practices

Design Principles

- Clear objectives
- Appropriate technique
- Combined approaches
- Regular testing

Quality Control

- Validation steps
- Error checking
- Documentation
- Refinement cycle

Issues to Avoid

- Vague instructions
- Insufficient context
- Poor formatting
- Ignored expertise levels
- Missing validation

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Group Work

- Choose an exercise
- Identify suitable technique(s)
- Design your own prompts
- Compare approaches
- Discuss effectiveness

Exercise Overview

Structure

Each exercise includes:

- Problem statement
- Solution approach with recommended technique
- Sample prompts and implementation

Problem

Analyze the effectiveness of central bank forward guidance in influencing market expectations.

Recommended Technique

Basic Prompt Construction

Sample Prompt

- Analyze central bank forward guidance effectiveness since 2010 following the structure below
 - Define forward guidance mechanisms (150 words)
 - Analyze communication strategies:
 - Federal Reserve
 - European Central Bank
 - Bank of Japan
 - Evaluate market reactions:
 - Bond yield responses
 - Equity market impact
 - Assessment metrics:
 - Market alignment
 - Volatility impact

Exercise 2: Monetary Policy Transmission

Problem

Analyze how changes in monetary policy affect different sectors of the economy.

Recommended Technique

Chain-of-Thought Prompting

Let's analyze monetary policy transmission step by step:

- ① First, examine interest rate channel:
 - Impact on borrowing costs
 - Effect on investment decisions
 - Consumer spending changes
- ② Then analyze exchange rate channel:
 - Currency value effects
 - Trade balance impact
 - International competitiveness
- ③ Next, evaluate asset price channel:
 - Stock market reactions
 - Real estate values
 - Wealth effects

Exercise 3: Supply Chain Disruption

Problem

Analyze the economic impact of a major global supply chain disruption on inflation and economic growth.

Recommended Technique

Chain-of-Thought Prompting

- ① Examine immediate effects:
 - Production delays
 - Inventory levels
 - Price pressures
- ① Analyze firm responses:
 - Sourcing alternatives
 - Production adjustments
 - Pricing strategies
- ② Assess macroeconomic implications:
 - GDP impact
 - Inflation effects
 - Trade patterns

Exercise 4: Financial Health Analysis

Problem

Analyze and compare the financial health of companies across different market conditions and industry sectors.

Question: Analyze company XXX (ex. Apple)

Recommended Technique

Few-Shot Learning

- Current Ratio: 3.2 (Strong liquidity)
- Debt/Equity: 0.1 (Low leverage)
- Revenue Growth: 45% YoY
- Profit Margin: -5% (Investment phase)

Conclusion: Healthy growth trajectory

Example 2: Mature Manufacturing

- Current Ratio: 1.8 (Adequate)
- Debt/Equity: 0.4 (Moderate)
- Revenue Growth: 8% YoY
- Profit Margin: 12% (Stable)

Conclusion: Solid financial position

Problem

Design a comprehensive risk assessment model for cryptocurrency investments that considers market, technical, and regulatory factors.

Question: Compare Bitcoin with XRP.

Framework Parameters

- Focus on top 10 cryptocurrencies by market cap
- 24/7 trading environment
- Retail and institutional perspectives

Required Components

- 1 Market Risk Metrics
 - Daily volatility measures
 - Cross-currency correlations
 - Liquidity indicators
- 2 Technical Analysis
 - Multiple timeframes (1H, 1D, 1W)
 - Volume analysis
 - Network metrics

Problem

Design a comprehensive ESG screening framework for a global equity portfolio that meets specific sustainability and performance criteria. Give some examples of companies and their ESG performance.

Initial Parameters

- Universe: MSCI World Index companies
- Minimum market cap: \$5 billion
- Target portfolio: 50-100 stocks

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ESG and Financial Criteria

ESG Minimum Scores:

- Environmental: >70
- Social: >65
- Governance: >75

Financial Requirements:

- ROE $>12\%$
- Debt/Equity <0.5
- 5-year revenue CAGR $>5\%$

Problem

Research and analyze the effectiveness of post-pandemic monetary policies in major economies.

Initial Steps

Initial Prompt:

- Provide an overview of monetary policy measures implemented by major central banks during 2023-2025

Refinement 1:

- Focus on interest rate policies and quantitative measures in the US, Eurozone, and Japan
- Compare timing, scale, and market reactions

Further Refinements

Refinement 2:

- Analyze policy effectiveness on:
 - Inflation rates
 - GDP growth
 - Employment levels
- Include specific data points

Final Question:

- Recommend optimal policy mix for 2026, including:
 - Specific rate targets
 - QE/QT recommendations
 - Implementation timeline
 - Expected outcomes

Exercise Summary

Learning Objectives

- Identify appropriate techniques for different problems
- Structure effective prompts
- Validate and refine results
- Apply techniques to real-world scenarios

Structure

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Key Takeaways

- Master multiple techniques
- Apply appropriate methods
- Combine when necessary
- Test and validate
- Document success patterns
- Keep working prompts as template and/or agent