

Collaborating with AI

MGMT 675: Generative AI for Finance

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The Mindset Shift

- AI is not a search engine—it's a **collaborator**
- Stop trying to craft the “perfect prompt”
- Instead: have a **conversation**
- Think of AI as a capable colleague, not a vending machine
- The goal is *iterative refinement*, not one-shot perfection

Conversation Over Perfect Prompts

Don't Do This

- Spend 30 minutes crafting one prompt
- Try to anticipate every edge case
- Give up when the first response is wrong
- Treat AI as a one-shot tool

Do This Instead

- Start with a rough request
- Refine based on the response
- Ask follow-up questions
- Iterate until you get what you need

Ask the AI What It Can Do

- AI systems know their own capabilities
- Ask: “What information do you need from me to do this?”
- Ask: “What are the different ways you could approach this?”
- Ask: “What should I consider before we start?”
- Let the AI **guide the conversation**—it often knows what questions to ask

“I want to build a portfolio optimizer. What do you need to know to help me?”

Explain What, Not How

- Describe your **goal**, not the implementation steps
- Let the AI suggest the approach
- You provide domain expertise; AI provides technical execution
- Focus on outcomes: what does success look like?

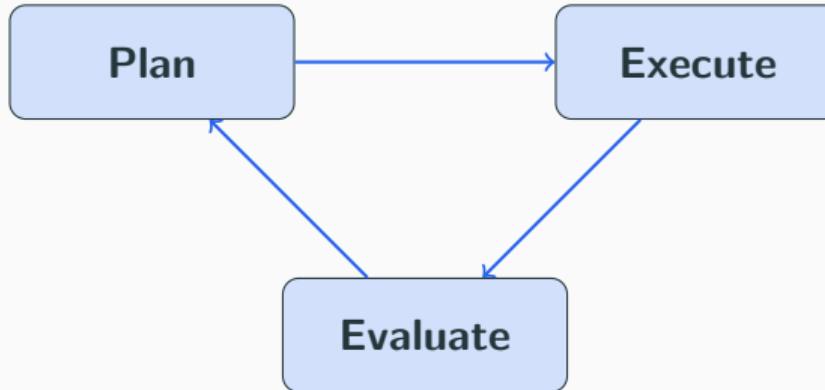
Too Prescriptive

"Write a Python function that uses `scipy.optimize.minimize` with SLSQP to find portfolio weights..."

Better

"I want to find the portfolio that maximizes the Sharpe ratio. Here are my expected returns and covariance matrix..."

The Plan-Execute-Evaluate Cycle



- **Plan:** Define the task, gather requirements, outline approach
- **Execute:** Let AI do the work with your guidance
- **Evaluate:** Check results, identify gaps, refine
- Repeat until satisfied

Phase 1: Planning

- Don't dive straight into execution
- First, **brainstorm with the AI**
- Ask it to help you define requirements
- Request a step-by-step plan before starting work
- Identify edge cases and potential problems upfront

"Before we start coding, can you outline a plan? What are the key steps and what could go wrong?"

Phase 2: Execution

- Work through the plan step by step
- Provide feedback after each step
- If something doesn't look right, say so immediately
- Share context: constraints, preferences, examples
- Let the AI iterate—errors are opportunities to improve

"That looks good, but we also need to handle the case where returns are negative. Can you update it?"

Phase 3: Evaluation

- Don't assume the output is correct
- **Test** the results against known cases
- Ask the AI to explain its reasoning
- Check for edge cases and assumptions
- Consider: does this actually solve my problem?

"Can you walk me through how you calculated these weights? What assumptions did you make?"

Cross-Evaluation with Other AI Conversations

- Start a **new conversation** to evaluate the output
- Even with the *same model*, a fresh context can catch errors
- Ask the new conversation to review, critique, or verify
- Different phrasing may reveal blind spots
- Consider using a *different model* for additional perspective

"I received this analysis from another session. Can you review it for errors or questionable assumptions?"

Why Cross-Evaluation Works

Same Model, Fresh Context

- No accumulated assumptions
- No confirmation bias from earlier turns
- Approaches the problem fresh
- May spot logical gaps

Different Model

- Different training emphasis
- Different reasoning patterns
- May catch model-specific blind spots
- Provides true second opinion

A Typical Workflow

1. **First attempt:** “Calculate the optimal portfolio”
2. **Refine:** “Add a constraint that no single stock exceeds 30%”
3. **Clarify:** “Use annualized returns, not monthly”
4. **Extend:** “Also show me the efficient frontier”
5. **Verify:** “Double-check: do the weights sum to 1?”
6. **Cross-check:** Start new conversation to verify results

Provide Context

- AI works better with **context about you and your situation**
- Share your role, goals, and constraints
- Explain why you're doing this, not just what
- Context guides the AI toward relevant knowledge
- More context = more tailored responses

"I'm a finance student working on a case competition. We need to present our portfolio recommendation to a panel of judges who are industry professionals..."

Learn Through Experimentation

- There's no substitute for **hands-on practice**
- Experiment with different approaches
- Push the boundaries—see what works and what doesn't
- Expect about 10 hours to really understand a model's capabilities
- Each domain (coding, writing, analysis) has different patterns

The best prompters are those who have experimented the most

Best Practices Summary

1. **Converse, don't command**—iterate toward the answer
2. **Ask the AI for guidance**—it knows what it needs
3. **Explain what, not how**—focus on goals, not methods
4. **Plan before executing**—outline the approach first
5. **Evaluate critically**—test, verify, and cross-check
6. **Use multiple conversations**—fresh perspectives catch errors
7. **Provide context**—help the AI understand your situation
8. **Embrace iteration**—refinement is the path to quality

Common Mistakes to Avoid

- **One-and-done thinking**—expecting perfection on the first try
- **Over-specification**—dictating implementation details
- **Blind trust**—accepting outputs without verification
- **Giving up too early**—stopping after one poor response
- **No context**—expecting good answers from vague prompts
- **Ignoring the AI's questions**—the AI often knows what to ask

Practical Exercise

Try This Workflow

1. Start a conversation: "I want to analyze the risk of a stock portfolio"
2. Ask: "What information do you need from me?"
3. Provide the information and ask for a plan
4. Execute the plan step by step
5. Ask the AI to explain a key result
6. Start a **new conversation** and ask it to verify the analysis

Summary

- AI collaboration is a **dialogue**, not a monologue
- The Plan-Execute-Evaluate cycle keeps you on track
- Cross-evaluation catches errors and blind spots
- Good prompts come from iteration, not inspiration
- Ask the AI what it can do—and let it help you
- Explain your goals; let the AI figure out the approach
- The best way to learn is to experiment extensively

Resources

- Ethan Mollick: Working with AI - Two Paths to Prompting
- MIT Sloan: Effective Prompts for AI
- Five Tips for Collaborating with AI
- Collaborative Prompt Technique
- Prompt Engineering in 2025: Latest Best Practices