

# **Claude Code and Claude Skills (and some NotebookLM) in MGMT 638**

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AI Working Group

## Claude Code (Introduced for Windows July 2025)

- Uses Claude Opus or Claude Sonnet as LLM
- Works beside you on your computer, providing information and assistance
  - Can read, edit, and create files on your computer (no manual uploading and downloading)
  - Can search the web and download files
  - Can run terminal commands, including running python scripts and compiling LaTeX docs
  - Can use Python to create Excel, Word, and PowerPoint docs
  - Can create and edit Jupyter notebooks with code, markdown, and visualizations

# MGMT 638 Set-Up

Each student installed (during 1st class):

- Claude Code
- Python and select libraries
- VS Code and select extensions, including the Claude Code extension
- Access token from [data-portal.rice-business.org](http://data-portal.rice-business.org), saved in .env (text) file

I pay \$20 per student per month for Claude Pro accounts.

# Claude Code in VS Code

The screenshot shows a Visual Studio Code (VS Code) interface with the title bar "Claude Code - mgmt638 - Visual Studio Code".

**Left Sidebar (Explorer):** Shows a file tree for the "MGMT638" folder, including files like "8-trees.qmd", "ai\_working\_group.log", and several "ai\_working\_group.tex" files.

**Center Editor Area:** Displays a LaTeX document with the following code:

```
17 \begin{frame}{MGMT 638 Set-Up}
for Claude Pro accounts.
29 \end{frame}
30
31 \begin{frame}{Claude Code in VS
Code}
32 \begin{center}
33 \includegraphics[width=\textwidth]
{Screenshot1.png}
34 \end{center}
35 \end{frame}
36
37 \begin{frame}{Example Slide
(12/01/2025)}
38 Ask Claude:
39 \vspace{1cm}
40
41 \begin{enumerate}
42 \item The risk-free rate is
2%. My portfolio has an expected
return of 10% and a standard
deviation of 15%. I'm
considering moving some money to a
```

**Right Panel (Claude Code):** Shows a conversation window with the message "Claude Code" and a small red elephant icon. Below it is a note: "// TODO: Everything. Let's start."

**Bottom Status Bar:** Shows "PROBLEMS 3", "OUTPUT", "Latex Compiler", and other status indicators.

Ask Claude:

1. The risk-free rate is 2%. My portfolio has an expected return of 10% and a standard deviation of 15%. I'm considering moving some money to a new asset that has a standard deviation of 30%, a correlation with my portfolio of 60%, and an alpha relative to my portfolio of 5%. How can I combine the new asset and the risk-free asset with my current portfolio to get an expected return higher than 10% while maintaining the standard deviation at 15%?
2. Put this analysis in a Jupyter notebook, doing the calculations in Python.

# Jupyter Notebook in VS Code

The screenshot shows a Visual Studio Code interface with a Jupyter Notebook open. The notebook title is "Portfolio Optimization with New Asset". The content of the first cell is:

## Portfolio Optimization with New Asset

### Problem Statement

Given:

- Risk-free rate: 2%
- Current portfolio: Expected return = 10%, Standard deviation = 15%
- New asset: Standard deviation = 30%, Correlation with portfolio = 60%, Alpha = 5%

Question: How can we create a combination of the current

The left sidebar shows a file tree with various files like package-lock.json, package.json, and pe\_histogram.png. The bottom navigation bar includes tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, FILTER, LaTeX COMPILER, and other code-related tools.

## Scrolling Down in Notebook

### =====

### FINAL PORTFOLIO ALLOCATION

### =====

Allocation:

Current portfolio (P): 65.9%

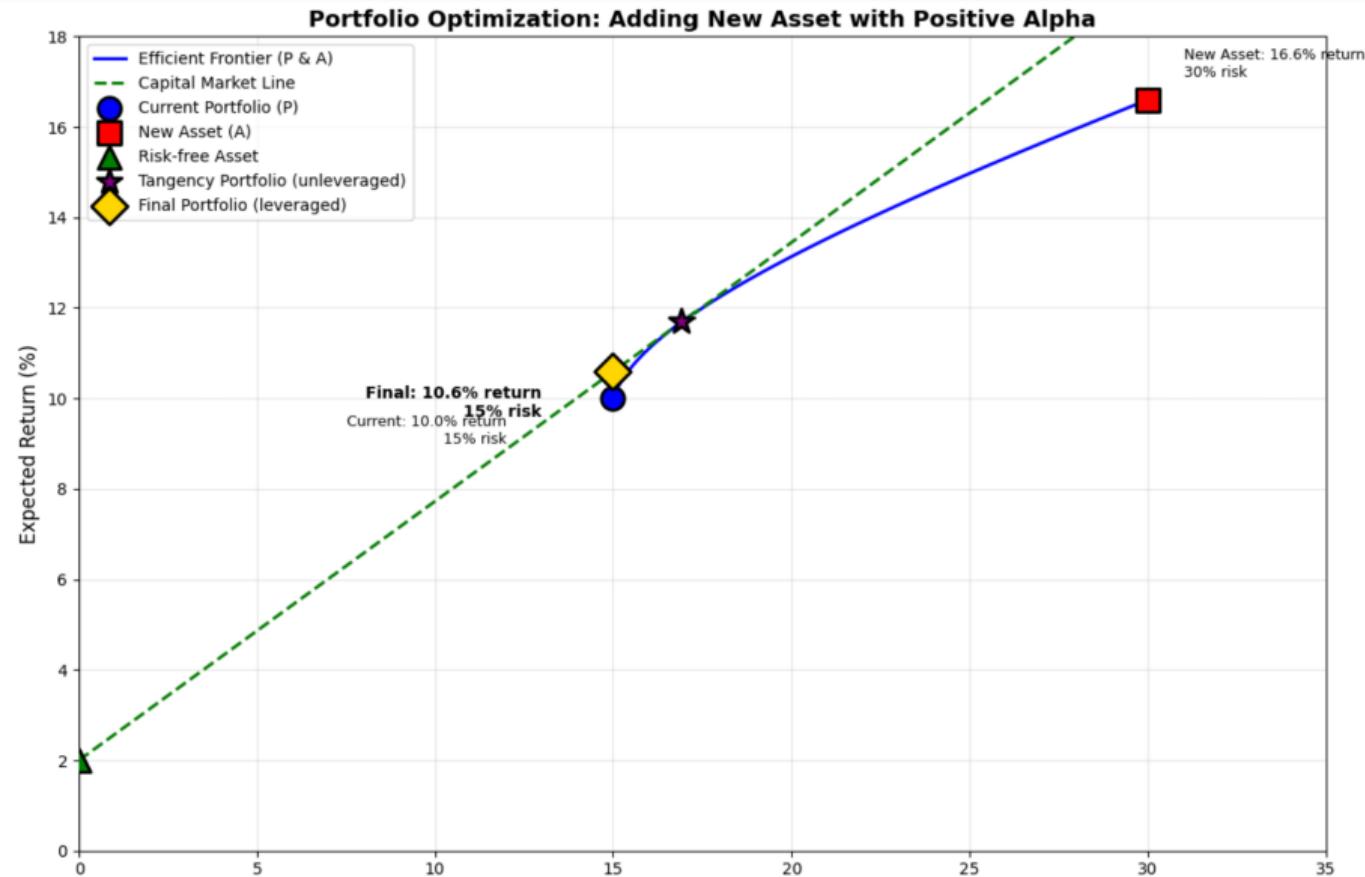
New asset (A): 22.7%

Risk-free asset: 11.4%

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Total: 100.0%

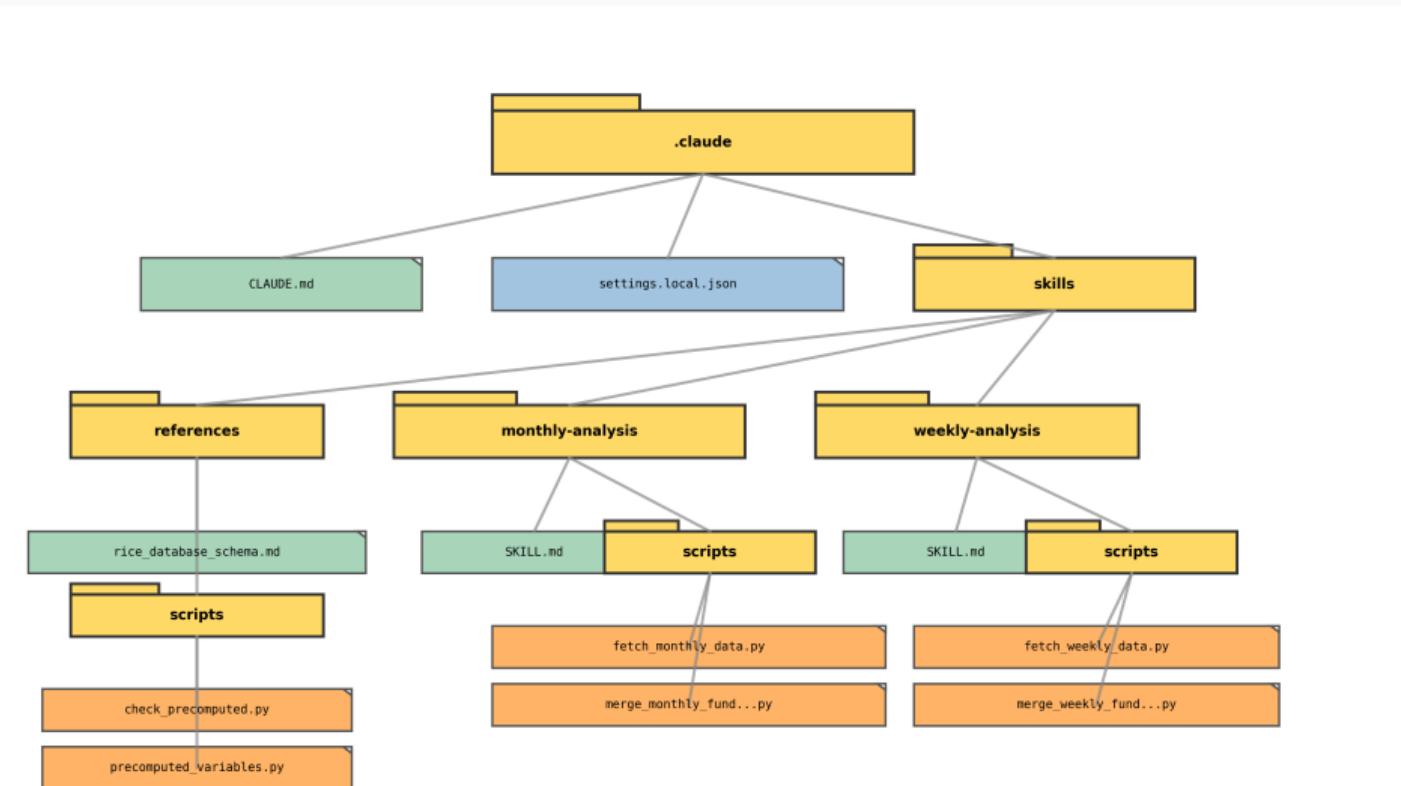
# Scrolling Further Down



## Claude Skills (Introduced 10/16/2025)

- Skill = text file (extended prompt) read by Claude when needed
- Can instruct to run Python scripts for repeatable performance
- Stored in .claude/skills/
- Anthropic provides xlsx, docx, pptx, skill-creator, and others

# .claude Structure for Skills I Created



Tell Claude:

Use your weekly-analysis skill to create a weekly dataset containing ticker, return, momentum, price-to-book, sector, industry, size, and marketcap and the following variables from 10K's: ROE, 1-year percent growth in assets, gross margin, asset turnover, and leverage. I want all stocks and all dates after Jan 1, 2010.

## More Claude Prompts

After running a machine learning and backtesting script to compute decile returns from sorts on predicted returns, we told Claude:

1. Read portfolio\_returns.csv. What are the mean returns of the portfolios?
2. Plot the cumulative returns of the portfolios.
3. Plot the drawdowns of the portfolios. What is the maximum drawdown of each?
4. Get the five Fama-French factors from Ken French's data library using pandas datareader and compute the five-factor alpha of each portfolio.

- PDF: *Getting Paid to Hedge*, Kapadia, Ostdiek, Weston, and Zekhnini, 2019
- Video: *Getting Paid to Hedge*, Kapadia, Ostdiek, Weston, and Zekhnini, 2019
- NotebookLM

We usually have one of these each class session.