

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

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, saved in .env (text) file

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

Claude Code in VS Code

File Edit Selection ... Claude Code - mgmt638 - Visual Studio Code

EXPLORER

MGMT638

- slides
 - 8-trees.qmd
 - ai_working_group.log
 - ai_working_group.tex
 - ai_working_group.tex
 - fma2025_beamer.pdf
 - fma2025_beamer.tex
 - screenshot1.png
 - session01_slides.pdf
 - session01_slides.tex
 - session02_slides.pdf
 - session02_slides.tex
 - session03_slides.log
 - session03_slides.pdf
 - session03_slides.tex

OUTLINE

The active editor cannot provide outline information.

slides > ai_working_group.tex > { } Frame: Claude Code in VS

```
17 \begin{frame}{MGMT 638 Set-Up}
28 for Claude Pro accounts.
29 \end{frame}
30
31 \begin{frame}{Claude Code in VS
32 Code}
33 \begin{center}
34 \includegraphics[width=\textwidth]
35 {screenshot1.png}
36 \end{center}
37 \end{frame}
38
39 \begin{frame}{Example Slide
40 (12/01/2025)}
41 Ask Claude:
42 \vspace{1cm}
43
44 \begin{enumerate}
45 \item The risk-free rate is
46 2%. My portfolio has an expected
47 return of 10% and a standard
48 deviation of 15%. I'm
49 considering moving some money to a
50 new asset that has a standard
```

Claude Code

Past Conversations

// TODO: Everything. Let's start.

Prefer the Terminal experience? Switch back in Settings.

ctrl esc to focus or unfocus Claude

Ask before edits ai_working_group.tex

LaTeX Compiler

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 displays the Visual Studio Code interface with a Jupyter Notebook open. The Explorer sidebar on the left shows a project named 'MGMT...' containing various files like 'monthly_data.parquet', 'monthly_fundamental...', 'monthly_pb.parquet', 'monthly_returns_all.p...', 'monthly_returns_mo...', 'monthly_returns.parq...', 'nov2025_marketcap.csv', 'nul', 'package-lock.json', 'package.json', 'pe_histogram.png', 'pe_histogram.py', 'pe_prediction_analysi...', 'pe_script_debug.py', 'pe_script.py', and 'portal-guide.html'. The Outline sidebar shows the current notebook structure with 'Portfolio Opti...' selected. The main editor area shows the notebook content, which includes a title 'Portfolio Optimization with New Asset', a section 'Problem Statement', and a 'Given:' section with a list of parameters: Risk-free rate: 2%, Current portfolio: Expected return = 10%, Standard deviation = 15%, and New asset: Standard deviation = 30%, Correlation with portfolio = 60%, Alpha = 5%. A 'Question:' section follows, asking 'How can we create a combination of the current'. On the right, a Jupyter cell is visible with the text '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%? Put this analysis in a Jupyter'. Below this cell, a tooltip suggests 'ctrl esc to attach selected text'. The bottom status bar shows 'PROBLEMS 9', 'OUTPUT', 'DEBUG CONSOLE', and 'Filter', along with a 'LaTeX Compiler' dropdown and various icons.

File Edit Selection ...

portfolio_optimization.ipynb - mgmt638 - Visual Studio Code - Modified

EXPLORER

MGMT... monthly_data.parquet monthly_fundamental... monthly_pb.parquet monthly_returns_all.p... monthly_returns_mo... monthly_returns_mo... monthly_returns.parq... nov2025_marketcap.csv nul package-lock.json package.json pe_histogram.png pe_histogram.py pe_prediction_analysi... pe_script_debug.py pe_script.py portal-guide.html

OUTLINE

Portfolio Opti...

portfolio_optimization.ipynb

Portfolio Optimization with New Asset

Generate + Code + Markdown | Run All ... Python 3.13.0

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 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%? Put this analysis in a Jupyter

ctrl esc to attach selected text

Ask before... 2 lines se... /

PROBLEMS 9 OUTPUT DEBUG CONSOLE ... Filter LaTeX Compiler

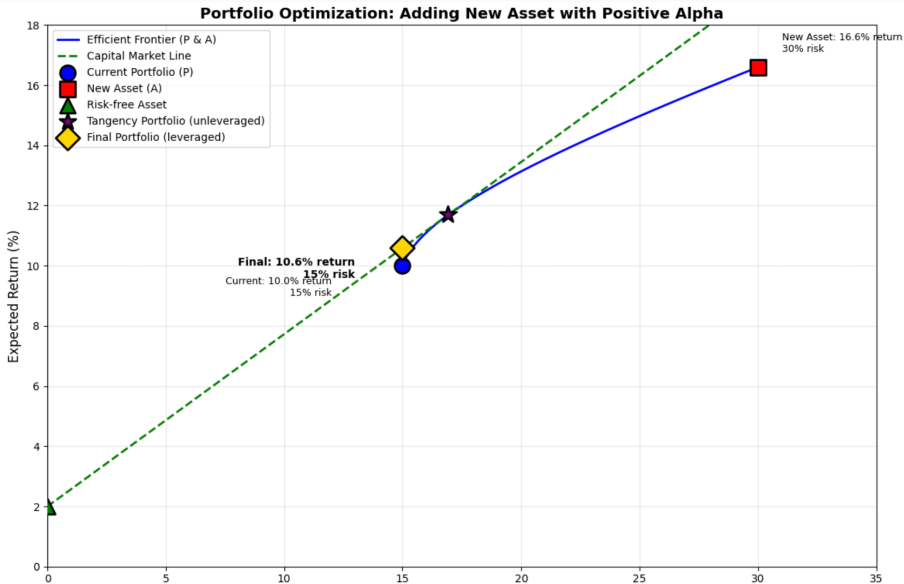
```
=====
FINAL PORTFOLIO ALLOCATION
=====
```

Allocation:

Current portfolio (P):	65.9%
New asset (A):	22.7%
Risk-free asset:	11.4%

Total:	100.0%
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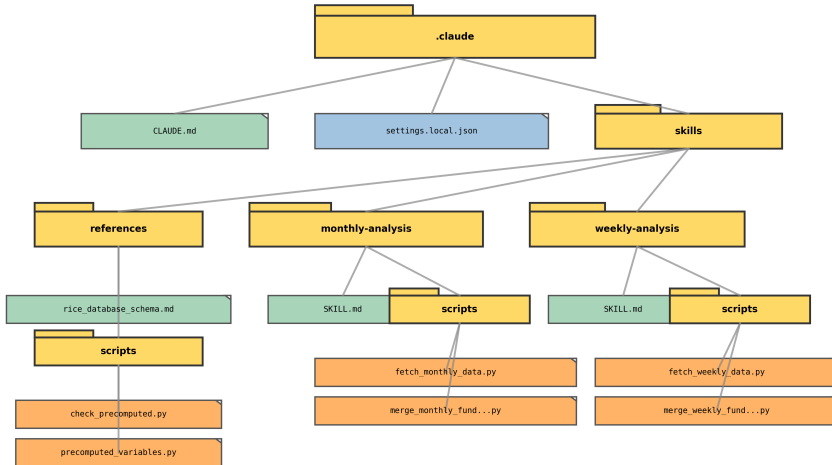
Scrolling Further Down



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.