RICE | BUSINESS
Jones Graduate School of Business

Local Execution: Python, Claude Code, VS Code

MGMT 675: Generative AI for Finance

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What is VS Code?

- Visual Studio Code: a free code editor from Microsoft
- Works on Windows, Mac, and Linux
- Lightweight but powerful
- Huge ecosystem of extensions
- We'll use it as a UI for **Claude Code**

Why VS Code + Claude Code?

Colab

- Browser-based
- No installation
- Google Drive storage
- Google Gemini AI

VS Code

- Desktop application
- Local file access
- Claude Code AI
- More powerful tools

Both support Jupyter notebooks!

Install from Course Site

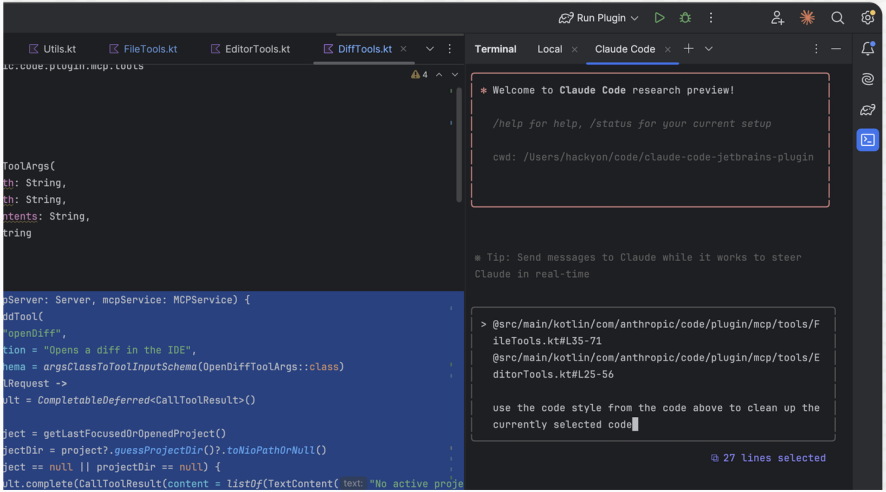
- Python 3.12
- VS Code with extensions (Python, Jupyter, Claude Code)
- Git and GitHub CLI
- Node.js
- Claude Code
- Koyeb CLI
- API authentication: GitHub, Anthropic, Koyeb

https://kerryback.com/mgmt675/software.html

Installing the Claude Code Extension

1. Open VS Code
2. Press Ctrl+Shift+X (Windows) or Cmd+Shift+X (Mac)
3. Search for "Claude Code"
4. Click **Install** on the official Anthropic extension
5. Sign in when prompted

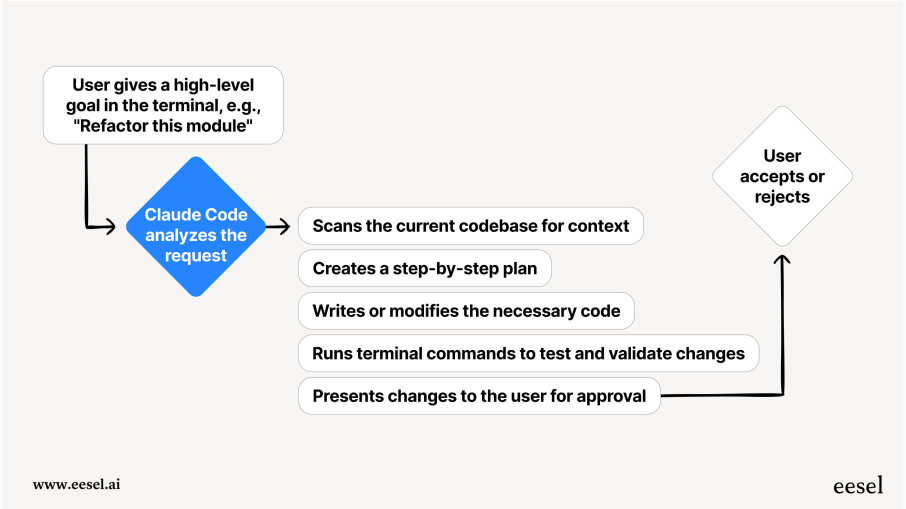
The Claude Code Interface



Opening Claude Code

- **Spark icon**: Click the spark icon in the top-right corner of any open file
- **Status bar**: Click "Claude Code" in the bottom-right corner
- **Command Palette**: Ctrl+Shift+P → type "Claude Code"
- **Keyboard shortcut**: Cmd+Esc (Mac) / Ctrl+Esc (Windows)

How Claude Code Works



Chatting with Claude

- Type your question or request in the prompt box
- Press Enter to send
- Claude can see your selected code automatically
- Use `@filename` to reference specific files
- Claude asks permission before making changes

What Claude Code Can Do

- Explain code and answer questions
- Write new code from descriptions
- Fix errors and debug problems
- Edit files (with your approval)
- Run commands in the terminal
- Create and modify Jupyter notebooks

Reviewing Changes

- Claude shows changes in a side-by-side diff view
- Green = additions, Red = deletions
- You can **Accept** or **Reject** each change
- Or tell Claude what to do differently
- Changes are not applied until you approve them

Jupyter Notebooks in VS Code

Same concept as Colab, local execution

- Code cells and text cells
- Run cells with Shift+Enter
- Output appears below each cell
- No browser or internet required

Creating a New Notebook

1. Ctrl+Shift+P (or Cmd+Shift+P on Mac)
2. Type "Create: New Jupyter Notebook"
3. Select a Python kernel from the top-right picker
4. Start coding!

Or simply create a new file with `.ipynb` extension

Opening Existing Notebooks

- File → Open File → select `.ipynb` file
- Drag and drop notebook file into VS Code
- Double-click notebook in the Explorer sidebar
- Download from Colab and open locally

The VS Code Notebook Interface

Running Cells

- **Shift+Enter**: Run cell and move to next
- **Ctrl+Enter**: Run cell and stay
- **Alt+Enter**: Run cell and insert new cell below
- Click the play button (▷) left of the cell
- "Run All" button in toolbar runs entire notebook

Notebook Keyboard Shortcuts

Running Code

- Shift+Enter: Run cell
- Ctrl+Enter: Run, stay
- Alt+Enter: Run, insert below

Managing Cells

- A: Add cell above
- B: Add cell below
- DD: Delete cell

Press **Esc** to enter command mode, **Enter** to edit

Selecting a Kernel

- The kernel runs your code (like Colab's runtime)
- Click the kernel picker in the top-right corner
- Select "Python Environments" $\rightarrow$ choose your Python
- Kernel must be selected before running code

Using Claude with Notebooks

- Ask Claude to create a notebook for you
- Claude can add, edit, or delete cells
- Select code and ask Claude to explain it
- Request data visualizations or analysis
- Claude can fix errors in your notebook code

Key Differences from Colab

Colab

- Browser-based
- Gemini AI built-in
- Auto-saves to Drive
- Free GPU access

VS Code

- Desktop app
- Claude Code AI
- Local file storage
- Uses your computer

Other AI Coding Tools

You need to try them to understand the differences

- VS Code + Claude Code is one of several options
- Three other popular tools:
  - **Cursor**: AI-optimized editor (fork of VS Code)
  - **GitHub Copilot**: Extension for VS Code and other IDEs
  - **Google Antigravity**: Web-based editor (fork of VS Code)
- Each has different strengths and workflows
- Note: You can use Copilot **and** Claude Code together in VS Code

High-Level Comparison

VS Code + Claude Code

- Chat with AI in sidebar
- AI makes multi-file changes
- You approve each change
- Works in familiar VS Code

GitHub Copilot

- Extension for multiple IDEs
- Autocomplete as you type
- Tab to accept suggestions
- $10/month

Cursor

- Like VS Code but AI-native
- Tab to accept suggestions
- Fast, real-time
- $20/month

Google Antigravity

- Web-based (VS Code fork)
- Gemini-powered
- Free (preview)
- Still experimental

Which Should You Use?

They're designed for different tasks—not mutually exclusive

- **GitHub Copilot**: Best for autocomplete while typing
- **Cursor**: Best for fast iteration and staying in flow
- **Claude Code**: Best for complex multi-file changes
- **Antigravity**: Experimental, worth trying when it matures
- Many developers use Copilot + Claude Code together in VS Code

Quick Reference

- **Open Claude**: Click spark icon or Ctrl+Esc
- **New notebook**: Ctrl+Shift+P → "New Jupyter Notebook"
- **Run cell**: Shift+Enter
- **Select kernel**: Click picker in top-right
- **Reference file**: Type `@filename` in Claude prompt

Exercise: Aggregating Spreadsheets

- Download the zip file containing five regional sales spreadsheets
- Each file has similar but not identical column layouts
- Reconcile column names and aggregate into a single table

Download aggregation.zip

Exercise: Estimating Betas

- Download the Excel file containing stock and market returns
- Estimate betas for each stock using regression
- Interpret the results

Download betas.xlsx