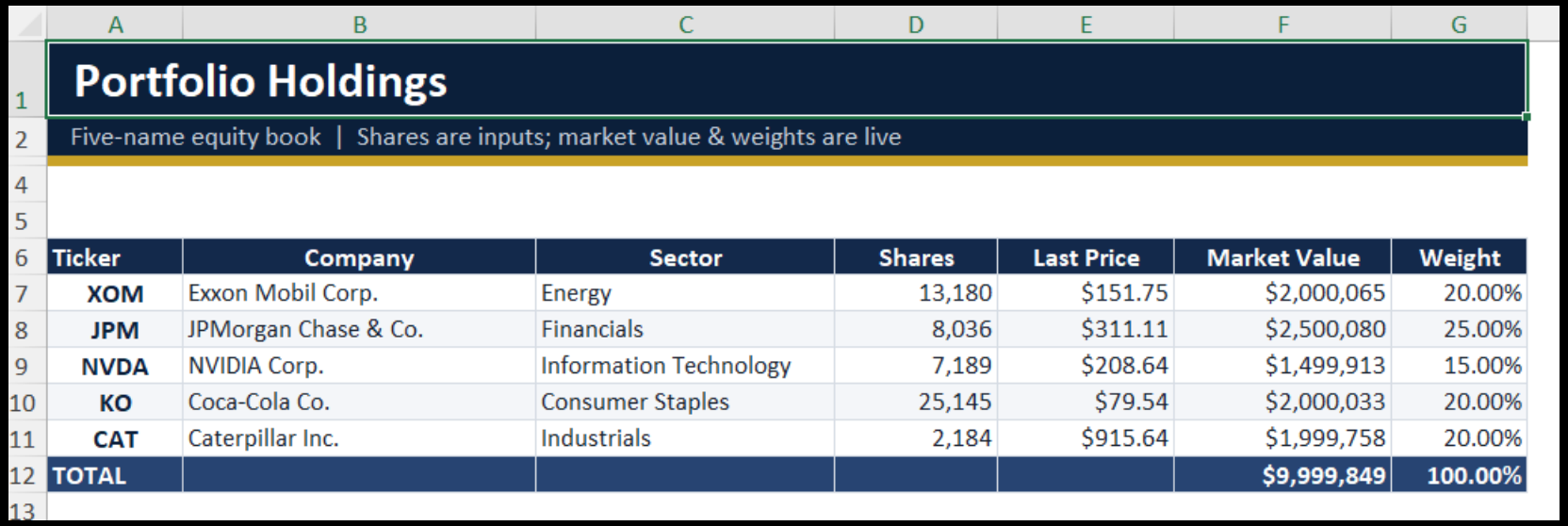
Create Spreadsheet

Create a professional spreadsheet for Value at Risk Analysis



	A	B	C	D	E	F	G
1	**Portfolio Holdings**						
2	Five-name equity book | Shares are inputs; market value & weights are live						
4							
5							
6	**Ticker**	**Company**	**Sector**	**Shares**	**Last Price**	**Market Value**	**Weight**
7	**XOM**	Exxon Mobil Corp.	Energy	13,180	$151.75	$2,000,065	20.00%
8	**JPM**	JPMorgan Chase & Co.	Financials	8,036	$311.11	$2,500,080	25.00%
9	**NVDA**	NVIDIA Corp.	Information Technology	7,189	$208.64	$1,499,913	15.00%
10	**KO**	Coca-Cola Co.	Consumer Staples	25,145	$79.54	$2,000,033	20.00%
11	**CAT**	Caterpillar Inc.	Industrials	2,184	$915.64	$1,999,758	20.00%
12	**TOTAL**					**$9,999,849**	**100.00%**
13							

Create a professional spreadsheet for Value at Risk Analysis

Value-at-Risk Analysis

Parametric · Historical Simulation · Diversification · Correlation | 1-day & 10-day horizons

1 | Key Inputs & Portfolio Return Statistics (Daily)

Portfolio Market Value	**$9,999,849**
Number of Return Observations	**99**
Mean Daily Return	**0.166%**
Daily Volatility (σ)	**0.955%**
Annualised Volatility	**15.16%**
Minimum Daily Return	**-1.96%**
Maximum Daily Return	**4.12%**
Skewness	**0.7181**
Excess Kurtosis	**2.2284**

2 | Value-at-Risk & Expected Shortfall Summary

Methodology / Confidence	z-score	VaR % (1-Day)	VaR $ (1-Day)	VaR $ (10-Day)	Exp. Shortfall $ (1-Day)
Parametric — 95% confidence	1.645	**1.40%**	**$140,470**	$444,204	$180,378
Parametric — 99% confidence	2.326	**2.06%**	**$205,558**	$650,030	$237,922
Historical Simulation — 95% confidence	—	**1.30%**	**$130,495**	$412,662	$156,675
Historical Simulation — 99% confidence	—	**1.59%**	**$158,757**	$502,033	$195,666

Create a professional spreadsheet for Value at Risk Analysis

3 | Diversification Analysis (Parametric, 95%, 1-Day)

Asset	Weight	Daily σ	Standalone VaR $	% of Undiversified
XOM	20.00%	1.841%	$60,554	19.89%
JPM	25.00%	1.477%	$60,737	19.95%
NVDA	15.00%	2.507%	$61,856	20.32%
KO	20.00%	1.141%	$37,552	12.34%
CAT	20.00%	2.545%	$83,704	27.50%
Sum of Standalone VaRs (Undiversified)			$304,402	
Diversified Portfolio VaR (Parametric 95%)			$140,470	
Diversification Benefit ($)			$163,932	
Diversification Benefit (%)			53.85%	

4 | Correlation Matrix — Daily Returns

	XOM	JPM	NVDA	KO	CAT
XOM	**1.00**	-0.18	-0.16	0.12	-0.15
JPM	-0.18	**1.00**	0.22	-0.09	0.48
NVDA	-0.16	0.22	**1.00**	-0.20	0.31
KO	0.12	-0.09	-0.20	**1.00**	0.02
CAT	-0.15	0.48	0.31	0.02	**1.00**

VS Code and Claude Code

- Ensure that you have installed VS Code, and added the Claude Code extension
- Follow the instructions from previous slides to ensure you have access

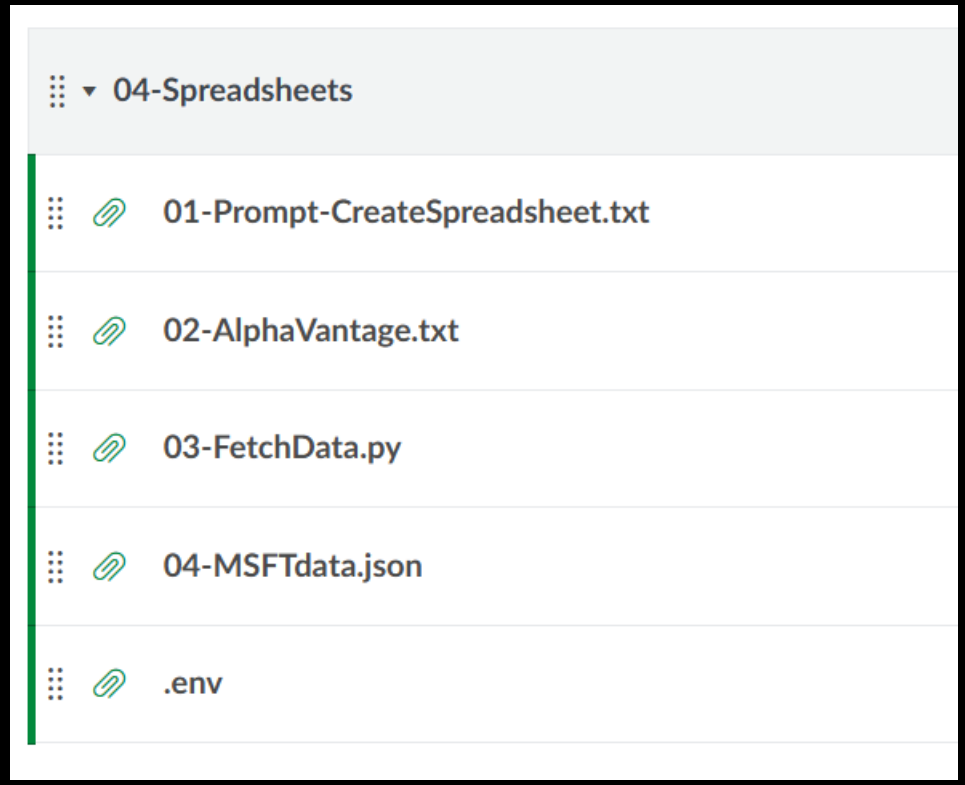
Python

- For this task you also need to have Python installed on your PC
- Download from https://www.python.org

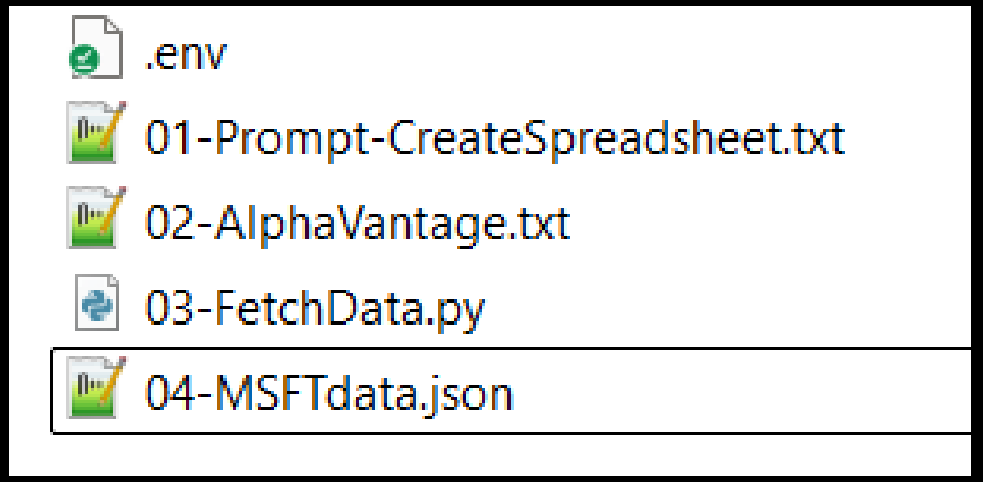
AlphaVantage

- We will access company and market data from AlphaVantage using their API
- Register for a free API key at: https://www.alphavantage.co/support/#api-key
- Copy it to the .env file

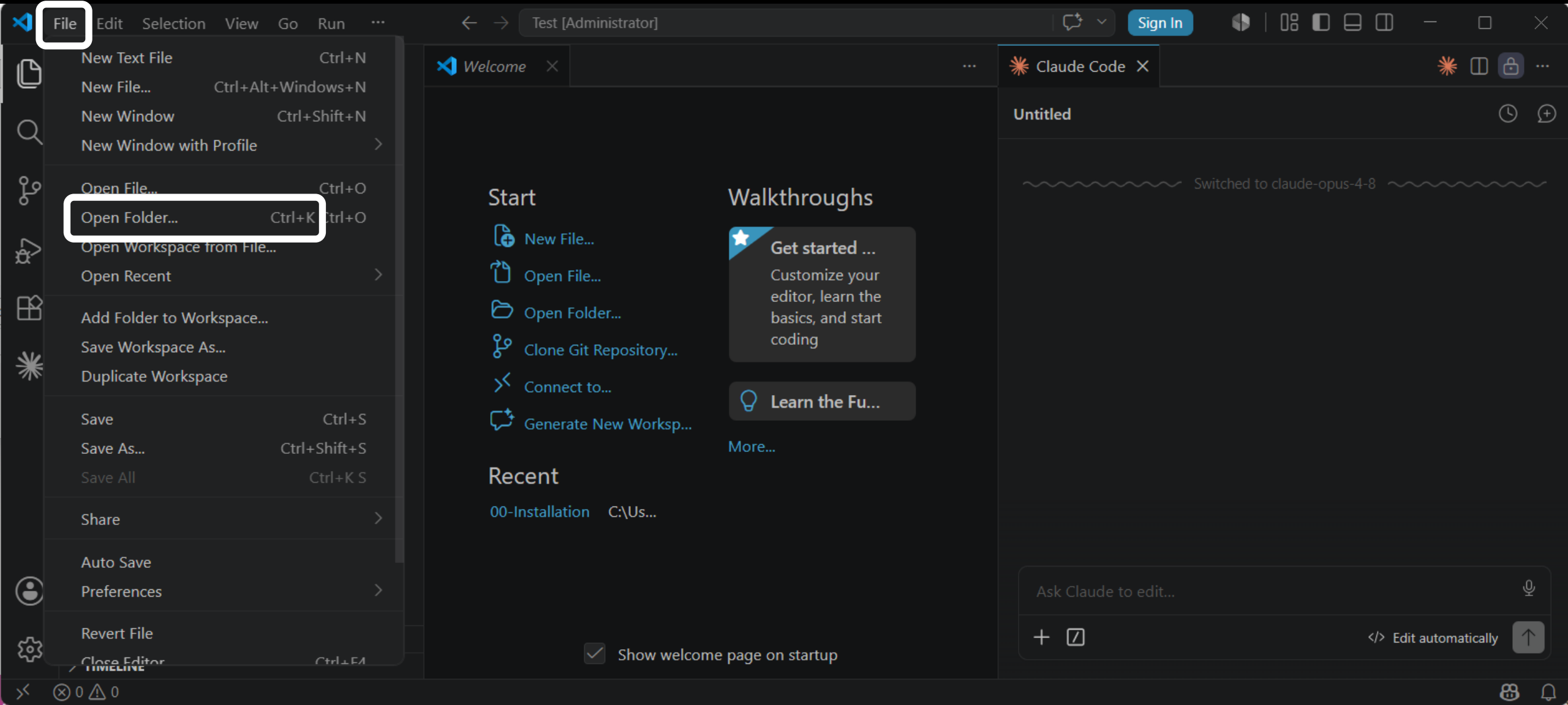
Download the files from the 04-Spreadsheets section on Canvas



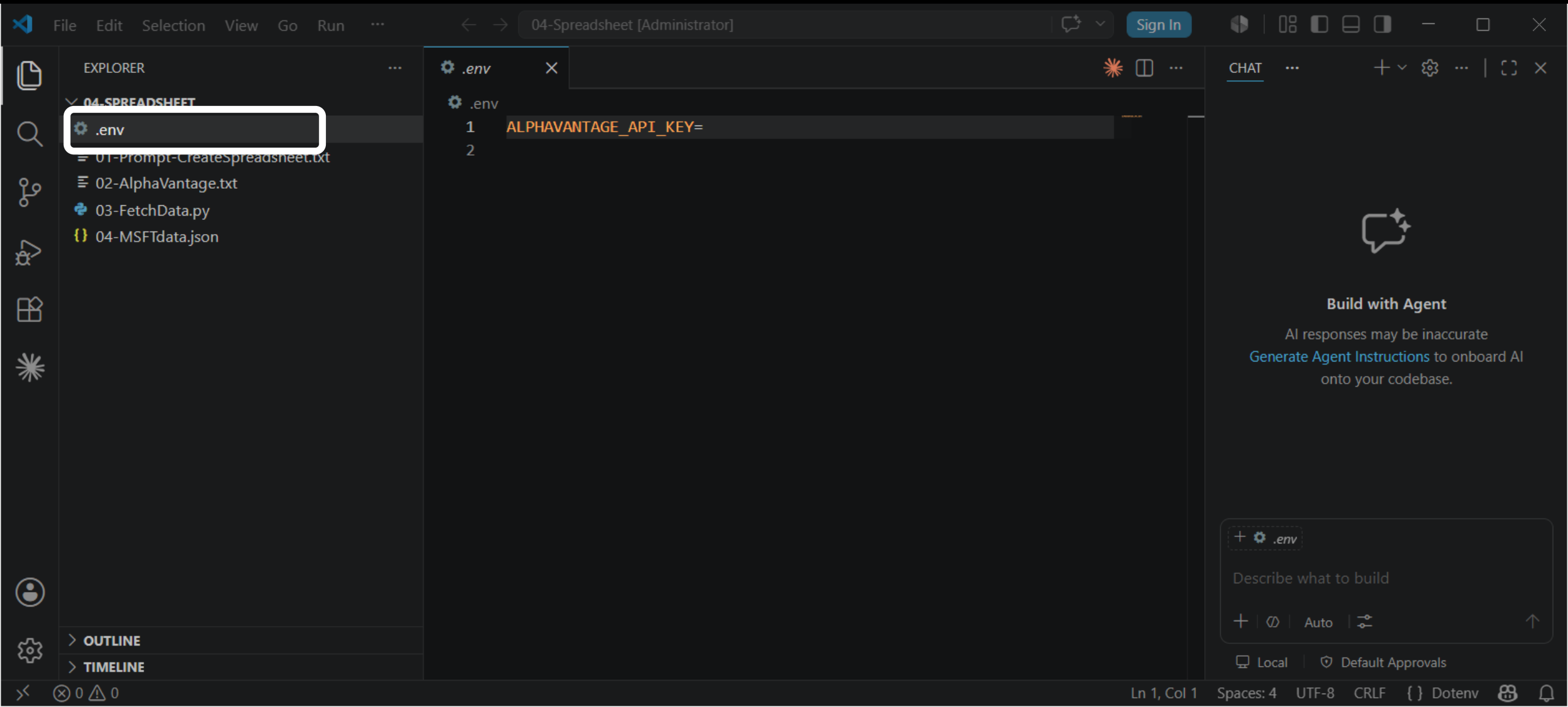
Save the files to a folder on your PC



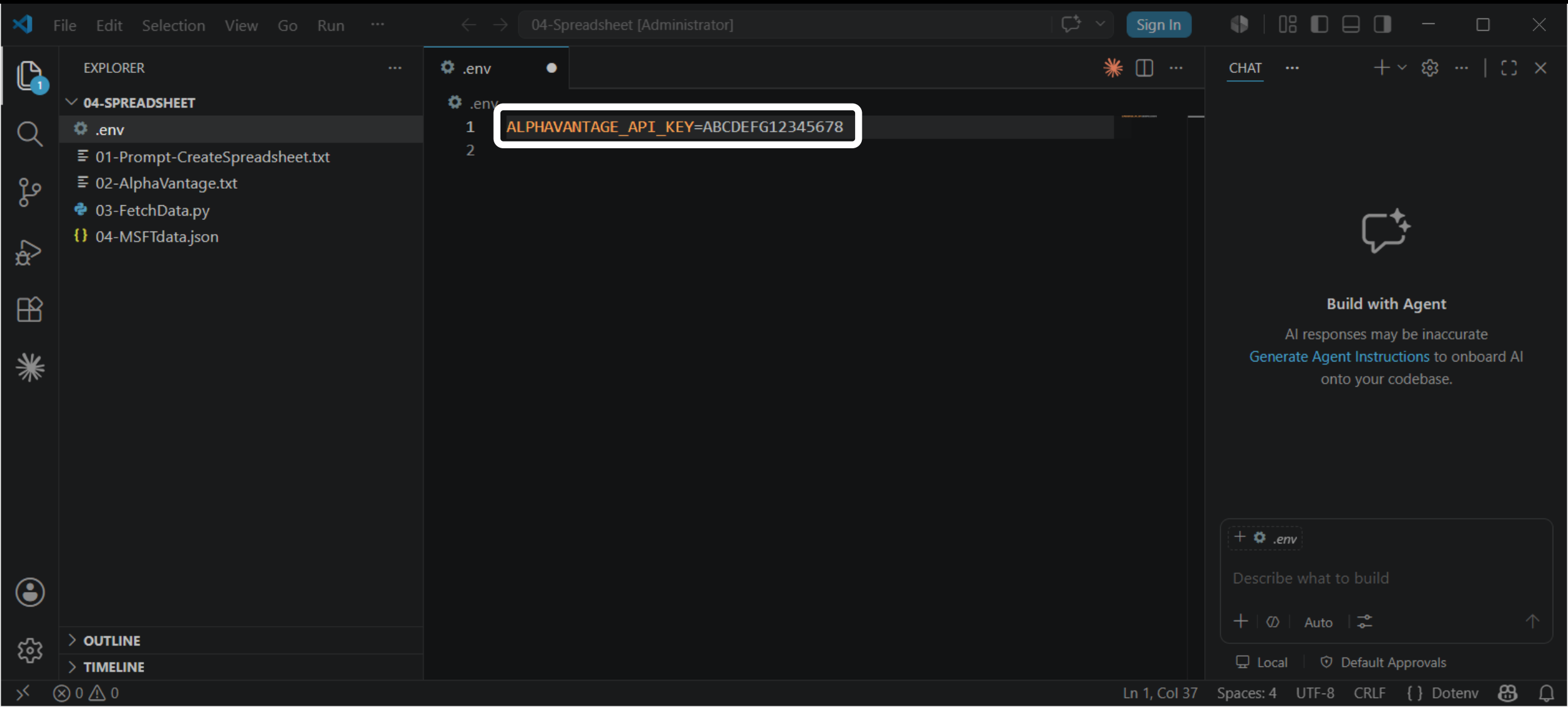
In VS Code, click File -> Open Folder
Select the folder containing those files



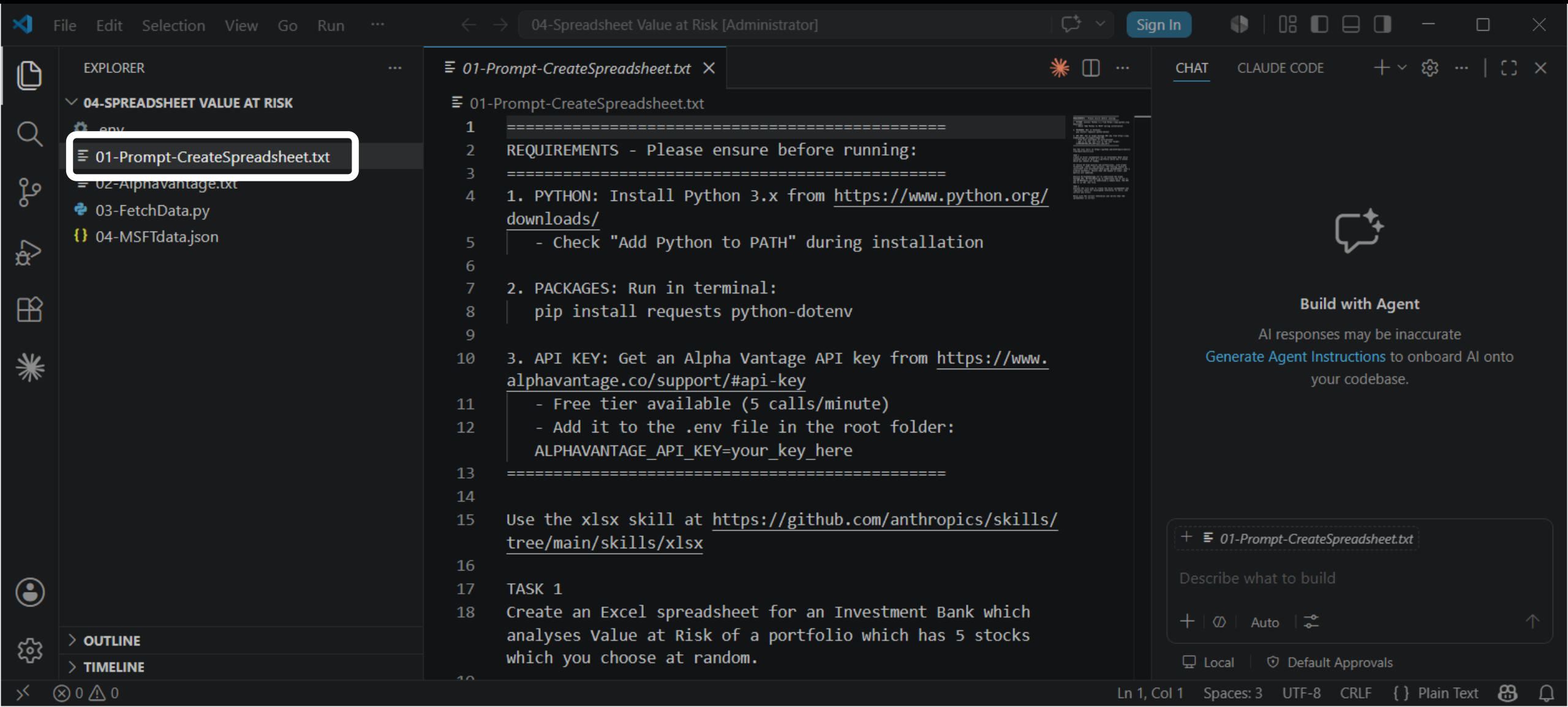
Click on env-template.txt



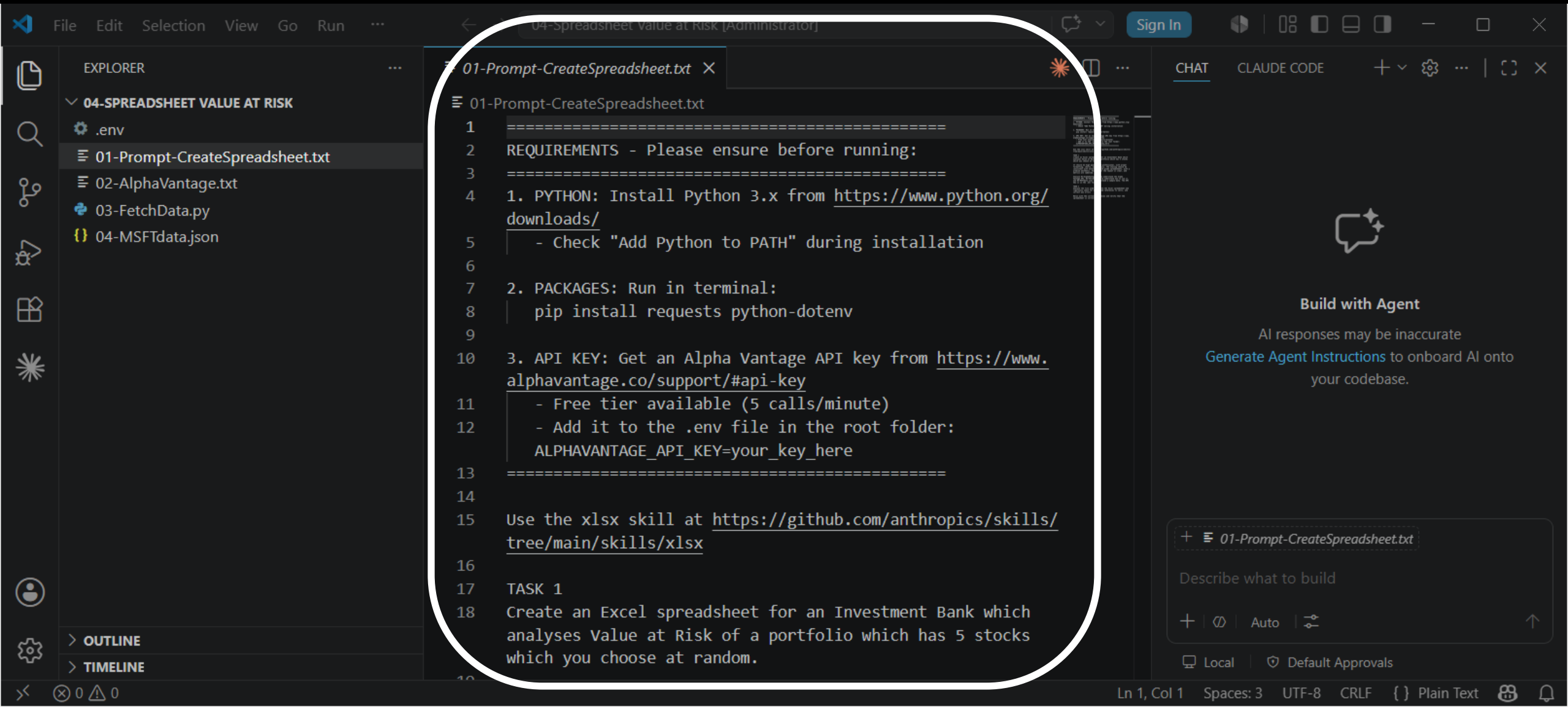
Copy and paste the API key from AlphaVantage



Click on 01-Prompt-CreateSpreadsheet.txt



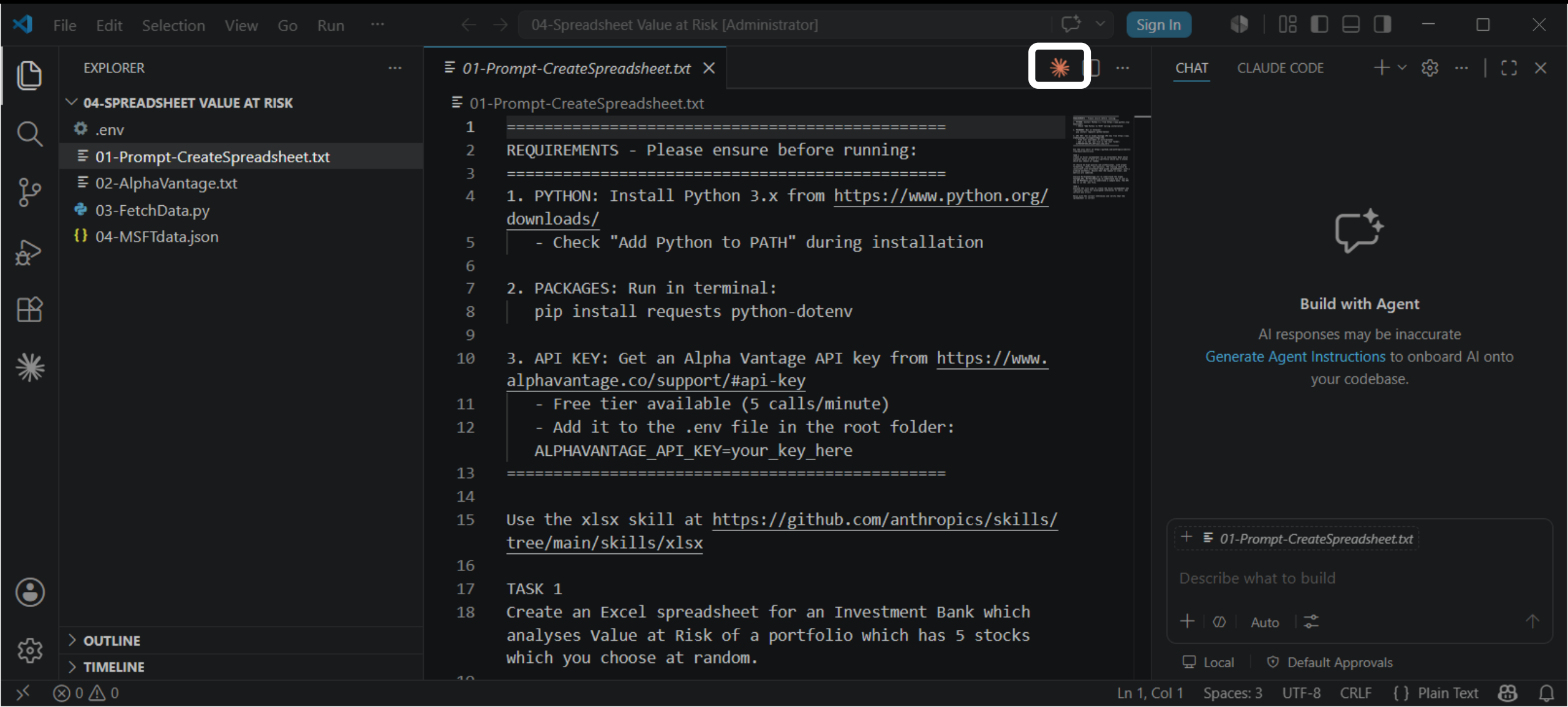
Read through the prompt



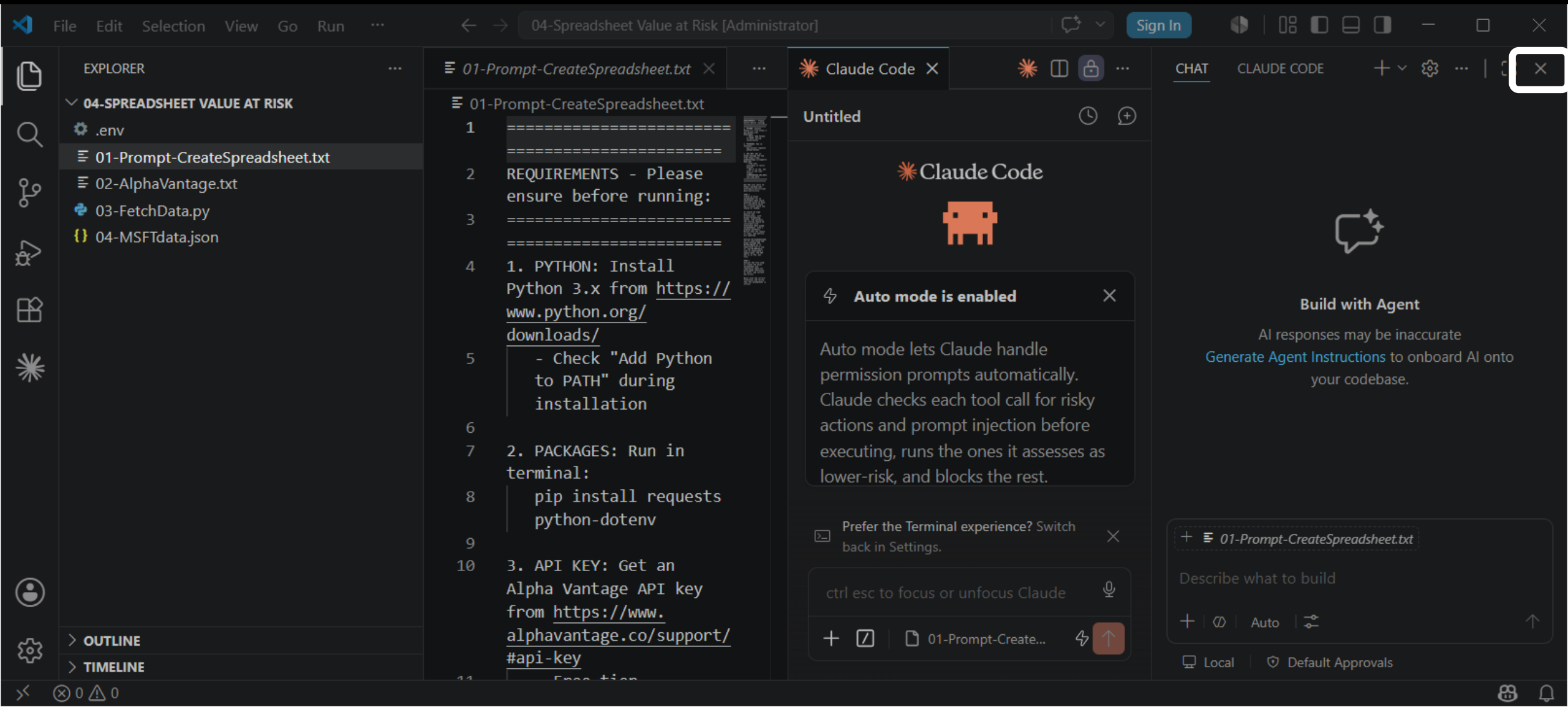
Explanation of prompt

- Begins with a summary of installation requirements
- Asks Claude to create a spreadsheet to calculate Value at Risk for a portfolio
- Use the XLSX skill for standard guidelines on formatting
- Gives detailed references on how the data available from AlphaVantage is structured
- Asks for checks after the spreadsheet is created

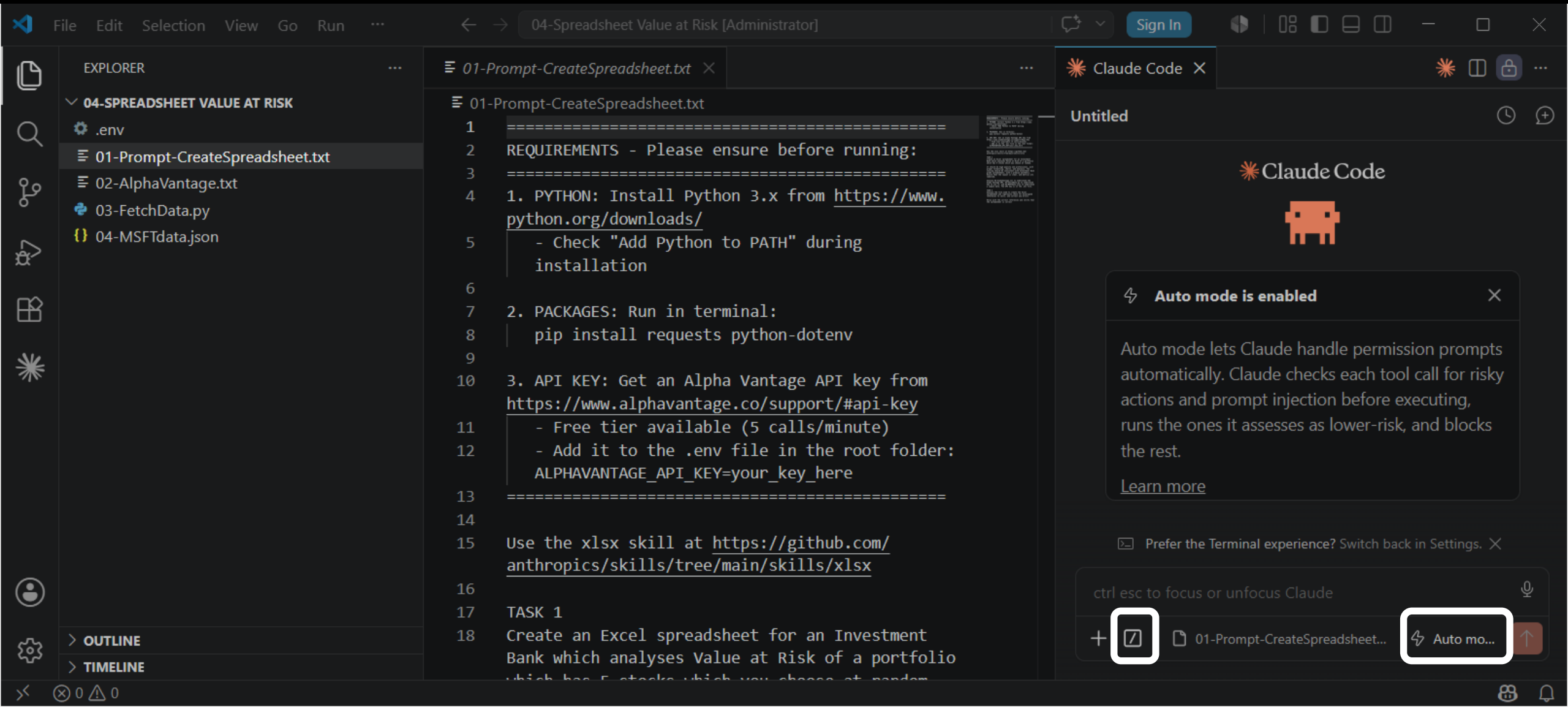
Click orange icon to open Claude Code



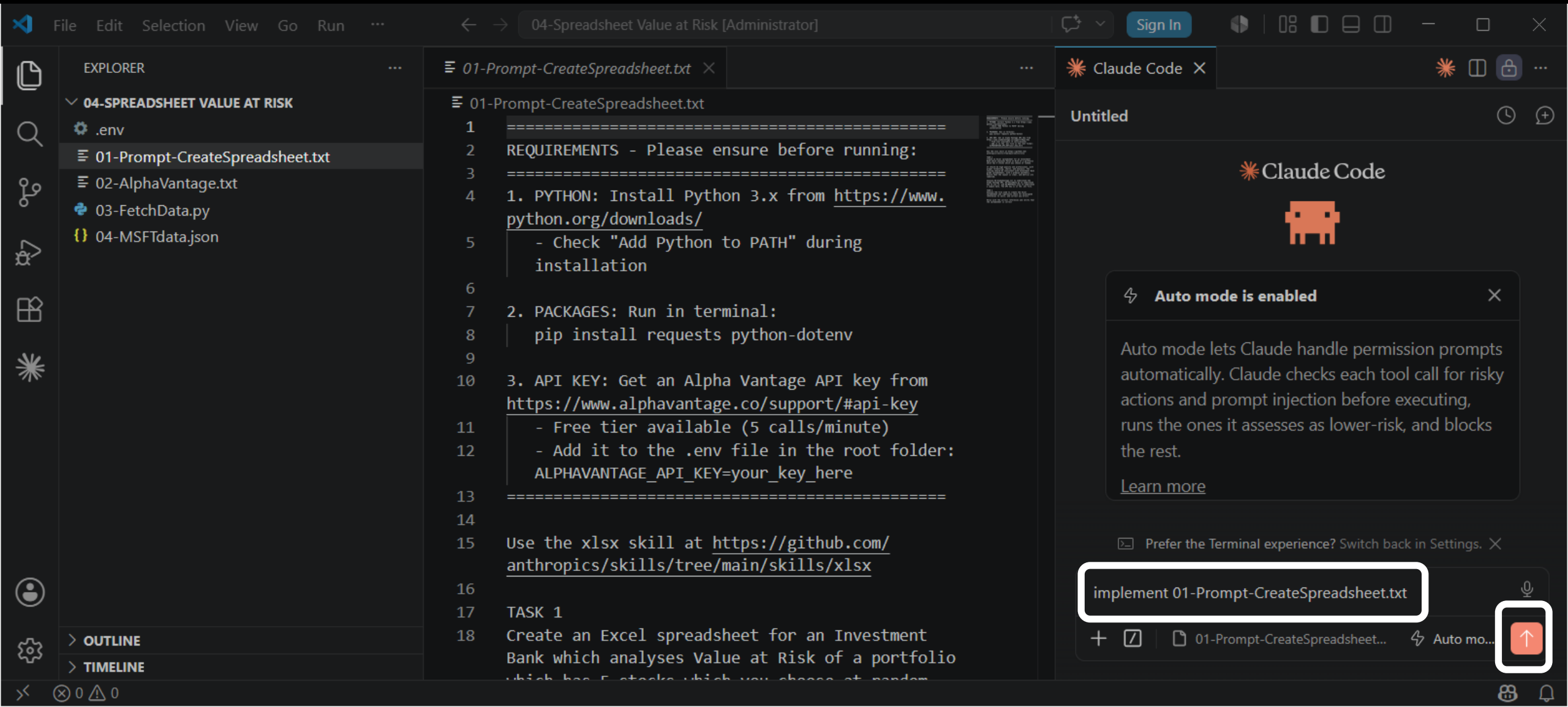
Close the other chat window



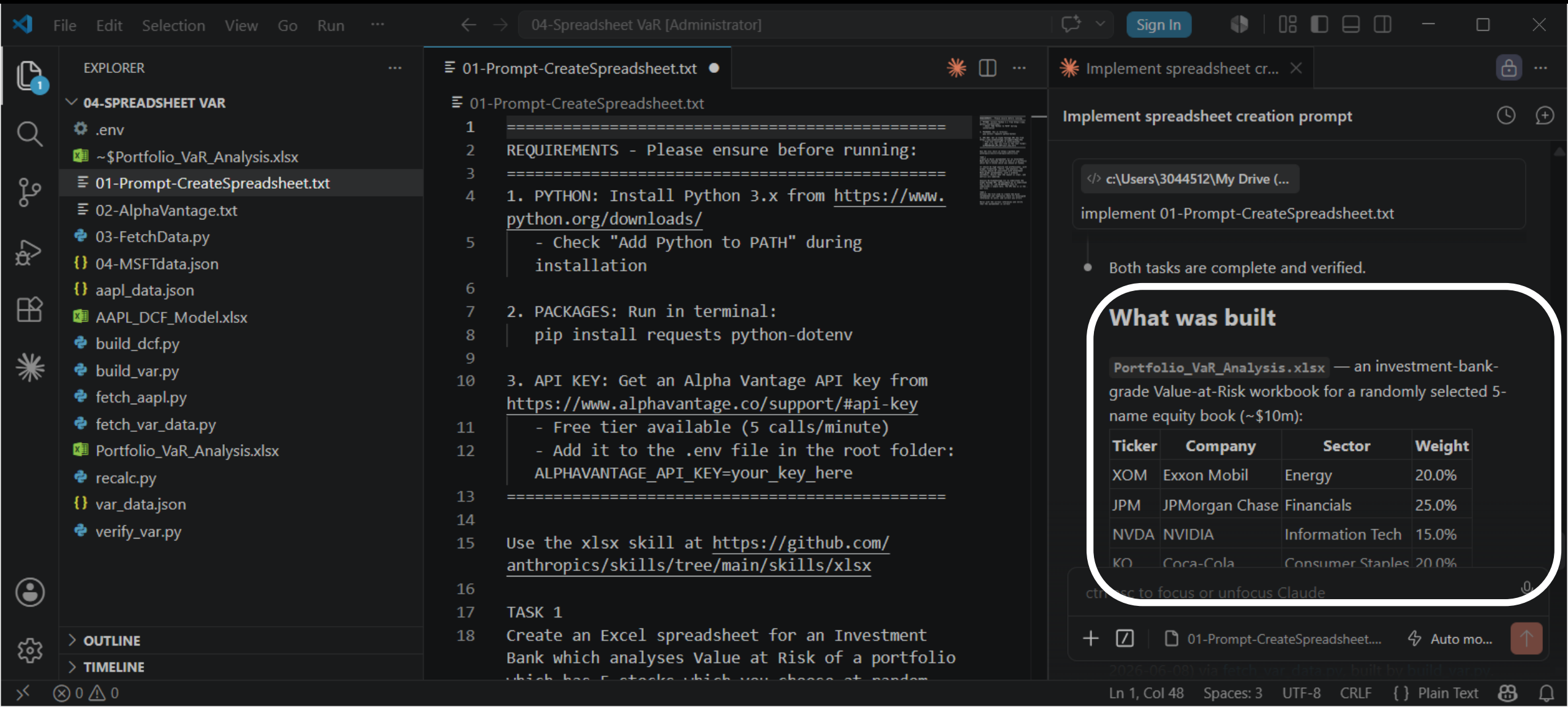
Ensure Settings use Model=Fable, Effort=Medium, and Auto Mode



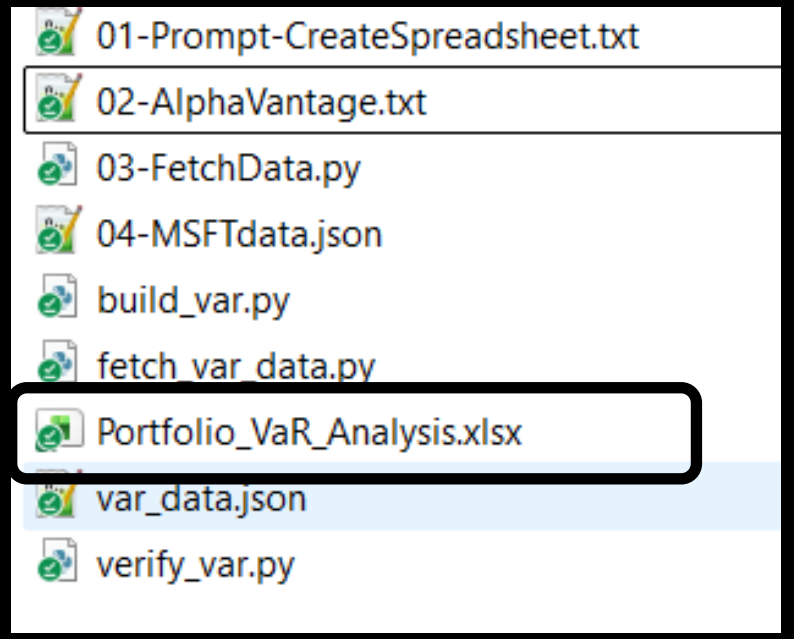
Ask Claude Code:
implement 01-Prompt-CreateSpreadsheet.txt



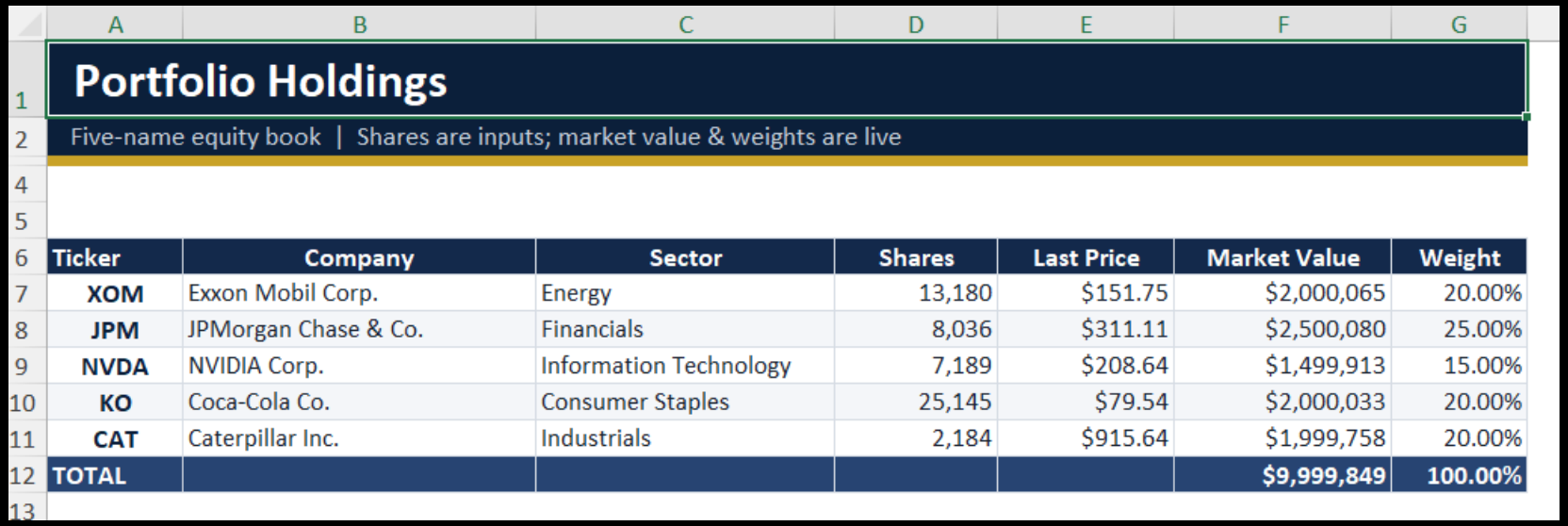
It will produce an Excel file



In Windows File Explorer (not VS Code) double-click the .xlsx file



Value at Risk Analysis



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Challenge

- Create a spreadsheet with a Value at Risk analysis for a different set of stocks
- Upload to Canvas for the assignment