Using Simple AI Agents for Market Research

Overview

Description: This assignment builds off of the examples from Lecture 3 on understanding price gouging by leveraging AI agents. You will choose a new product idea: you can be as creative as you want or pick a product you'd be interested in forming a startup around / launching at an existing company. Then construct a focus group of AI agents to help inform your decision about whether to introduce the product, how to market it, how to deal with any concerns. The deliverables are a written report (just 1 page single spaced, or 2 double spaced), plus supporting materials **and** a Google Sheet summarizing your work. If you use ChatGPT please also include a shareable link to your prompting thread.

Due: 1 week from today at 4pm on 11/14

Steps

Part 1: Invention

Invent a new product or service for some market you are interested in. It can be completely impractical or fantastical - or alternatively very relevant to your work. Perhaps make an image of your product if appropriate. E.g.,

You

Make a picture of a new kind of ketchup that shrinks food to 1/4 of its normal size after an intense (but safe) chemical reaction. It's called JerkyMaker

ChatGPT

Part 2: Persona Agents

You then will create potential "persona" customers, decision-makers or stake-holders and "interview" them. Give them attributes that might be relevant to how they think and feel about your product. You should have at least four agent/personas. This should be one tab in your Google Sheet labeled "Agents"

Agent / Person	Age	Gender	Hobbies / Interests	Attitude towards food
Alice	...			
Bob				

Part 3: Conduct Open-ended interviews

Develop a reasonable rubric of topics to explore with your agents---value, safety, price, substitutes, etc. The topics are in the first column, one for each row; your agent/personas as the columns. This tab should be labeled "Qualitative"

Topics	Agent Alice	Agent Bob

Price	Q: What do you think about…	
	R: My main worry is that…	
Safety		
Substitutes		

Part 4: Quantitative Survey Research

Use your qualitative interviews to design an actual survey. Administer the survey to your agents. The survey should be mostly multiple choice questions / rating scale. Aim for 4 questions. Record their responses in a spreadsheet.

Agent	Q1: What is your max price point?	Q2: Would you buy…
Alice		
Bob		

Part 5: Writeup

Write up your recommendations given what you learned. Explain what you thought worked well about this approach (or not). Explain what next steps you might take to increase the value. Were there particular prompts that you felt led to better outcomes?

Part 6: Optional: Data Analysis

The max grade on this assignment is 93%. For up to 1%-7% additional credit, use an LLM to generate 100 agents and have them answer the 4 quantitative questions (use an LLM for this as well). Pick up to 2 of your persona attributes (e.g. Age and Gender) and provide an analysis that shows statistical significance (or lack thereof) in differences answering each of your 4 questions.

Hint 1: We encourage everyone to attempt this, and rather than asking the staff we strongly recommend you first provide the full context to Claude or GPT-4o and have it explain how to do this efficiently. Because both of these LLMs have the ability to generate data, conduct analysis, and create graphs you should have all the tools you need.

Hint 2: Here's an example output: "Among our 100 agents surveyed, the 45 men had an ideal price point of $20 while the 55 women averaged an ideal price point of $18. Below we've included the overlaid histogram distributions and the analysis provided shows that this $2

difference is significant at the 0.05 level… {assume charts and analysis below along with a shareable URL to the LLMs used}"

Guidelines on Deliverables

- Writeup is 2 pages double spaced (or 1 page single space), with link to Google Sheet (with open sharing)
    - 12 pt font, Times New Roman
    - 1 inch margins
    - Up to 10 pages of figures in the appendix (all figures must go in the appendix)
    - Screenshots of prompts, results, or tools used should be included (feel free to use the appendix).
    - List whatever specification you used to ensure this is reproducible (e.g. temperature, Gemini vs. Claude vs. ChatGPT, system prompts, etc.)
    - Use online resources for any data and cite the sources in a bibliography (MLA format)
- Use of ChatGPT/Claude/Gemini in Writeup
    - Highly encouraged - but must provide shareable url