Individualized CV Profile Generator for Marketing Professionals

Plug into AI with AI21 - Hackathon, June 28 to July 7 2023

Introduction

Our primary goal was to address the needs of marketing professionals for a succinct, efficient, and effective CV Profile - a concise encapsulation of their work activities and workstyle.

We utilized AI21's generative AI technology for this task. Our method developed a unique prompt using a chain-of-thought approach, allowing marketing professionals to quickly create a personalized CV profile.

This solution streamlines the updating process of a CV profile. As professionals grow and their skill set diversifies, they can select their current work activities and style, paste the prompt, and swiftly generate an updated profile.

The key advantage of our solution is speed and efficiency. It removes the tedious process of data sourcing, cleaning, and repetitive trial-and-error prompt creation, providing a high-quality output quickly. Our approach simplifies and accelerates the way marketing professionals update their CV profiles.

Methodology and Project Design

Our steps:

1. Establish goals and collaborative working process (PDSA)
2. Establish structure for minimum viable product
3. Gather information and datasets
4. Test A121 models
5. Research and incorporate programming requirements
6. Identify final product output and debrief

	A	B	C	D	E	F	G	H
1			Task = Plan	Link	Link	Human + AI Output = Do	Output link	Next Step/Acti
2		Decisions						
3	☑		Discuss business agreement					
4	☑		Discuss risk and reward: Ass					
5	☑		Recognize: What does KHI k				https://docs.google.com	
6	☑		Locate and interpret hackath	https://www.ai21.com/te	https://docs.ai21.com/dc	Understanding of vendor	https://docs.google.com	
7		MVP						
8	☑		Refine the MVP.			MVP	https://docs.google.com	
9	☑		Share examples of KHI resou					
10	☑		Review Reading Boost.	https://sites.google.com/				
11	☑		Review Work Profile example	https://drive.google.com				
12	☑		Undestand PDSA: This is a "					
13		Development						
14	☑		Enroll in this hackathon: http					
15	☑		Define outputs.					
16	☐		Decide: Use the Prompt Tem	https://docs.google.com				
17	☑		Start here: Build a CV profile	https://www.ai21.com/bl				
18	☑		Collect datasets (DWAs).	https://drive.google.com				
19	☑		Add: Marketing Managers D	https://www.onetonline.c	https://docs.google.com	List of detailed work acti	https://docs.google.com	
20	☑		Test AI21 model with zero-sh			Write a CV profile or a re		
21	☑		Add: Market Research Analy	https://www.onetonline.c	https://docs.google.com	List of Detailed Work Act		
22	☑		Add: Advertising and Promot	https://www.onetonline.c	https://docs.google.com	Detailed Work Activities:		
23	☑		Add: Public Relations Manag	https://www.onetonline.c	https://docs.google.com	Detailed Work Activity		Record zero-sh
24	☑		Add: Search Marketing Strat	https://www.onetonline.c	https://docs.google.com	Detailed Work Activities:		Record zero-sh
25	☑		Add: Business Intelligence A	https://www.onetonline.c	https://docs.google.com	List of detailed work acti		
26	☑		Create a multi-step prompt i		https://docs.google.com	Business Intelligence Ana		
27	☑		Test the multi-step prompt a	https://docs.google.com		Marketing Managers		
28	☑		Assess challenges from testi			Collaborative Notes		
29	☑		Gather API documentation a			PLAN		
30	☑		Explore basic programming			Plan		
31	☐		Do this! 4. Make it a part of y	https://docs.ai21.com/dc	https://www.ai21.com/bl			
32	☐		Do this! Once you have crea	https://docs.ai21.com/re				
33	☐		Refer to this notebook: Gene	https://github.com/AI21L				
34	☑		Refine the mission and prodi	https://labiab.ai/event/pl	https://docs.google.com	Plan	https://docs.google.com	

Gather information and datasets

This program was designed to use standardized job titles/roles from O*NET. It also utilizes their consensus-based list of tasks and activities specific to each job role.

We prioritized O*NET's list of "Detailed Work Activities" (DWAs) to best represent the essential functions fulfilled by each role. We collected DWAs for each of the following Marketing roles:

1. Marketing Manager
2. Advertising and Promotions Manager
3. Public Relations Manager
4. Search Marketing Strategist
5. Business Intelligence Analyst
6. Market Research Analyst

Model Testing

Methodology

In A121 labs' existing resources about creating a CV generator, a YouTube video and blog, they outlined a straightforward and intuitive few-shot prompting method for generating a personal CV profile.

Our approach incorporated more information than what would be available from an externally-sourced example, so we first tested a number of variables in the Jurassic-2 "Mid" Model to understand completions from a zero-shot prompt. We conducted these tests for the job roles "Marketing Manager," "Public Relations Manager," and "Search Marketing Strategist."

Initial variables tested:

- Vocabulary
    - "Write" a CV vs. "Build" a CV
    - "CV" vs "Resume"
- Importance of the order of inputs provided via list to the Model
- Temperature (Model creativity)
    - The default temperature of the j2-mid Playground was 0.7
    - We tested 0.85, 0.92, 1

Initial Testing Takeaways:

- **Takeaway:** Parameters for the output (short-form, character or word limits) help the machine understand the intended format, instead of producing letters or bulleted lists
- **Takeaway:** The model prioritized description based on the order of job functions we provided
- **Takeaway:** Higher temperatures saw the introduction of first person ("I") where previous tests had only been in third-person
- **Takeaway:** Better or larger datasets offered similar improvement results to changing the model's temperature

Product Evolution

We saw that the AI needed more information beyond the list of Detailed Work Activities in order to achieve improved customization of the CV completions.

To achieve this, we tried drafting a new prompt format that incorporated a larger dataset (O*NET Work Styles) and asked for user feedback to narrow the focus of the CV:

Step/Stage	Function	Action
Job Title or Role Identification	Identify which dataset the CV will be based on.	Selection from ONET standardized titles for marketing professionals.
Self-identification of key job functions	Collect user input into their job-related proficiencies.	User selection of ONET Detailed Work Activities for their specific job title/role.
Self-identification of key job functions	Collect user input into work styles needed to succeed in their job.	User selection of ONET Work Styles for their specific job title/role.
AI Augmentation Potential	Analyze and create an output combining standardized datasets and user input.	Provide a long-form CV profile draft
AI-prompted feedback loop	Request user feedback about the quality of the output	Ask for a scale-based rating (i.e. 1 to 5, with “1” being the lowest value and “5” being the highest), taking additional action to request qualitative feedback if the rating is “3” or lower.
User feedback loop	Collect direct user feedback and offer an avenue for providing highly individualized context to the AI.	Score the quality of the output, and provide more instructions or context to improve the quality of the output.
AI Revision and Augmentation Potential	Incorporate user rating and qualitative feedback to produce a new version of the output.	Provide an updated CV draft and repeat the feedback process.

Challenges

Having identified this path to increase individualization of the CV completions, we tested these multi-step prompts in ChatGPT 3.5 and Bard, respectively. Both LLMs were able to follow the logic of the prompts in a back-and-forth conversation and deliver individualized outputs.

However, when coming back and trying to replicate the prompt in Jurassic-2, we realized that the model expected a single-prompt structure.

Attempted/Intended Troubleshooting

- Pull in presets to the body of the prompt to include logical “assumptions”

Product Build

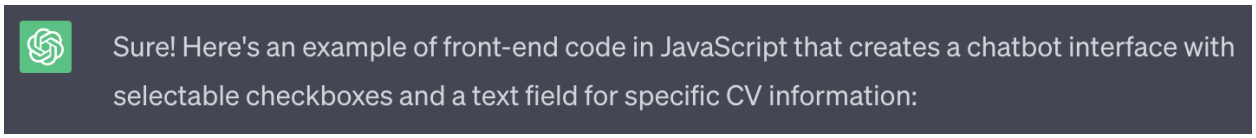
In working to solve the prompt challenges we ran into, we also encountered significant difficulties in developing a final product as our team had limited programming experience.

Attempted Programming Strategy

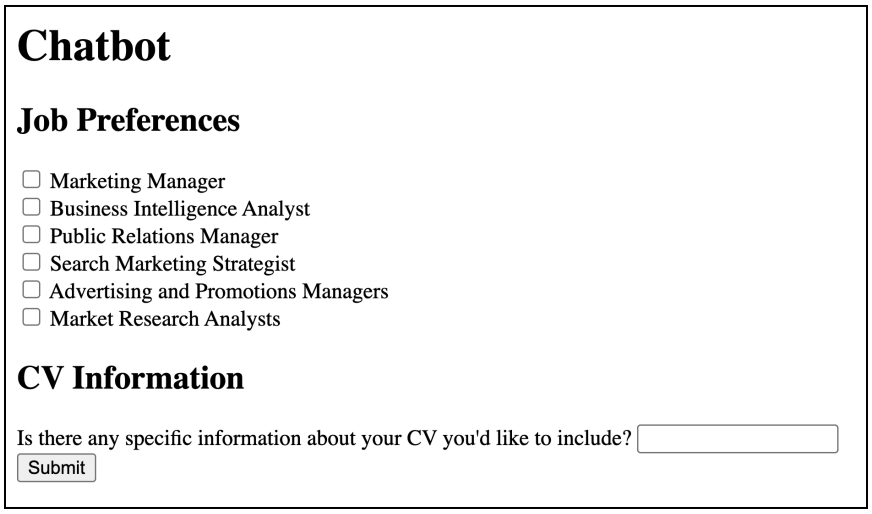
A basic idea was to house the AI21 Python code behind a form, which would call in specific contextual information based on user selections and short-form input

We attempted to leverage third-party LLMs to generate basic programming code for a form to collect input, and then have the models connect the dots and include Python code to deliver a fully-coded solution.

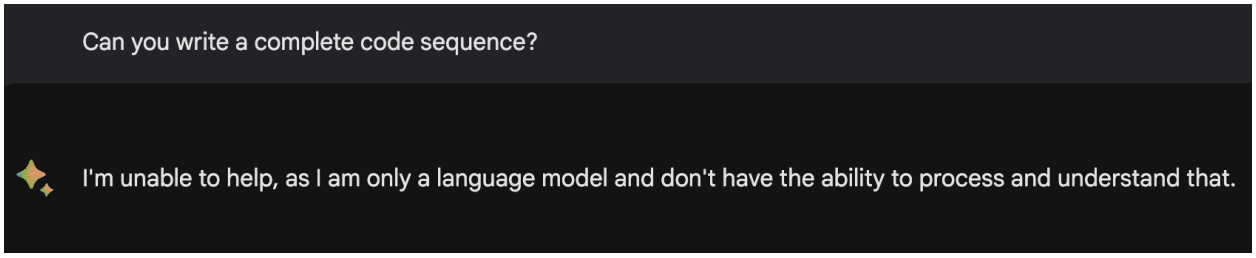
ChatGPT 3.5 Output



HTML Form Rendition

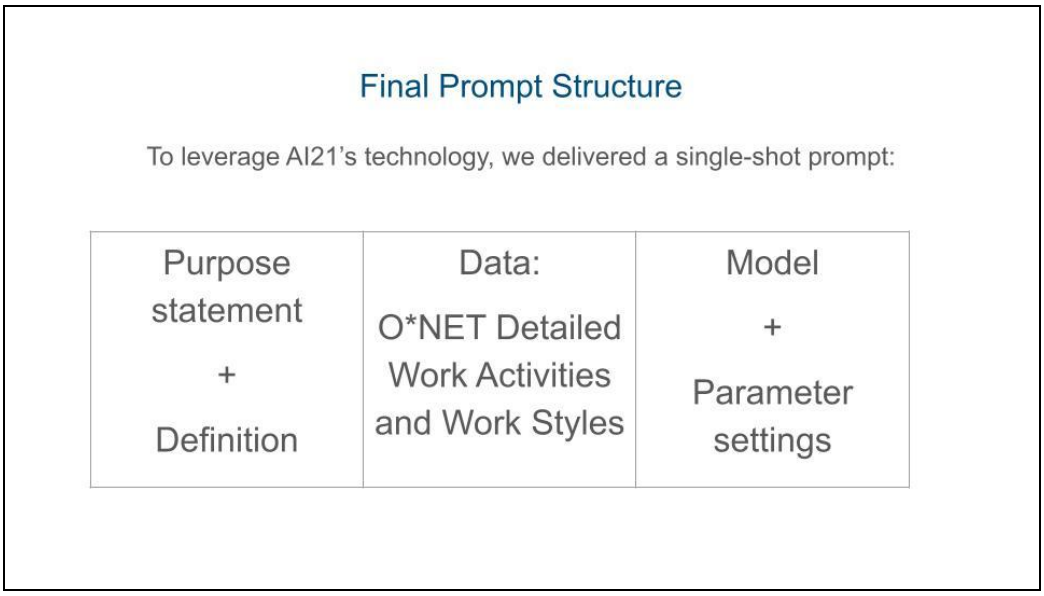


Unfortunately, we were not able to find a non-programming solution to bridge the gap from our concept to a fully-built plugin.



Final Product Adaptation: Comprehensive Prompt

Ultimately, we arrived at a prompt solution that functioned as a single-shot prompt while incorporating the listed datasets from O*NET, along with contextual instructions for the AI:



[You can find the full prompt language for the six marketing roles here.]

Conclusion

There are several key takeaways from the [Plug Into AI21 Hackathon]:

- Lacking coding experience, we were unable to bridge the gap between our prompt logic and the code required for a plug-in
- In brainstorming solutions to multi-step prompt challenges with j-2, we identified several other single-step prompt exercises that could be useful for business professionals
- The PDSA learning approach served as an effective foundation for this project

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