

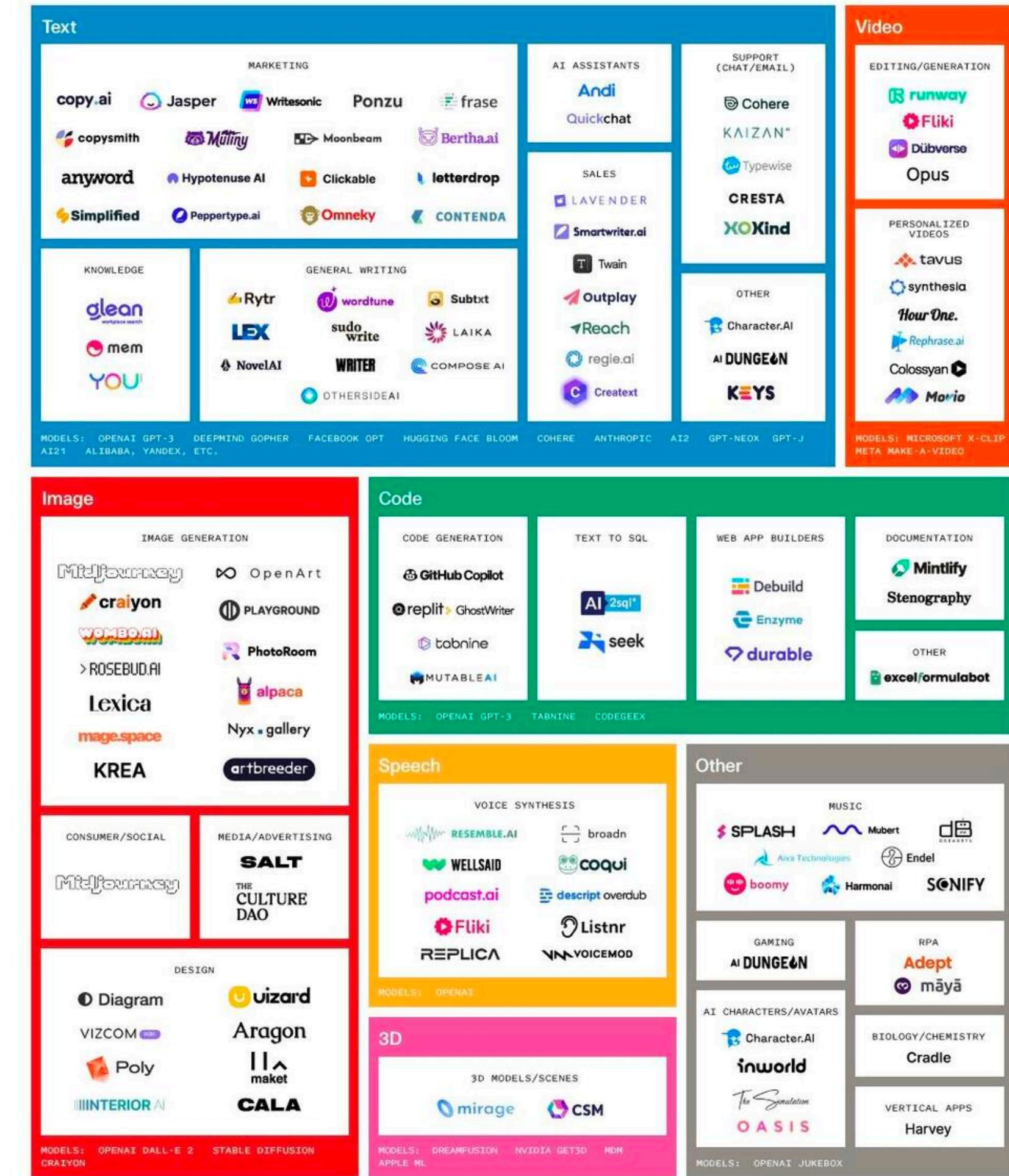
GenAI Applications

Prompt Surfing Winter 2024

Week 1 (1/8)

The Generative AI Application Landscape v2

A work in progress



All Those Acronyms!

"Hi there, I'm a startup founder of a data-driven ML & NLP-powered GenAI startup that LLMs like GPT to build AIGC products."

| Terms | Full Name | What is it | Key Difference | Differentiating examples |
|-------|---|--|--|--|
| AI | Artificial Intelligence | It's the broadest category encompassing the simulation of human intelligence in machines. | An umbrella term that encompasses all the other terms mentioned. Not limited to any specific technique or application. | A simple rule-based chess game |
| ML | Machine Learning | A subset of AI focused on building algorithms that can learn from and make predictions or decisions based on data. | ML is specifically about learning from data, whereas AI includes any form of intelligent behavior by machines. | A decision tree for credit scoring |
| NLP | Natural Language Processing | Focused on how to program computers to process and analyze large amounts of natural language data. | Focused on language-related tasks | Classic sentiment analysis that doesn't use LLMs |
| LLMs | Large Language Models | LLMs are advanced NLP models trained on massive amounts of text data. | A subset of GenAI that generates text | GPT, BARD, LLaMA |
| GPT | Generative Pretrained Transformer | A specific series of LLMs developed by OpenAI. | GPT is a specific instance of an LLM, with a unique architecture and training process. | GPT3, GPT-4, DALL-E |
| GenAI | Generative AI | Broad term encompassing any AI technology that can generate new content or data | All about generating NEW content | Image-to-text models, Text-to-text models |
| AIGC | Artificial Intelligence Generated Content | Content created by AI, particularly generating text, images, music, and other forms of media | AIGC is focused on the output, i.e., the content created by AI, rather than the underlying technology or methods. | A synthetic image generated by DALL-E |

Generative Agents



Figure 1: Generative agents create believable simulacra of human behavior for interactive applications. In this work, we demonstrate generative agents by populating a sandbox environment, reminiscent of The Sims, with twenty-five agents. Users can observe and intervene as agents they plan their days, share news, form relationships, and coordinate group activities.

- Miniature RPG-style virtual world similar to The Sims, where 25 characters, controlled by ChatGPT and custom code, live out their lives independently with a high degree of realistic behavior.

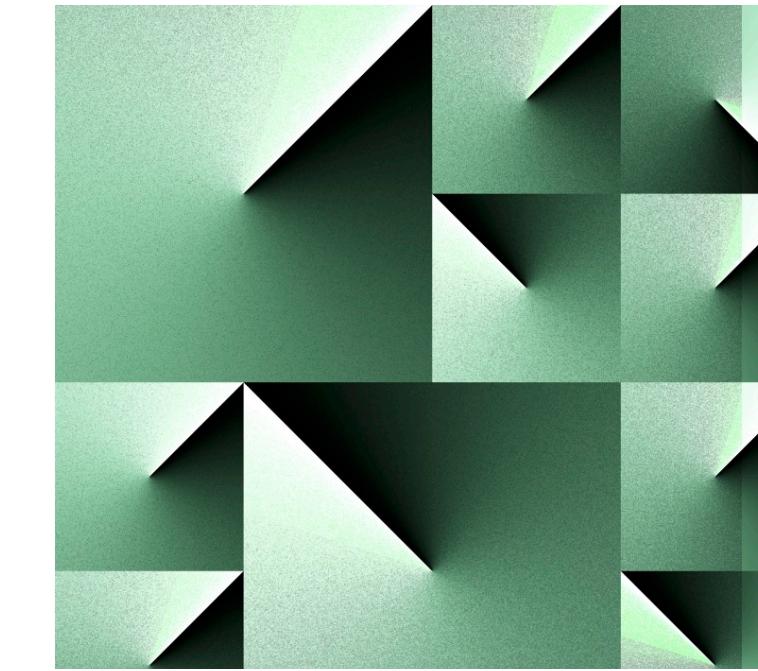
Your Next TA:

Personalized Educational Chat Agent

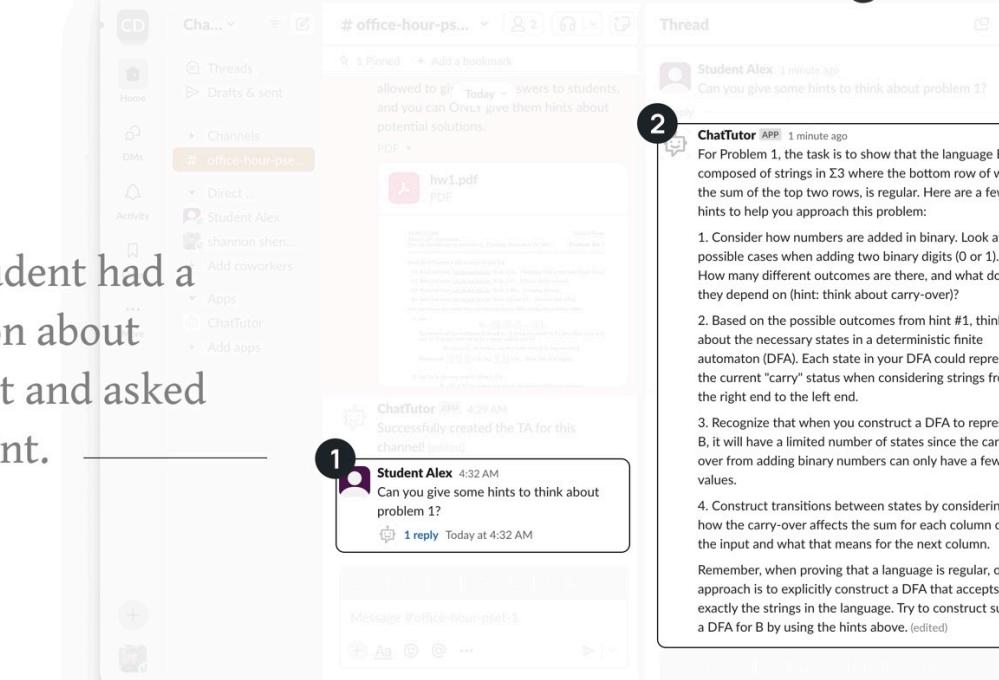


Try our demo

@shannonzhen
MIT Generative AI Week



Students: interact with the TA Agent



The TA Agent responded in a thread, and students could ask followup questions.

The student had a question about the pset and asked for a hint.

Personalized Educational Chat Agent | @shannonzhen | MIT Generative AI Week

- Personalized TA Chat Agent on Slack

Search Engine

 perplexity

New Thread ⌘ K

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Our Mission Continues
ANNOUNCING OUR SERIES B FUNDING

Ask anything...

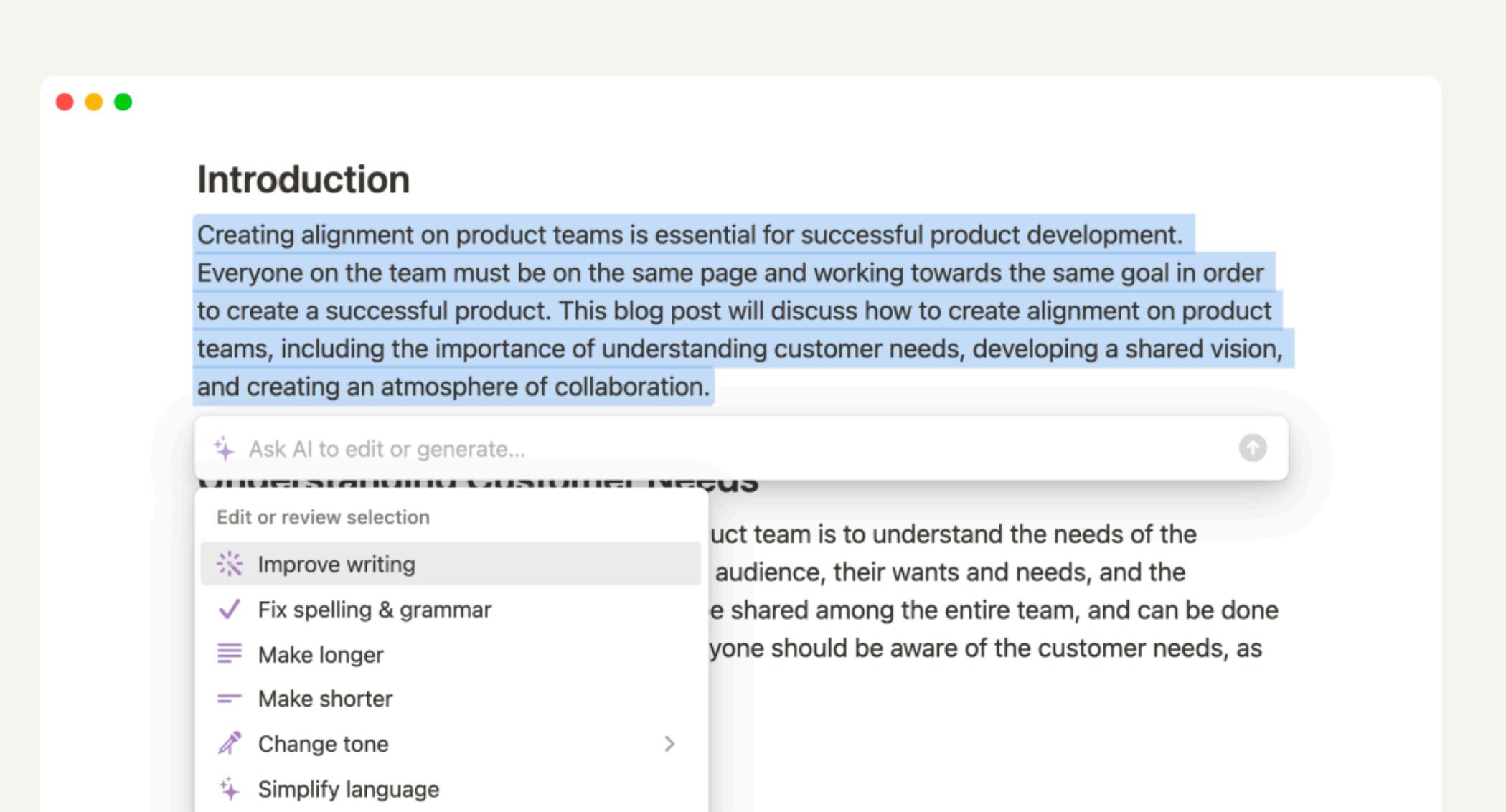
≡ Focus + Attach Copilot →

→ Try asking ↗ How to purify water in the wild 🍪 How to bake the perfect cookie

↗ How much are Stradivarius violins? 🌵 How do cacti survive in the desert?

Productivity/Creativity Support

- Notion AI - A new function of the Notion App that predicts and generates different outputs based on the user's input.
- Github's Copilot - autocomplete code based on code comments

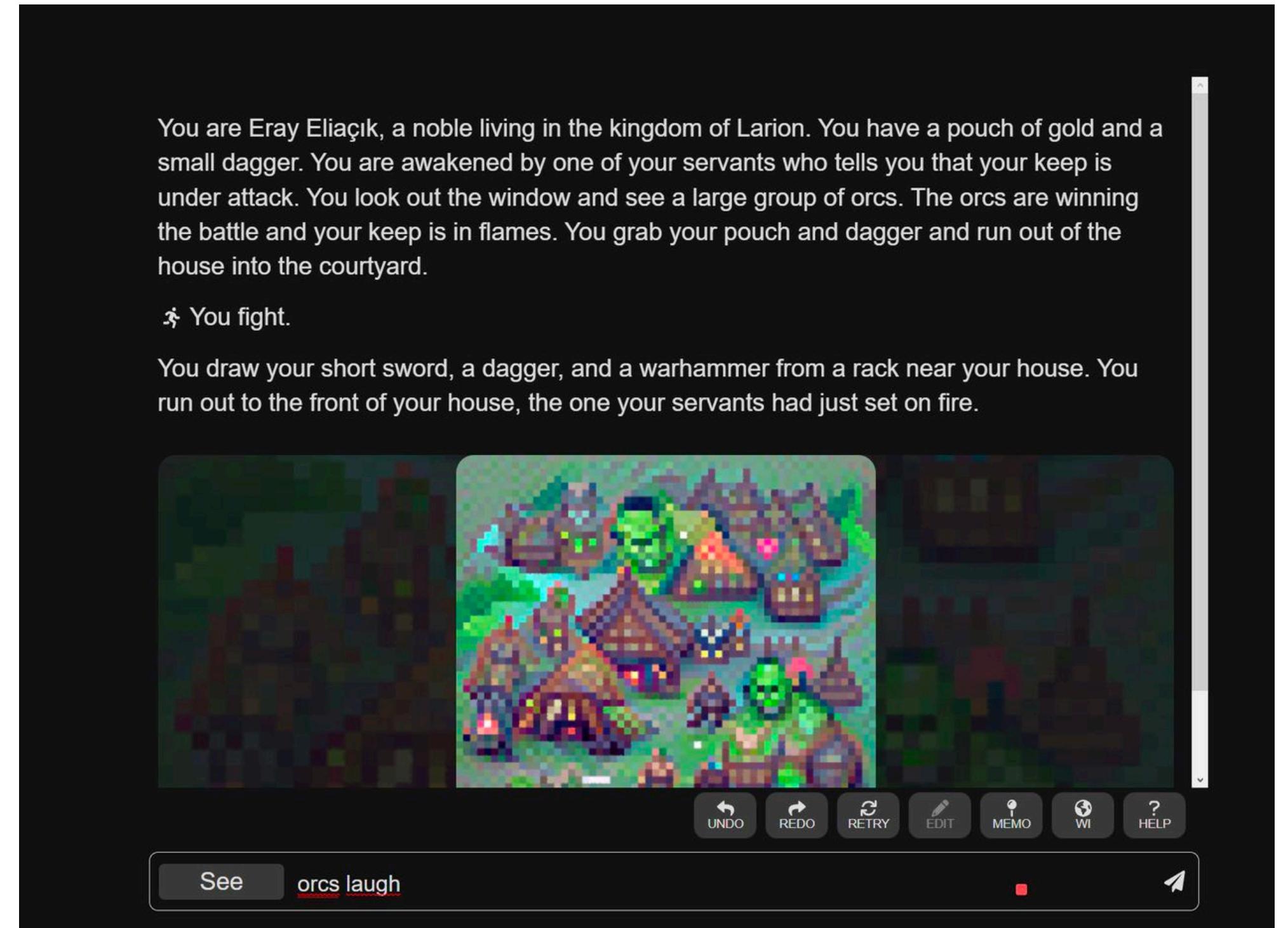


The screenshot shows a GitHub repository interface with several files listed at the top: parse_expenses.py, write_sql.go, sentiment.ts, and addresses.rb. The main area displays the contents of parse_expenses.py. The code defines a function parse_expenses that takes a string of expenses and returns a list of triples. A Copilot suggestion is visible at the bottom of the code editor, starting with "1 import datetime". The code is numbered from 1 to 20.

```
1 import datetime
2
3 def parse_expenses(expenses_string):
4     """Parse the list of expenses and return the list of triples (date, va
5
6
7
8
9
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```

Storytelling and Games

- AI Dungeon - interactive fiction that lets players build worlds by seeding the AI with locations, characters, plot points, factions, races and other story elements for the AI to draw from.



OpenAI's GPTs

- OpenAI's GPTs are custom versions of ChatGPT that you can create for a specific purpose, such as teaching, learning, creating, or having fun. You can give them instructions, extra knowledge, and any combination of skills, such as searching the web, making images, or analyzing data. You can also share your GPTs with others.



Prompting Support

- Suh, S., Min, B., Palani, S., & Xia, H. (2023). Sensecape: Enabling Multilevel Exploration and Sensemaking with Large Language Models.
- Brade, S., Wang, B., Sousa, M., Oore, S., & Grossman, T. (2023, October). Promptify: Text-to-image generation through interactive prompt exploration with large language models.

The figure displays two views of the Sensecape application. On the left, labeled 'A Canvas View', is a card-based interface for exploring neighborhoods in San Francisco. It shows a main card: 'San Francisco Neighborhoods' with the text 'Peaceful neighborhoods in San Francisco like Sunset District are great places to live.' Below it are cards for 'Marina District', 'Sunset District', 'Richmond District', and 'Nob Hill'. A dashed arrow points from the main card to the 'Sunset District' card. On the right, labeled 'B Hierarchy View', is a tree diagram showing the relationship between 'Moving to San Francisco' (root), 'Neighborhoods', 'Local Attractions', and various districts like 'Marina District', 'Sunset District', 'Richmond District', and 'Nob Hill'. A large double-headed arrow connects the two views, indicating their interconnectedness.

A Canvas View

B Hierarchy View

Promptify

A Stable Diffusion Controls

Prompt Writing
Enter prompt
A brown and white cow standing in a green meadow with a blue sky in the background, post-impressionism style, brushstrokes visible, warm and vibrant colors, elements of nature, peaceful and serene atmosphere, reminiscent of rural landscapes by Vincent van Gogh

B Prompt Extension

EXTEND SUBJECT
Steer the subject matter
STEER SUBJECT
Steer the style
EXTEND STYLE

C **D** **E** **F**

Clustering Controls

CLUSTER
POSITION BY SIMILARITY
Scale

Select prompts to show

Prompt: A brown and white cow standing in a green meadow with a blue sky in the background, post-impressionism style, brushstrokes visible, warm and vibrant colors, elements of nature, peaceful and serene atmosphere, reminiscent of rural landscapes by Vincent van Gogh

Prompt: A brown cow standing in a snowy field with snow-covered trees and mountains in the distance, impressionism style, soft and blurred brushstrokes, warm and cool tones, simple and peaceful scene, inspired by Camille Pissarro's winter landscapes

Prompt: A white cow with a green wreath around its neck standing in front of a snow-covered fence and a forest of evergreen trees, post-impressionism, soft brushstrokes, pastel colors, winter landscape, calming and peaceful