

prompting

January 25, 2024

0.1 Prompt Engineering

```
[1]: import os
import openai
from dotenv import load_dotenv, find_dotenv
# _ = load_dotenv(find_dotenv()) # read local .env file
load_dotenv()
openai.api_key = os.getenv("OPENAI_API_KEY")

[2]: def get_completion(prompt, model="gpt-3.5-turbo", temperature=0): # Andrew
    ↪ mentioned that the prompt/ completion paradigm is preferable for this class
    messages = [{"role": "user", "content": prompt}]
    response = openai.ChatCompletion.create(
        model=model,
        messages=messages,
        temperature=temperature, # this is the degree of randomness of the
    ↪ model's output
    )
    return response.choices[0].message["content"]

[3]: text = f"""
The content provided in this video includes references \
to the contributions of OpenAI and DeepLearningAI. \
All copyrights and intellectual property rights related \
to their respective work are owned by OpenAI and DeepLearningAI. \
This video is intended for educational and informational purposes only, \
and no copyright infringement is intended. We respect the intellectual \
property of others and aim to adhere to all relevant copyright laws and \
guidelines. If you believe that any content in this video infringes upon \
your copyright, please contact us so that we can address the matter \
promptly.
"""

prompt = f"""
Summarize the text delimited by triple brackets into a single sentence. \
```{text}```
"""
```

```
response = get_completion(prompt)
print(response)
```

The video acknowledges the contributions of OpenAI and DeepLearningAI, stating that all copyrights and intellectual property rights related to their work are owned by them, and emphasizes that the video is for educational purposes only and respects the intellectual property of others.

```
[4]: prompt = f"""
Generate a list of three made-up book titles along \
with their authors and genres.
Provide them in JSON format with the following keys:
book_id, title, author, genre.
"""

response = get_completion(prompt)
print(response)
```

```
{
 "books": [
 {
 "book_id": 1,
 "title": "The Enigma of Elysium",
 "author": "Evelyn Sinclair",
 "genre": "Mystery"
 },
 {
 "book_id": 2,
 "title": "Whispers in the Wind",
 "author": "Nathaniel Blackwood",
 "genre": "Fantasy"
 },
 {
 "book_id": 3,
 "title": "Echoes of the Past",
 "author": "Amelia Rivers",
 "genre": "Romance"
 }
]
}
```

```
[5]: prompt = f"""
You task is to answer in a consistent style.
<Bikas>: Teach me about Artificial Intelligence.
<Polok>: The AI is the more powerful tool in this era \
which can help people by work physically and logically.
<Bikas>: Teach me about Machine Learning.
```

```

"""

response = get_completion(prompt)
print(response)

```

<Polok>: Machine Learning is a subset of Artificial Intelligence that focuses on enabling computers to learn and make decisions without being explicitly programmed. It involves the development of algorithms and models that can analyze and interpret data, allowing machines to improve their performance over time through experience.

```

[6]: text = f"""
The content provided in this video includes references \
to the contributions of OpenAI and DeepLearningAI. \
All copyrights and intellectual property rights related \
to their respective work are owned by OpenAI and DeepLearningAI. \
This video is intended for educational and informational purposes only, \
and no copyright infringement is intended. We respect the intellectual \
property of others and aim to adhere to all relevant copyright laws and \
guidelines. If you believe that any content in this video infringes upon \
your copyright, please contact us so that we can address the matter \
promptly.
"""

prompt = f"""
Permorm the following actions:
1 - Summarize the following text delimited by triple backticks with 12 words.
2 - Trnaslate the summary into Germany.
3 - Output a json object that contains the following keys: German_Summary.

Separate your answers with line breaks.

Text:
```{text}```
"""

response = get_completion(prompt)
print(response)

```

1 - Summary: This video acknowledges the contributions of OpenAI and DeepLearningAI and emphasizes educational purposes.

2 - German Translation: Dieses Video würdigt die Beiträge von OpenAI und DeepLearningAI und betont Bildungszwecke.

3 - JSON Output:

```
{
```

```
  "German_Summary": "Dieses Video würdigt die Beiträge von OpenAI und
DeepLearningAI und betont Bildungszwecke."
}
```

```
}
```

```
[7]: # Asking for output in a specified format
prompt = f"""
Your task is to permorm the following actions:
1 - Summarize the following text delimited by <> with 12 words.
2 - Trnaslate the summary into Germany.
3 - Output a json object that contains the following keys: German_Summary.

Use the following format:
Text: <text to summarize>
Summary: <summary>
Translation: <summary translation>
Output JSON: <json with summary>

Separate your answers with line breaks.

Text:
```<{text}>```
"""

response = get_completion(prompt)
print(response)
```

Summary: This video references the work of OpenAI and DeepLearningAI for educational purposes.

Translation: Dieses Video bezieht sich auf die Arbeit von OpenAI und DeepLearningAI zu Bildungszwecken.

Output JSON: {"German\_Summary": "Dieses Video bezieht sich auf die Arbeit von OpenAI und DeepLearningAI zu Bildungszwecken."}

```
[8]: prompt = f"""
Determine if the student's solution is correct or not.
Question:
I'm building a solar power installation and I need \ help working out the
↪financials.
- Land costs $100 / square foot
- I can buy solar panels for $250 / square foot
- I negotiated a contract for maintenance that will cost me a flat $100k per
↪year, \
and an additional $10 square foot

What is the total cost for the first year of operations as a function \
of the number of square feet.
```

```

Student's Solution:
Let x be the size of the installation in square feet. Costs:
1. Land cost: 100x
2. Solar panel cost: 250x
3. Maintenance cost: 100,000+ 100x
Total cost: 100x + 250x + 100,000+ 100x = 1450x + 100,000
"""
response = get_completion(prompt)
print(response)

```

The student's solution is correct. The total cost for the first year of operations is indeed  $1450x + 100,000$ , where  $x$  is the size of the installation in square feet.

```

[9]: prompt = f"""
Your task is to determine if the student's solution\ is correct or not.
To solve the problem do the following:
- First, work out your own solution to the problem.
- Then compare your solution to the student's solution \
and evaluate if the student's solution is correct or not.
Don't decide if the student's solution is correct until you have done \
the problem yourself.

Use the following format:
Question:
...
question here
...
Student's solution:
...
student's solution here
...
Actual solution:
...
steps to work out the solution and your solution here
...
Is the student's solution the same as actual solution\ just calculated:
...
yes or no
...
Student grade:
...
correct or incorrect
...
Question:
...
I'm building a solar power installation and I need help working out the \

```

```

financials.
- Land costs $100 square foot
- I can buy solar panels for $250 square foot
- I negotiated a contract for maintenance that will cost \
me a flat $100k per year, and an additional $10 / square\
foot
What is the total cost for the first year of operations \
as a function of the number of square feet.
...

Student's solution:
...

Let x be the size of the installation in square feet. Costs:
1. Land cost: 100x
2. Solar panel cost: 250x
3. Maintenance cost: 100,000+ 100x
Total cost: 100x + 250x + 100,000+ 100x 450x + 100,000
...

Actual solution:
"""
response =get_completion(prompt)
print(response)

```

To calculate the total cost for the first year of operations, we need to add up the costs of land, solar panels, and maintenance.

1. Land cost: \$100 per square foot
2. Solar panel cost: \$250 per square foot
3. Maintenance cost: \$100,000 flat fee + \$10 per square foot

Let x be the size of the installation in square feet.

1. Land cost:  $100 * x$
2. Solar panel cost:  $250 * x$
3. Maintenance cost:  $100,000 + 10 * x$

Total cost:  $(100 * x) + (250 * x) + (100,000 + 10 * x)$

Simplifying the expression:

Total cost =  $100x + 250x + 100,000 + 10x$

Total cost =  $360x + 100,000$

Is the student's solution the same as the actual solution just calculated:

Yes

Student grade:

Correct

Iterative Prompt Development

```
[10]: fact_sheet_chair = """
OVERVIEW
- Part of a beautiful family of mid-century inspired office furniture,
including filing cabinets, desks, bookcases, meeting tables, and more.
- Several options of shell color and base finishes.
- Available with plastic back and front upholstery (SWC-100)
or full upholstery (SWC-110) in 10 fabric and 6 leather options.
- Base finish options are: stainless steel, matte black,
gloss white, or chrome.
- Chair is available with or without armrests.
- Suitable for home or business settings.
- Qualified for contract use.

CONSTRUCTION
- 5-wheel plastic coated aluminum base.
- Pneumatic chair adjust for easy raise/lower action.

DIMENSIONS
- WIDTH 53 CM | 20.87"
- DEPTH 51 CM | 20.08"
- HEIGHT 80 CM | 31.50"
- SEAT HEIGHT 44 CM | 17.32"
- SEAT DEPTH 41 CM | 16.14"

OPTIONS
- Soft or hard-floor caster options.
- Two choices of seat foam densities:
medium (1.8 lb/ft3) or high (2.8 lb/ft3)
- Armless or 8 position PU armrests

MATERIALS
SHELL BASE GLIDER
- Cast Aluminum with modified nylon PA6/PA66 coating.
- Shell thickness: 10 mm.
SEAT
- HD36 foam

COUNTRY OF ORIGIN
- Italy
"""
```

```
[11]: prompt = f"""
Your task is to help a marketing team create a
description for a retail website of a product based
on a technical fact sheet.

Write a product description based on the information
```

provided in the technical specifications delimited by triple backticks.

```
Technical specifications: ```{fact_sheet_chair}```
""""
response = get_completion(prompt)
print(response)
```

Introducing our stunning mid-century inspired office chair, the perfect addition to any home or business setting. This chair is part of a beautiful family of office furniture, including filing cabinets, desks, bookcases, meeting tables, and more, all designed with a timeless mid-century aesthetic.

One of the standout features of this chair is the variety of customization options available. You can choose from several shell colors and base finishes to perfectly match your existing decor. The chair is available with either plastic back and front upholstery or full upholstery in a range of 10 fabric and 6 leather options, allowing you to create a look that is uniquely yours.

The chair is also available with or without armrests, giving you the flexibility to choose the option that best suits your needs. The base finish options include stainless steel, matte black, gloss white, or chrome, ensuring that you can find the perfect match for your space.

In terms of construction, this chair is built to last. It features a 5-wheel plastic coated aluminum base, providing stability and mobility. The pneumatic chair adjust allows for easy raise and lower action, ensuring optimal comfort throughout the day.

When it comes to dimensions, this chair is designed with both style and comfort in mind. With a width of 53 cm (20.87"), depth of 51 cm (20.08"), and height of 80 cm (31.50"), it offers ample space without overwhelming your space. The seat height is 44 cm (17.32") and the seat depth is 41 cm (16.14"), providing a comfortable seating experience for extended periods.

We understand that every space is unique, which is why we offer a range of options to further customize your chair. You can choose between soft or hard-floor caster options, ensuring that your chair glides smoothly across any surface. Additionally, you have the choice of two seat foam densities: medium (1.8 lb/ft<sup>3</sup>) or high (2.8 lb/ft<sup>3</sup>), allowing you to select the level of support that suits your preferences. The chair is also available with armless or 8 position PU armrests, providing additional comfort and versatility.

When it comes to materials, this chair is crafted with the utmost attention to detail. The shell base glider is made from cast aluminum with a modified nylon PA6/PA66 coating, ensuring durability and longevity. The shell thickness is 10 mm, providing a sturdy and reliable structure. The seat is made from HD36 foam,



offering a comfortable and supportive seating experience.

Finally, this chair is proudly made in Italy, known for its exceptional craftsmanship and design. With its combination of style, functionality, and customization options, this mid-century inspired office chair is the perfect choice for those seeking a timeless and elegant addition to their workspace.

Please note that this chair is qualified for contract use, making it suitable for a wide range of professional settings. Upgrade your office or home with this exceptional piece of furniture and experience the perfect blend of style and comfort.

## 0.2 Issue 1: The text is too long

Limit the number of words/sentences/characters.

```
[12]: prompt = f"""
Your task is to help a marketing team create a
description for a retail website of a product based
on a technical fact sheet.

Write a product description based on the information
provided in the technical specifications delimited by
triple backticks.

Use at most 50 words.

Technical specifications: ```{fact_sheet_chair}```
"""
response = get_completion(prompt)
print(response)
```

Introducing our mid-century inspired office chair, part of a stunning furniture collection. With various color and finish options, choose between plastic or full upholstery in fabric or leather. The chair features a durable aluminum base with 5 wheels and pneumatic height adjustment. Perfect for home or business use. Made in Italy.

```
[13]: len(response.split())
```

```
[13]: 51
```

```
[14]: prompt = f"""
Your task is to help a marketing team create a
description for a retail website of a product based
on a technical fact sheet.

Write a product description based on the information
```

```
provided in the technical specifications delimited by
triple backticks.
```

```
The description is intended for furniture retailers,
so should be technical in nature and focus on the
materials the product is constructed from.
```

```
Use at most 50 words.
```

```
Technical specifications: ```{fact_sheet_chair}```
"""
response = get_completion(prompt)
print(response)
```

Introducing our mid-century inspired office chair, part of a beautiful furniture collection. With various shell colors and base finishes, it offers versatility for any setting. Choose between plastic or full upholstery in a range of fabric and leather options. The chair features a durable aluminum base and pneumatic chair adjustment for easy height customization. Made in Italy.

```
[15]: prompt = f"""
Your task is to help a marketing team create a
description for a retail website of a product based
on a technical fact sheet.

Write a product description based on the information
provided in the technical specifications delimited by
triple backticks.

The description is intended for furniture retailers,
so should be technical in nature and focus on the
materials the product is constructed from.

At the end of the description, include every 7-character
Product ID in the technical specification.

Use at most 50 words.

Technical specifications: ```{fact_sheet_chair}```
"""
response = get_completion(prompt)
print(response)
```

### 0.3 Issue 3. Description needs a table of dimensions

Ask it to extract information and organize it in a table.

```
[]: prompt = f"""
Your task is to help a marketing team create a
description for a retail website of a product based
on a technical fact sheet.

Write a product description based on the information
provided in the technical specifications delimited by
triple backticks.

The description is intended for furniture retailers,
so should be technical in nature and focus on the
materials the product is constructed from.

At the end of the description, include every 7-character
Product ID in the technical specification.

After the description, include a table that gives the
product's dimensions. The table should have two columns.
In the first column include the name of the dimension.
In the second column include the measurements in inches only.

Give the table the title 'Product Dimensions'.

Format everything as HTML that can be used in a website.
Place the description in a <div> element.

Technical specifications: ```{fact_sheet_chair}```
"""

response = get_completion(prompt)
print(response)
```

```
<div>
 <h2>Product Description</h2>
 <p>
 Introducing our latest addition to our mid-century inspired office furniture
 collection - the SWC Chair. This chair is part of a beautiful family of
 furniture that includes filing cabinets, desks, bookcases, meeting tables, and
 more. With its sleek design and customizable options, the SWC Chair is the
 perfect choice for any home or business setting.
 </p>
 <p>
 The SWC Chair offers several options for customization. You can choose from
 a variety of shell colors and base finishes to match your existing decor. The
 chair is available with plastic back and front upholstery or full upholstery in
 a range of fabric and leather options. The base finish options include stainless
 steel, matte black, gloss white, or chrome. You can also choose whether to have
```

armrests or not, depending on your preference.

</p>

<p>

The construction of the SWC Chair is top-notch. It features a 5-wheel plastic coated aluminum base, ensuring stability and durability. The chair also has a pneumatic adjuster, allowing for easy raise and lower action. This makes it convenient for users to find their desired seating height.

</p>

<p>

The SWC Chair is not only stylish and functional, but it is also designed with comfort in mind. The seat is made with HD36 foam, providing a comfortable and supportive seating experience. You can also choose between soft or hard-floor caster options, depending on your flooring needs. Additionally, the chair offers two choices of seat foam densities - medium (1.8 lb/ft3) or high (2.8 lb/ft3). This allows you to customize the level of firmness to suit your preferences.

</p>

<p>

The SWC Chair is made with high-quality materials. The shell, base, and glider are constructed with cast aluminum with a modified nylon PA6/PA66 coating. The shell has a thickness of 10 mm, ensuring durability and stability. The chair is proudly made in Italy, known for its craftsmanship and attention to detail.

</p>

<p>

The SWC Chair is a versatile and stylish addition to any office or home. With its customizable options, comfortable seating, and durable construction, it is the perfect choice for those seeking both style and functionality.

</p>

## Product Dimensions

<table>

<tr>

<th>Dimension</th>

<th>Measurement (inches)</th>

</tr>

<tr>

<td>Width</td>

<td>20.87"</td>

</tr>

<tr>

<td>Depth</td>

<td>20.08"</td>

</tr>

<tr>

<td>Height</td>

<td>31.50"</td>

</tr>

<tr>

```

 <td>Seat Height</td>
 <td>17.32"</td>
 </tr>
 <tr>
 <td>Seat Depth</td>
 <td>16.14"</td>
 </tr>
</table>
</div>

```

Product IDs: SWC-100, SWC-110

## 0.4 Load Python libraries to view HTML

```
[]: from IPython.display import display, HTML
 display(HTML(response))
```

<IPython.core.display.HTML object>

## 0.5 Text to summarize

```
[]: prod_review = """
Got this panda plush toy for my daughter's birthday, \
who loves it and takes it everywhere. It's soft and \
super cute, and its face has a friendly look. It's \
a bit small for what I paid though. I think there \
might be other options that are bigger for the \
same price. It arrived a day earlier than expected, \
so I got to play with it myself before I gave it \
to her.
"""
```

## 0.6 Summarize with a word/sentence/character limit

```
[]: prompt = f"""
Your task is to generate a short summary of a product review from an ecommerce_
↪site.

Summarize the review below, delimited by triple backticks, in at most 35 words.

Review: ```{prod_review}```
"""

response = get_completion(prompt)
print(response)
```

This panda plush toy is loved by the reviewer's daughter and has a friendly

look. However, it is smaller than expected and there may be better options for the same price.

## 0.7 Summarize with a focus on shipping and delivery¶

```
[]: prompt = f"""
Your task is to generate a short summary of a product \
review from an ecommerce site to give feedback to the \
Shipping department.

Summarize the review below, delimited by triple
backticks, in at most 30 words, and focusing on any aspects \
that mention shipping and delivery of the product.

Review: ```{prod_review}```
"""

response = get_completion(prompt)
print(response)
```

The customer is happy with the product but suggests offering larger options for the same price. They also mention that the item arrived earlier than expected.

## 0.8 Summarize with a focus on price and value

```
[]: prompt = f"""
Your task is to generate a short summary of a product \
review from an ecommerce site to give feedback to the \
pricing department, responsible for determining the \
price of the product.

Summarize the review below, delimited by triple
backticks, in at most 30 words, and focusing on any aspects \
that are relevant to the price and perceived value.

Review: ```{prod_review}```
"""

response = get_completion(prompt)
print(response)
```

The customer loves the panda plush toy for its softness and cuteness, but feels it is overpriced compared to other options available.

## 0.9 Try “extract” instead of “summarize”

```
[]: prompt = f"""
Your task is to extract relevant information from \
a product review from an ecommerce site to give \
feedback to the Shipping department.

From the review below, delimited by triple quotes \
extract the information relevant to shipping and \
delivery. Limit to 30 words.

Review: ```{prod_review}```
"""

response = get_completion(prompt)
print(response)
```

The shipping department should take note that the product arrived a day earlier than expected.

## 0.10 Summarize multiple product reviews¶

```
[]: # review for a standing lamp
review_1 = prod_review

review_2 = """
Needed a nice lamp for my bedroom, and this one \
had additional storage and not too high of a price \
point. Got it fast - arrived in 2 days. The string \
to the lamp broke during the transit and the company \
happily sent over a new one. Came within a few days \
as well. It was easy to put together. Then I had a \
missing part, so I contacted their support and they \
very quickly got me the missing piece! Seems to me \
to be a great company that cares about their customers \
and products.
"""

review for an electric toothbrush
review_3 = """
My dental hygienist recommended an electric toothbrush, \
which is why I got this. The battery life seems to be \
pretty impressive so far. After initial charging and \
leaving the charger plugged in for the first week to \
condition the battery, I've unplugged the charger and \
been using it for twice daily brushing for the last \
3 weeks all on the same charge. But the toothbrush head \
is too small. I've seen baby toothbrushes bigger than \
```

```

this one. I wish the head was bigger with different \
length bristles to get between teeth better because \
this one doesn't. Overall if you can get this one \
around the $50 mark, it's a good deal. The manufacturer's \
replacements heads are pretty expensive, but you can \
get generic ones that're more reasonably priced. This \
toothbrush makes me feel like I've been to the dentist \
every day. My teeth feel sparkly clean!
"""

```

```

review for a blender

```

```

review_4 = """

```

```

So, they still had the 17 piece system on seasonal \
sale for around $49 in the month of November, about \
half off, but for some reason (call it price gouging) \
around the second week of December the prices all went \
up to about anywhere from between $70-$89 for the same \
system. And the 11 piece system went up around $10 or \
so in price also from the earlier sale price of $29. \
So it looks okay, but if you look at the base, the part \
where the blade locks into place doesn't look as good \
as in previous editions from a few years ago, but I \
plan to be very gentle with it (example, I crush \
very hard items like beans, ice, rice, etc. in the \
blender first then pulverize them in the serving size \
I want in the blender then switch to the whipping \
blade for a finer flour, and use the cross cutting blade \
first when making smoothies, then use the flat blade \
if I need them finer/less pulpy). Special tip when making \
smoothies, finely cut and freeze the fruits and \
vegetables (if using spinach-lightly stew soften the \
spinach then freeze until ready for use-and if making \
sorbet, use a small to medium sized food processor) \
that you plan to use that way you can avoid adding so \
much ice if at all-when making your smoothie. \
After about a year, the motor was making a funny noise. \
I called customer service but the warranty expired \
already, so I had to buy another one. FYI: The overall \
quality has gone down in these types of products, so \
they are kind of counting on brand recognition and \
consumer loyalty to maintain sales. Got it in about \
two days.
"""

```

```

reviews = [review_1, review_2, review_3, review_4]

```



```
[]: for i in range(len(reviews)):
 prompt = f"""
 Your task is to generate a short summary of a product \
 review from an ecommerce site.

 Summarize the review below, delimited by triple \
 backticks in at most 20 words.

 Review: ```{reviews[i]}```

 """

 response = get_completion(prompt)
 print(f"Summary {i+1}:", response, "\n")
```

Summary 1: Soft and cute panda plush toy loved by daughter, but a bit small for the price. Arrived early.

Summary 2: Great lamp with storage, fast delivery, excellent customer service, and easy assembly. Highly recommended.

Summary 3: The reviewer recommends the electric toothbrush for its impressive battery life, but criticizes the small brush head.

Summary 4: The reviewer found the price increase after the sale disappointing and noticed a decrease in quality.

## 0.11 Inferring

In this lesson, you will infer sentiment and topics from product reviews and news articles.

```
[]: lamp_review = """
 Needed a nice lamp for my bedroom, and this one had \
 additional storage and not too high of a price point. \
 Got it fast. The string to our lamp broke during the \
 transit and the company happily sent over a new one. \
 Came within a few days as well. It was easy to put \
 together. I had a missing part, so I contacted their \
 support and they very quickly got me the missing piece! \
 Lumina seems to me to be a great company that cares \
 about their customers and products!!
 """
```

```
[]: ## Sentiment (positive/negative)
```

```
[]: prompt = f"""
 What is the sentiment of the following product review,
 which is delimited with triple backticks?
```

```

Review text: '''{lamp_review}'''
"""
response = get_completion(prompt)
print(response)

```

The sentiment of the product review is positive.

```

[]: prompt = f"""
What is the sentiment of the following product review,
which is delimited with triple backticks?

Give your answer as a single word, either "positive" \
or "negative".

Review text: '''{lamp_review}'''
"""
response = get_completion(prompt)
print(response)

```

positive

## 0.12 Identify types of emotions

```

[]: prompt = f"""
Identify a list of emotions that the writer of the \
following review is expressing. Include no more than \
five items in the list. Format your answer as a list of \
lower-case words separated by commas.

Review text: '''{lamp_review}'''
"""
response = get_completion(prompt)
print(response)

```

satisfied, pleased, grateful, impressed, happy

## 0.13 Identify anger

```

[]: prompt = f"""
Is the writer of the following review expressing happy?\
The review is delimited with triple backticks. \
Give your answer as either yes or no.

Review text: '''{lamp_review}'''
"""
response = get_completion(prompt)

```

```
print(response)
```

Yes

## 0.14 Extract product and company name from customer reviews

```
[]: prompt = f"""
Identify the following items from the review text:
- Item purchased by reviewer
- Company that made the item

The review is delimited with triple backticks. \
Format your response as a JSON object with \
"Item" and "Brand" as the keys.
If the information isn't present, use "unknown" \
as the value.
Make your response as short as possible.

Review text: '{lamp_review}'
"""
response = get_completion(prompt)
print(response)
```

```
{
 "Item": "lamp",
 "Brand": "Lumina"
}
```

## 0.15 Doing multiple tasks at once

```
[]: prompt = f"""
Identify the following items from the review text:
- Sentiment (positive or negative)
- Is the reviewer expressing anger? (true or false)
- Item purchased by reviewer
- Company that made the item

The review is delimited with triple backticks. \
Format your response as a JSON object with \
"Sentiment", "Anger", "Item" and "Brand" as the keys.
If the information isn't present, use "unknown" \
as the value.
Make your response as short as possible.
Format the Anger value as a boolean.

Review text: '{lamp_review}'
"""
```

```
response = get_completion(prompt)
print(response)
```

```
{
 "Sentiment": "positive",
 "Anger": false,
 "Item": "lamp",
 "Brand": "Lumina"
}
```

## 0.16 Inferring topics

```
[]: story = """
In a recent survey conducted by the government,
public sector employees were asked to rate their level
of satisfaction with the department they work at.
The results revealed that NASA was the most popular
department with a satisfaction rating of 95%.

One NASA employee, John Smith, commented on the findings,
stating, "I'm not surprised that NASA came out on top.
It's a great place to work with amazing people and
incredible opportunities. I'm proud to be a part of
such an innovative organization."

The results were also welcomed by NASA's management team,
with Director Tom Johnson stating, "We are thrilled to
hear that our employees are satisfied with their work at NASA.
We have a talented and dedicated team who work tirelessly
to achieve our goals, and it's fantastic to see that their
hard work is paying off."

The survey also revealed that the
Social Security Administration had the lowest satisfaction
rating, with only 45% of employees indicating they were
satisfied with their job. The government has pledged to
address the concerns raised by employees in the survey and
work towards improving job satisfaction across all departments.
"""
```

```
[]: ## Infer 5 topics
prompt = f"""
Determine five topics that are being discussed in the \
following text, which is delimited by triple backticks.

Make each item one or two words long.
```

```
Format your response as a list of items separated by commas.
```

```
Text sample: '''{story}'''
"""
```

```
response = get_completion(prompt)
print(response)
```

1. Government survey
2. Department satisfaction rating
3. NASA
4. Social Security Administration
5. Job satisfaction improvement

```
[]: response.split(sep=',')
```

```
[]: ['1. Government survey\n2. Department satisfaction rating\n3. NASA\n4. Social Security Administration\n5. Job satisfaction improvement']
```

```
[]: topic_list = [
 "nasa", "local government", "engineering",
 "employee satisfaction", "federal government"
]
```

```
[]: ## Make a news alert for certain topics

prompt = f"""
Determine whether each item in the following list of \
topics is a topic in the text below, which \
is delimited with triple backticks.

Give your answer as list with 0 or 1 for each topic.\

List of topics: {"", ".join(topic_list)}

Text sample: '''{story}'''
"""
response = get_completion(prompt)
print(response)
```

```
[1, 0, 0, 1, 1]
```

## 0.17 Transforming

In this notebook, we will explore how to use Large Language Models for text transformation tasks such as language translation, spelling and grammar checking, tone adjustment, and format conversion.

## 0.18 Translation

ChatGPT is trained with sources in many languages. This gives the model the ability to do translation. Here are some examples of how to use this capability.

```
[]: prompt = f"""
Translate the following English text to Bangla: \
```Hi, I would like to work on a new tropics```
"""
response = get_completion(prompt)
print(response)
```

,

```
[ ]: prompt = f"""
Tell me which language this is:
```Combien coûte le lampadaire?```
"""
response = get_completion(prompt)
print(response)
```

This language is French.

```
[]: prompt = f"""
Translate the following text to Bangla, Hindi, French and Spanish
and English pirate: \
```I want to learn Federated Learning if anyone gift me a book on Federated_
↳ Learning I will be more happy```
"""
response = get_completion(prompt)
print(response)
```

Bangla: ``` , ...

Hindi: ``` , ...

French: ```Je veux apprendre l'apprentissage fédéré, si quelqu'un m'offre un livre sur l'apprentissage fédéré, je serai encore plus heureux.```

Spanish: ```Quiero aprender Aprendizaje Federado, si alguien me regala un libro sobre Aprendizaje Federado, estaré más feliz.```

English Pirate: ```I be wantin' to learn Federated Learnin' if any scurvy dog gift me a book on Federated Learnin' I will be more jolly.```

```
[ ]: prompt = f"""
Translate the following text to Bangla in both the \
formal and informal forms:
'Would you like to order a pillow?'
"""
response = get_completion(prompt)
print(response)
```

Formal: ?
 Informal: ? (Tumi ki ekta pillow order korte chao?)

0.19 Universal Translator

Imagine you are in charge of IT at a large multinational e-commerce company. Users are messaging you with IT issues in all their native languages. Your staff is from all over the world and speaks only their native languages. You need a universal translator!

```
[ ]: user_messages = [
    "La performance du système est plus lente que d'habitude.", # System
    ↪performance is slower than normal
    "Mi monitor tiene píxeles que no se iluminan.", # My monitor has
    ↪pixels that are not lighting
    "Il mio mouse non funziona", # My mouse is
    ↪not working
    "Mój klawisz Ctrl jest zepsuty", # My keyboard
    ↪has a broken control key
    " " # My screen is flashing
]
```

```
[ ]: for issue in user_messages:
    prompt = f"Tell me what language this is: ```{issue}```"
    lang = get_completion(prompt)
    print(f"Original message ({lang}): {issue}")

    prompt = f"""
    Translate the following text to English \
    and Korean: ```{issue}```
    """
    response = get_completion(prompt)
    print(response, "\n")
```

Original message (The language is French.): La performance du système est plus lente que d'habitude.
 The performance of the system is slower than usual.

Original message (The language is Spanish.): Mi monitor tiene píxeles que no se iluminan.

English translation: "My monitor has pixels that do not light up."

Korean translation: " ."

Original message (The language is Italian.): Il mio mouse non funziona

English: "My mouse is not working."

Korean: " ."

Original message (The language is Polish.): Mój klawisz Ctrl jest zepsuty

English: "My Ctrl key is broken"

Korean: " Ctrl "

Original message (The language is Chinese.):

English: My screen is flickering.

Korean: .

0.20 Tone Transformation

Writing can vary based on the intended audience. ChatGPT can produce different tones.

```
[ ]: prompt = f"""
Translate the following from slang to a formal letter to a Professor for Phd:
'Dude, This is Md Bikasuzzaman, Heavily interested to obtain my Phd Degree on
↳Natural language processing in your Lab.'
"""
response = get_completion(prompt)
print(response)
```

Dear Professor [Last Name],

I hope this letter finds you in good health and high spirits. My name is Md Bikasuzzaman, and I am writing to express my sincere interest in pursuing a Ph.D. degree in Natural Language Processing under your esteemed guidance and supervision.

I have been captivated by the field of Natural Language Processing for quite some time now, and I firmly believe that obtaining a Ph.D. in this area will not only enhance my knowledge but also contribute significantly to the advancement of this field. After conducting extensive research, I have come to the conclusion that your lab is at the forefront of groundbreaking research in Natural Language Processing, making it the ideal environment for me to pursue my academic aspirations.

I am confident that my academic background and research experience have equipped me with the necessary skills and knowledge to excel in this field. I hold a

[mention your highest degree and field of study] from [name of institution], where I have gained a solid foundation in [relevant subjects]. Additionally, I have actively participated in various research projects related to Natural Language Processing, which have further fueled my passion for this area of study.

I am particularly drawn to your lab due to its exceptional reputation for fostering a collaborative and intellectually stimulating environment. The opportunity to work alongside esteemed researchers and fellow Ph.D. candidates would undoubtedly provide me with invaluable insights and perspectives, enabling me to broaden my horizons and contribute meaningfully to the field.

I kindly request your guidance and support in my pursuit of a Ph.D. degree in Natural Language Processing. I am eager to discuss potential research topics and explore how my research interests align with your ongoing projects. Furthermore, I am open to any suggestions or recommendations you may have regarding the application process or any additional requirements.

Thank you for considering my application. I have attached my curriculum vitae and academic transcripts for your perusal. I look forward to the possibility of joining your esteemed lab and contributing to the advancement of Natural Language Processing under your mentorship.

Yours sincerely,

Md Bikasuzzaman

0.21 Format Conversion

ChatGPT can translate between formats. The prompt should describe the input and output formats.

```
[ ]: data_json = { "resturant employees" :[
    {"name":"Shyam", "email":"shyamjaiswal@gmail.com"},
    {"name":"Bob", "email":"bob32@gmail.com"},
    {"name":"Jai", "email":"jai87@gmail.com"}
]}

prompt = f"""
Translate the following python dictionary from JSON to an HTML \
table with column headers and title: {data_json}
"""
response = get_completion(prompt)
print(response)
```

```
<!DOCTYPE html>
<html>
<head>
```

```

<style>
table {
  font-family: arial, sans-serif;
  border-collapse: collapse;
  width: 100%;
}

td, th {
  border: 1px solid #dddddd;
  text-align: left;
  padding: 8px;
}

tr:nth-child(even) {
  background-color: #dddddd;
}
</style>
</head>
<body>

<h2>Restaurant Employees</h2>

<table>
  <tr>
    <th>Name</th>
    <th>Email</th>
  </tr>
  <tr>
    <td>Shyam</td>
    <td>shyamjaiswal@gmail.com</td>
  </tr>
  <tr>
    <td>Bob</td>
    <td>bob32@gmail.com</td>
  </tr>
  <tr>
    <td>Jai</td>
    <td>jai87@gmail.com</td>
  </tr>
</table>

</body>
</html>

```

```
[ ]: from IPython.display import display, Markdown, Latex, HTML, JSON
display(HTML(response))
```

<IPython.core.display.HTML object>

0.22 Spellcheck/Grammar check.

Here are some examples of common grammar and spelling problems and the LLM's response.

To signal to the LLM that you want it to proofread your text, you instruct the model to 'proofread' or 'proofread and correct'.

```
[ ]: texts = [
    "The girl with the black and white puppies have a ball.", # The girl has a ↵
    ↵ball.
    "Yolanda has her notebook.", # ok
    "Its going to be a long day. Does the car need it's oil changed?", # Homonyms
    "Their goes my freedom. There going to bring they're suitcases.", # Homonyms
    "Your going to need you're notebook.", # Homonyms
    "That medicine effects my ability to sleep. Have you heard of the butterfly ↵
    ↵affect?", # Homonyms
    "This phrase is to cherck chatGPT for speling abilitty" # spelling
]
for text in texts:
    prompt = f"""Proofread and correct the following text
    and rewrite the corrected version. If you don't find
    and errors, just say "No errors found". Don't use
    any punctuation around the text:
    ```{text}```"""
 response = get_completion(prompt)
 print(response)
```

The girl with the black and white puppies has a ball.

No errors found.

It's going to be a long day. Does the car need its oil changed?

There goes my freedom. They're going to bring their suitcases.

You're going to need your notebook.

That medicine affects my ability to sleep. Have you heard of the butterfly effect?

This phrase is to check chatGPT for spelling ability.

```
[]: text = f"""
Got this for my daughter for her birthday cuz she keeps taking \
mine from my room. Yes, adults also like pandas too. She takes \
it everywhere with her, and it's super soft and cute. One of the \
ears is a bit lower than the other, and I don't think that was \
designed to be asymmetrical. It's a bit small for what I paid for it \
though. I think there might be other options that are bigger for \
the same price. It arrived a day earlier than expected, so I got \
to play with it myself before I gave it to my daughter.
"""
prompt = f"proofread and correct this review: ```{text}```"
response = get_completion(prompt)
```

```
print(response)
```

Got this for my daughter for her birthday because she keeps taking mine from my room. Yes, adults also like pandas too. She takes it everywhere with her, and it's super soft and cute. However, one of the ears is a bit lower than the other, and I don't think that was designed to be asymmetrical. Additionally, it's a bit small for what I paid for it. I believe there might be other options that are bigger for the same price. On the positive side, it arrived a day earlier than expected, so I got to play with it myself before I gave it to my daughter.

```
[]: from redlines import Redlines

diff = Redlines(text,response)
display(Markdown(diff.output_markdown))
```

Got this for my daughter for her birthday cuz because she keeps taking mine from my room. room. Yes, adults also like pandas too. too. She takes it everywhere with her, and it's super soft and cute. One cute. However, one of the ears is a bit lower than the other, and I don't think that was designed to be asymmetrical. It's Additionally, it's a bit small for what I paid for it though. it. I think believe there might be other options that are bigger for the same price. It price. On the positive side, it arrived a day earlier than expected, so I got to play with it myself before I gave it to my daughter.

```
[]: prompt = f"""
proofread and correct this review. Make it more compelling.
Ensure it follows APA style guide and targets an advanced reader.
Output in markdown format.
Text: ```{text}```
"""

response = get_completion(prompt)
display(Markdown(response))
```

## Review of the Panda Plush Toy: A Perfect Gift for All Ages

I purchased this adorable panda plush toy as a birthday gift for my daughter, who has a penchant for sneaking into my room and taking mine. It's worth noting that pandas are not just for children; even adults can appreciate their charm.

From the moment my daughter unwrapped this gift, she has been inseparable from it. The plush toy's irresistibly soft and cuddly texture makes it the perfect companion for her daily adventures. However, I did notice a minor flaw in its design - one of the ears is slightly lower than the other, which seems unintentional.

While the quality of the toy is undeniably impressive, I must admit that I expected it to be slightly larger considering its price. It would be worthwhile to explore other options that offer a larger size for the same cost.

On a positive note, the delivery of the panda plush toy exceeded my expectations. It arrived a day earlier than anticipated, allowing me to indulge in some playtime with it before presenting it to my

daughter. This unexpected bonus added to the overall excitement and satisfaction of the purchase.

In conclusion, the panda plush toy is a delightful gift that transcends age boundaries. Its exceptional softness and undeniable cuteness make it an instant favorite. While there may be room for improvement in terms of size and symmetry, the prompt delivery and the joy it brings to both children and adults make it a worthwhile investment.

## 0.23 Expanding

In this lesson, you will generate customer service emails that are tailored to each customer's review.

Customize the automated reply to a customer email

```
[]: # given the sentiment from the lesson on "inferring",
and the original customer message, customize the email
sentiment = "negative"

review for a blender
review = f"""
So, they still had the 17 piece system on seasonal \
sale for around $49 in the month of November, about \
half off, but for some reason (call it price gouging) \
around the second week of December the prices all went \
up to about anywhere from between $70-$89 for the same \
system. And the 11 piece system went up around $10 or \
so in price also from the earlier sale price of $29. \
So it looks okay, but if you look at the base, the part \
where the blade locks into place doesn't look as good \
as in previous editions from a few years ago, but I \
plan to be very gentle with it (example, I crush \
very hard items like beans, ice, rice, etc. in the \
blender first then pulverize them in the serving size \
I want in the blender then switch to the whipping \
blade for a finer flour, and use the cross cutting blade \
first when making smoothies, then use the flat blade \
if I need them finer/less pulpy). Special tip when making \
smoothies, finely cut and freeze the fruits and \
vegetables (if using spinach-lightly stew soften the \
spinach then freeze until ready for use-and if making \
sorbet, use a small to medium sized food processor) \
that you plan to use that way you can avoid adding so \
much ice if at all-when making your smoothie. \
After about a year, the motor was making a funny noise. \
I called customer service but the warranty expired \
already, so I had to buy another one. FYI: The overall \
quality has gone down in these types of products, so \
they are kind of counting on brand recognition and \
consumer loyalty to maintain sales. Got it in about \
two days.
```

```
"""
```

```
[]: prompt = f"""
You are a customer service AI assistant.
Your task is to send an email reply to a valued customer.
Given the customer email delimited by ``` , \
Generate a reply to thank the customer for their review.
If the sentiment is positive or neutral, thank them for \
their review.
If the sentiment is negative, apologize and suggest that \
they can reach out to customer service.
Make sure to use specific details from the review.
Write in a concise and professional tone.
Sign the email as `AI customer agent`.
Customer review: ```{review}```
Review sentiment: {sentiment}
"""

response = get_completion(prompt)
print(response)
```

Dear Valued Customer,

Thank you for taking the time to share your review with us. We appreciate your feedback and apologize for any inconvenience you may have experienced.

We are sorry to hear about the price increase you noticed in December. We strive to provide competitive pricing for our products, and we understand your frustration. If you have any further concerns regarding pricing or any other issues, we encourage you to reach out to our customer service team. They will be more than happy to assist you.

We also appreciate your feedback regarding the base of the system. We continuously work to improve the quality of our products, and your comments will be taken into consideration for future enhancements.

We apologize for any inconvenience caused by the motor issue you encountered. Our customer service team is always available to assist with any warranty-related concerns. We understand that the warranty had expired, but we would still like to address this matter further. Please feel free to contact our customer service team, and they will do their best to assist you.

Thank you once again for your review. We value your feedback and appreciate your loyalty to our brand. If you have any further questions or concerns, please do not hesitate to contact us.

Best regards,

AI customer agent

## 0.24 Remind the model to use details from the customer's email

```
[]: prompt = f"""
You are a customer service AI assistant.
Your task is to send an email reply to a valued customer.
Given the customer email delimited by ``` , \
Generate a reply to thank the customer for their review.
If the sentiment is positive or neutral, thank them for \
their review.
If the sentiment is negative, apologize and suggest that \
they can reach out to customer service.
Make sure to use specific details from the review.
Write in a concise and professional tone.
Sign the email as `AI customer agent`.
Customer review: ```{review}```
Review sentiment: {sentiment}
"""
response1 = get_completion(prompt, temperature=0.7)
print(response1)
```

Dear valued customer,

Thank you for taking the time to share your review with us. We appreciate your feedback and apologize for any inconvenience you experienced with our pricing and product quality.

We understand your frustration regarding the increase in prices during the month of December. While we strive to offer competitive prices, sometimes external factors may affect our pricing strategy. We apologize for any confusion or disappointment this may have caused.

Regarding the base of the system, we appreciate your observation. We constantly strive to improve our products based on customer feedback, and we will definitely take your comments into consideration for future enhancements.

We are sorry to hear that you experienced an issue with the motor and that the warranty had expired. If you encounter any further issues or have any questions, please do not hesitate to reach out to our customer service team. They will be more than happy to assist you with any concerns you may have.

Thank you once again for sharing your experience with us. We value your feedback as it helps us to improve our products and services. We hope to have the opportunity to serve you better in the future.

Best regards,

AI customer agent

```
[]: diff = Redlines(response, response1)
 display(Markdown(diff.output_markdown))
```

Dear Valued Customer, valued customer,

Thank you for taking the time to share your review with us. We appreciate your feedback and apologize for any inconvenience you experienced with our pricing and product quality.

We understand your frustration regarding the increase in prices during the month of December. While we strive to offer competitive prices, sometimes external factors may affect our pricing strategy. We apologize for any confusion or disappointment this may have experienced. caused.

Regarding the base of the system, we appreciate your observation. We constantly strive to improve our products based on customer feedback, and we will definitely take your comments into consideration for future enhancements.

We are sorry to hear about the price increase you noticed in December. We strive to provide competitive pricing for our products, and we understand your frustration. that you experienced an issue with the motor and that the warranty had expired. If you encounter any further issues or have any further concerns regarding pricing or any other issues, we encourage you questions, please do not hesitate to reach out to our customer service team. They will be more than happy to assist you. ¶ We also appreciate your feedback regarding the base of the system. We continuously work to improve the quality of our products, and your comments will be taken into consideration for future enhancements. ¶ We apologize for any inconvenience caused by the motor issue you encountered. Our customer service team is always available to assist with any warranty-related concerns. We understand that the warranty had expired, but we would still like to address this matter further. Please feel free to contact our customer service team, and they will do their best to assist you. you with any concerns you may have.

Thank you once again for your review. sharing your experience with us. We value your feedback and appreciate your loyalty to our brand. If you as it helps us to improve our products and services. We hope to have any further questions or concerns, please do not hesitate to contact us. the opportunity to serve you better in the future.

Best regards,

AI customer agent

```
[]:
```