

Examples Gemini

September 16, 2024

1 Gemini examples

```
[ ]: #!pip install -q -U google-generativeai
```

```
[7]: import os
import google.generativeai as genai
from dotenv import load_dotenv, find_dotenv

# Read the local .env file, containing the Gemini secret API key.
_ = load_dotenv(find_dotenv())

# Use the fastest multimodal Gemini model.
genai.configure(api_key = os.environ["GEMINI_API_KEY"])
client = genai.GenerativeModel("gemini-1.5-flash")

# Remember that for Gemini, "assistant" is changed to "model" and "content"
↳ becomes "parts".
# "parts" is now a list of strings, rather than a string.
# Set `temperature = 0` to do greedy decoding => deterministic output.
def get_completion_from_messages(conversation, temperature = 0, max_tokens =
↳ 500):
    gConfig = genai.types.GenerationConfig(max_output_tokens = max_tokens,
                                           temperature = temperature)
    response = client.generate_content(contents = conversation,
                                       generation_config = gConfig)

    return response.text
```

1.1 Conversational API Example

```
[15]: query = "Justin sits next to Razvan. One of them is happy and one of them is
↳ grumpy. " \
        "The person sitting next to Justin is grumpy. Who is happy?"

# Gemini supports two roles: 'user' and 'model'.
conversation = [
    {"role": "user", "parts": [query]}
```

```

]

# Send a chat completion request.
gConfig = genai.types.GenerationConfig(max_output_tokens = 300,
                                       temperature = 0)
response = client.generate_content(contents = conversation,
                                   generation_config = gConfig)

print(f"API raw response:\n{response}\n")

reply = response.text
print(f"Text response:\n{reply}")

```

API raw response:

response:

```

GenerateContentResponse(
  done=True,
  iterator=None,
  result=protos.GenerateContentResponse({
    "candidates": [
      {
        "content": {
          "parts": [
            {
              "text": "Here's how to solve this:\n\n* **We know:** The person
sitting next to Justin is grumpy.\n* **We also know:** Justin sits next to
Razvan.\n\n**Therefore:** Razvan must be the happy one, since he's the only
other person sitting next to Justin. \n"
            }
          ],
          "role": "model"
        },
        "finish_reason": "STOP",
        "index": 0,
        "safety_ratings": [
          {
            "category": "HARM_CATEGORY_SEXUALLY_EXPLICIT",
            "probability": "NEGLIGIBLE"
          },
          {
            "category": "HARM_CATEGORY_HATE_SPEECH",
            "probability": "NEGLIGIBLE"
          },
          {
            "category": "HARM_CATEGORY_HARASSMENT",
            "probability": "NEGLIGIBLE"
          },
          {

```

```

        "category": "HARM_CATEGORY_DANGEROUS_CONTENT",
        "probability": "NEGLIGIBLE"
    }
]
}
],
"usage_metadata": {
    "prompt_token_count": 33,
    "candidates_token_count": 62,
    "total_token_count": 95
}
}),
)

```

Text response:

Here's how to solve this:

```

* **We know:** The person sitting next to Justin is grumpy.
* **We also know:** Justin sits next to Razvan.

```

```

**Therefore:** Razvan must be the happy one, since he's the only other person
sitting next to Justin.

```

1.2 Sequence Completion Example

```

[10]: question = "Provide the next number in the sequence 1, 2, 3, 5, 5, 8, 7, 11, 9,
↪..."
conversation = [
    {"role": "user", "parts": [question]}
]

response = get_completion_from_messages(conversation, max_tokens = 300)

print(response)

```

This sequence is a combination of two interwoven sequences:

```

* **Odd positions:** 1, 3, 5, 7, 9... (consecutive odd numbers)
* **Even positions:** 2, 5, 8, 11... (adding 3 to the previous number)

```

Therefore, the next number (at the 10th position) should be the next number in the second sequence: $11 + 3 = 14$

1.2.1 Follow up questions require sending the conversation so far

```
[13]: question = "What is the role of education, according to the Republic, by Plato?"
conversation = [
    {"role": "user", "parts": [question]}
]

response = get_completion_from_messages(conversation, max_tokens = 750)

print(response)
```

In Plato's *Republic*, education plays a **crucial and multifaceted role** in shaping the ideal society and the individuals within it. It's not just about acquiring knowledge, but about **cultivating virtue and achieving justice**. Here's a breakdown of its key functions:

1. Shaping the Guardians:

- The foundation of the ideal society:** Plato believes that the guardians, the ruling class, must be carefully educated to ensure the stability and justice of the Republic.

- Developing intellectual and moral virtues:** Education aims to develop the guardians' intellect, courage, wisdom, and temperance. This is achieved through a rigorous curriculum that includes physical training, music, and philosophy.

- Promoting harmony and unity:** Education fosters a sense of shared values and beliefs among the guardians, ensuring their unity and commitment to the common good.

2. Fostering a Just Society:

- Creating a virtuous citizenry:** Education is seen as the primary tool for creating a society of virtuous individuals. By instilling moral principles and values, it helps citizens understand their roles and responsibilities.

- Promoting social harmony:** Education helps individuals understand and appreciate their place in the social order, fostering cooperation and preventing conflict.

- Preventing social unrest:** By educating the masses, Plato believes that the Republic can prevent the rise of ignorance and prejudice, which can lead to social unrest and instability.

3. The Curriculum:

- Physical training:** This is essential for developing strength, agility, and discipline.

- Music and poetry:** These arts are used to cultivate a sense of beauty, harmony, and moral values.

- Mathematics and astronomy:** These subjects develop logical reasoning and critical thinking skills.

* **Dialectic:** This is the highest form of learning, which involves engaging in philosophical discussions and seeking truth.

4. The Allegory of the Cave:

* **Illustrates the importance of education:** The allegory of the cave highlights the limitations of our senses and the need for education to liberate us from ignorance and illusion.

* **The journey towards enlightenment:** Education is portrayed as a journey from the darkness of the cave to the light of truth and knowledge.

In summary, education in Plato's Republic is not just about acquiring knowledge, but about shaping the character of individuals and creating a just and harmonious society. It is a lifelong process that aims to cultivate virtue, promote unity, and guide individuals towards enlightenment.

```
[14]: question2 = "Can you include more details from the same source on the_
↳importance of education and how education should be done?"
conversation2 = conversation + [
    {"role": "model", "parts": [response]},
    {"role": "user", "parts": [question2]}
]

response2 = get_completion_from_messages(conversation2, max_tokens = 750)

print(response2)
```

```
[{'role': 'user', 'parts': ['What is the role of education, according to the Republic, by Plato?']}, {'role': 'model', 'parts': ["In Plato's Republic, education plays a crucial and multifaceted role in shaping the ideal society and the individuals within it. It's not just about acquiring knowledge, but about cultivating virtue and achieving justice. Here's a breakdown of its key functions:\n\n1. Shaping the Guardians:\n\nThe foundation of the ideal society: Plato believes that the guardians, the ruling class, must be carefully educated to ensure the stability and justice of the Republic.\n\nDeveloping intellectual and moral virtues: Education aims to develop the guardians' intellect, courage, wisdom, and temperance. This is achieved through a rigorous curriculum that includes physical training, music, and philosophy.\n\nPromoting harmony and unity: Education fosters a sense of shared values and beliefs among the guardians, ensuring their unity and commitment to the common good.\n\n2. Fostering a Just Society:\n\nCreating a virtuous citizenry: Education is seen as the primary tool for creating a society of virtuous individuals. By instilling moral principles and values, it helps citizens understand their roles and responsibilities.\n\nPromoting social harmony: Education helps individuals understand and appreciate their place in the social order, fostering cooperation and preventing conflict.\n\nPreventing social unrest: By educating the masses, Plato believes that the Republic can
```

prevent the rise of ignorance and prejudice, which can lead to social unrest and instability.\n\n**3. The Curriculum:**\n\n* **Physical training:** This is essential for developing strength, agility, and discipline.\n* **Music and poetry:** These arts are used to cultivate a sense of beauty, harmony, and moral values.\n* **Mathematics and astronomy:** These subjects develop logical reasoning and critical thinking skills.\n* **Dialectic:** This is the highest form of learning, which involves engaging in philosophical discussions and seeking truth.\n\n**4. The Allegory of the Cave:**\n\n* **Illustrates the importance of education:** The allegory of the cave highlights the limitations of our senses and the need for education to liberate us from ignorance and illusion.\n* **The journey towards enlightenment:** Education is portrayed as a journey from the darkness of the cave to the light of truth and knowledge.\n\nIn summary, education in Plato's *Republic* is not just about acquiring knowledge, but about shaping the character of individuals and creating a just and harmonious society. It is a lifelong process that aims to cultivate virtue, promote unity, and guide individuals towards enlightenment.**\n"]},\n{'role': 'user', 'parts': ['Can you include more details from the same source on the importance of education and how education should be done?']}]

You're right, to truly understand Plato's vision of education, we need to delve deeper into the specifics of his proposed curriculum and methods. Here's a more detailed look at how education should be done in the *Republic*:

****The Importance of Education:****

* ****The Soul's Well-being:**** Plato believed that education was essential for the well-being of the soul. He saw the soul as divided into three parts: reason, spirit, and appetite. Education aims to harmonize these parts, allowing reason to rule over the other two.

* ****The Foundation of Justice:**** A just society, according to Plato, is one where each individual fulfills their role according to their natural abilities. Education is crucial for identifying these abilities and guiding individuals towards their appropriate roles.

* ****The Pursuit of Truth:**** Plato believed that true knowledge is not simply about acquiring facts but about understanding the Forms, which are eternal and unchanging concepts. Education should lead individuals towards this higher understanding.

****How Education Should Be Done:****

* ****Age-Appropriate Curriculum:**** Plato believed that education should be tailored to the different stages of a person's life. He proposed a curriculum that starts with physical training and music for young children, followed by mathematics and astronomy for adolescents, and culminating in dialectic for adults.

* ****The Role of Music:**** Music plays a crucial role in Plato's educational system. He believed that music could shape character and instill moral values. He advocated for a specific type of music that promoted harmony and temperance.

* **The Importance of Storytelling:** Plato believed that stories could have a powerful influence on young minds. He advocated for carefully crafted myths and stories that would instill virtue and inspire noble actions.

* **The Role of the Philosopher-King:** Plato believed that the ideal ruler should be a philosopher-king, someone who has undergone rigorous philosophical training and possesses both wisdom and virtue. This individual would be responsible for guiding the education of the citizens.

* **The Importance of Censorship:** Plato believed that certain types of music, poetry, and art could corrupt the soul. He advocated for censorship to protect young minds from harmful influences.

Key Points to Remember:

* **Education is a lifelong process:** Plato believed that education should continue throughout a person's life, with individuals constantly striving to learn and grow.

* **Education is not just about acquiring knowledge:** It is about developing character, cultivating virtue, and achieving a harmonious and just society.

* **Education is a shared responsibility:** Plato believed that both the state and the family have a role to play in educating the young.

By understanding these details, we can gain a deeper appreciation for Plato's vision of education as a powerful tool for shaping individuals and creating a just and harmonious society.

1.3 Text Style Transfer

```
[13]: sample_zs = "Suddenly I could hear Q-Tip, with his human voice, rapping over a
↳human beat. " \
        "And the top of my skull opened to let human Q-Tip in, and a
↳rail-thin man with enormous eyes " \
        "reached across a sea of bodies for my hand. He kept asking me the
↳same thing over and over: " \
        "You feeling it? I was. My ridiculous heels were killing me, I was
↳terrified I might die, yet " \
        "I felt simultaneously overwhelmed with delight that the song
↳should happen to be playing at " \
        "this precise moment in the history of the world. I took the man's
↳hand. The top of my head flew away."

instruction = f'Rewrite the text below such that the first point of view is
↳replaced with a third person point of view of a person called Emma.\n\n
↳"{sample_zs}"

conversation = [
    {"role": "user", "parts": [instruction]}
```

```

]

# Send a chat completion request
response = client.generate_content(
    conversation,
    generation_config = genai.types.GenerationConfig(
        max_output_tokens = 300,
        temperature = 0
    )
)

# Print the response.
reply = response.text
print(reply)

```

Suddenly, Emma could hear Q-Tip, with his human voice, rapping over a human beat. The top of her skull opened to let human Q-Tip in, and a rail-thin man with enormous eyes reached across a sea of bodies for her hand. He kept asking her the same thing over and over: "You feeling it?" Emma was. Her ridiculous heels were killing her, she was terrified she might die, yet she felt simultaneously overwhelmed with delight that the song should happen to be playing at this precise moment in the history of the world. She took the man's hand. The top of her head flew away.

1.4 Python & JSON Comprehension

```

[15]: import json

question = 'Consider the following monologue from the movie Stalker by Andrei_
↳Tarkovsky: ' \
    '"Let them be helpless like children, because weakness is a great_
↳thing, and strength is nothing. ' \
    'When a man is just born, he is weak and flexible. When he dies, he_
↳is hard and insensitive. ' \
    'When a tree is growing, it\'s tender and pliant. But when it\'s_
↳dry and hard, it dies. ' \
    'Hardness and strength are death\'s companions. Pliancy and_
↳weakness are expressions of the ' \
    'freshness of being. Because what has hardened will never win.' ' \
    'Where else was a similar idea expressed? Provide quotes. Format_
↳your answer as a Python dictionary ' \
    'mapping the author or source name to the actual passage expressing_
↳a similar idea.'

conversation = [
    {"role": "user", "parts": [question]}

```

```

]

response = client.generate_content(
    conversation,
    generation_config = genai.types.GenerationConfig(
        max_output_tokens = 300,
        temperature = 0
    )
)

print(response.text)

```

```

```python
{
 "Lao Tzu (Tao Te Ching)": "The hard and strong will fall. The soft and weak
will overcome.",
 "Confucius (Analects)": "The strong are not always the best, and the best
are not always the strong.",
 "Sun Tzu (The Art of War)": "The supreme art of war is to subdue the enemy
without fighting.",
 "Miyamoto Musashi (The Book of Five Rings)": "The true way of the sword is
to be found in the mind. The sword is only a tool. The mind is the true
weapon.",
 "Bruce Lee (Tao of Jeet Kune Do)": "Be like water, my friend. Be shapeless,
formless, like water. You put water into a cup, it becomes the cup. You put
water into a bottle, it becomes the bottle. You put water into a teapot, it
becomes the teapot. Water can flow or it can crash. Be like water, my friend."
}
```

```