Idea:
creation and evaluation of multiple choice quiz about a topic, starting from a related plain text provided as the input, by using generative AI and NLP
(generative AI APIs to create questions and answers; NLP to evaluate the relation between the generated quiz and the input text)
it seems that already exists something that performs this (ex. https://quizgecko.com/)
is it a problem for the originality of the idea?

Possible alternative idea:
starting from a service experience description, by using generative AI, will be created a satisfaction questionnaire and then with NLP will be evaluated only the questions (because the possible answers are always the same, i.e. a value from 1 to 5) in accord with the description provided as the input
simpler cause there are not answers to evaluate
(and maybe more original? it seems that there is not something like this on the web)

Possible implementation:

- use of generative AI: by using openAI APIs provide a text as the input query

```
import openai
import re

# Set up OpenAI API credentials
openai.api_key = "YOUR_API_KEY_HERE"

# Define the prompt
prompt = "Given the following text, generate 5 multiple-choice questions and
answers: The Mona Lisa is a half-length portrait painting by Italian artist
Leonardo da Vinci. It is considered an archetypal masterpiece of the Italian
Renaissance, and has been described as the best known, the most visited, the
most written about, the most sung about, and the most parodied work of art in
the world."

# Define the completion parameters
model = "davinci-codex"
temperature = 0.5
max_tokens = 2048
stop_sequence = "\n\n"
n_questions = 5

# Generate the questions and answers
response = openai.Completion.create(
    engine=model,
    prompt=prompt,
    max_tokens=max_tokens,
    temperature=temperature,
    n=n_questions,
    stop=stop_sequence
)

# Extract the questions and answers from the response
```

```
questions = []
answers = []
for choice in response.choices:
    text = choice.text
    match = re.match(r"Q: (.*)\nA: (.*)\nB: (.*)\nC: (.*)\nD: (.*)", text)
    if match:
        q, a, b, c, d = match.groups()
        questions.append(q)
        answers.append([a, b, c, d])

# Print the questions and answers
for i, q in enumerate(questions):
    print(f"Question {i+1}: {q}")
    print(f"A. {answers[i][0]}")
    print(f"B. {answers[i][1]}")
    print(f"C. {answers[i][2]}")
    print(f"D. {answers[i][3]}\n")
```

```
Question 1: Who painted the Mona Lisa?
A. Michelangelo
B. Leonardo da Vinci
C. Vincent van Gogh
D. Pablo Picasso

Question 2: Which of the following terms has been used to describe the Mona
Lisa?
A. Archetypal masterpiece
B. Mediocre portrait
C. Forgotten artwork
D. Overrated painting

Question 3: Which of the following is true of the Mona Lisa?
A. It is the most visited work of art in the world
B. It is the largest painting by Leonardo da Vinci
C. It was created during the Baroque period
D. It is a landscape painting

Question 4: What is the Mona Lisa considered to be?
A. An example of Impressionist art
B. A masterpiece of the Italian Renaissance
C. A sculpture by Michelangelo
D. A photograph

Question 5: Which of the following best describes the Mona Lisa?
A. A realistic portrayal of a woman
B. A surrealistic work of art
C. An abstract painting
D. A cartoonish caricature
```

- use of NLP: by using spaCy perform a processing on the generated questions and answers and also on the provided text then define a criteria to operate the evaluation, for example:
    - verify if the correct answer has the higher number of words that are already used in the provided text (maybe can be interesting to assign a percentage to each answer and then verify if the answer with the higher value is the correct one)
    - verify which words are used to formulate the questions
    - other aspects...

Project requirements:

- demonstrate skills on NLP techniques
    - ➡ use of spaCy to evaluate the quiz (the question and the related multiple choice answers) according to the text provided as the input
- answer business-relevant questions
    - ➡ automation of quiz creation (quiz are useful in education at any level, professional courses...)
- Python
    - ➡ OK
- use the latest generations of Generative-AI techniques
    - ➡ openAI APIs (are there alternatives?)
- dataset
    - ➡ texts provided by the prof. or something on Kaggle

Documentation:

1) Introduction on the goal of the project and research question
2) Description of the process
3) Discussion on the results

Evaluation criteria:

a. Originality in defining the topics of interest and the open issues
b. Autonomy in data collection
c. Expertise in pre-processing and in application of algorithms
d. Clarity of presentation of results