

# Flutter ChatGPT 앱 나만의 비서앱

1 개요 및 개념학습

# Flutter ChatGPT 앱

## 나만의 비서앱

개요 및 학습 목표

## 개요 및 학습 목표

### 개요

어느날 여름방학에 **Flutter**를 공부하던 패캠이(가상인물)는 OpenAI 사의 **ChatGPT API**가 공개되었다는 소식을 전해들었다. **나만의 비서처럼 앱**을 만들어보고자하는 패캠이의 프로젝트가 시작되었다.

방학이 일주일도 안 남은 시점에 어떻게 구현할 수 있을까?

## 개요 및 학습 목표

### 학습목표

1. Flutter Framework를 사용하여 ChatGPT 앱을 구현한다.
2. ChatGPT API를 호출하는 방법을 학습한다.
3. 간단한 애니메이션 구현을 학습한다.
4. Future, Stream 의 구현을 방법을 학습해본다.

## 개요 및 학습 목표

### 개발 환경

- IDE
  - Android Studio Flamingo
  - Android Studio Giraffe
- SDK
  - Flutter SDK 3.10.x 또는 그 이상
  - Dart 3

### Android Emulator 활용

## 개요 및 학습 목표

### 사전 조건

- 머신러닝 모델 개발자 & 서버 개발자 보다는 **플러터 개발자!**
- ChatGPT API를 사용하기 위해서는 OpenAI의 계정이 필요합니다.
  - 계정이 없는 경우 회원가입이 필요합니다.
- 결제정보(Billing) 정보 등록이 필요합니다.
  - API 호출에 대한 비용이 발생합니다.
  - 비용 결제를 위한 카드 정보 등록이 필요합니다.

# Flutter ChatGPT 앱

## 나만의 비서앱

자연어 처리 (NLP) 알아보기

## 자연어 처리 (NLP) 알아보기

자연어 처리(Natural Language Processing, NLP)는 인간의 언어를 컴퓨터가 이해하고 처리할 수 있도록 하는 인공지능의 한 분야  
사람들이 일상적으로 사용하는 언어를 기계가 이해하고 해석하는데 중점을 둠.

1. 텍스트 분류 Classification
2. 자연어 이해
3. Chatbot



## 자연어 처리 (NLP) 알아보기

**RNN (Recurrent Neural Network)**  
- 활성화함수가 tanh

**LSTM (Long Short Term Memory)**

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### Abstract

# Flutter ChatGPT 앱

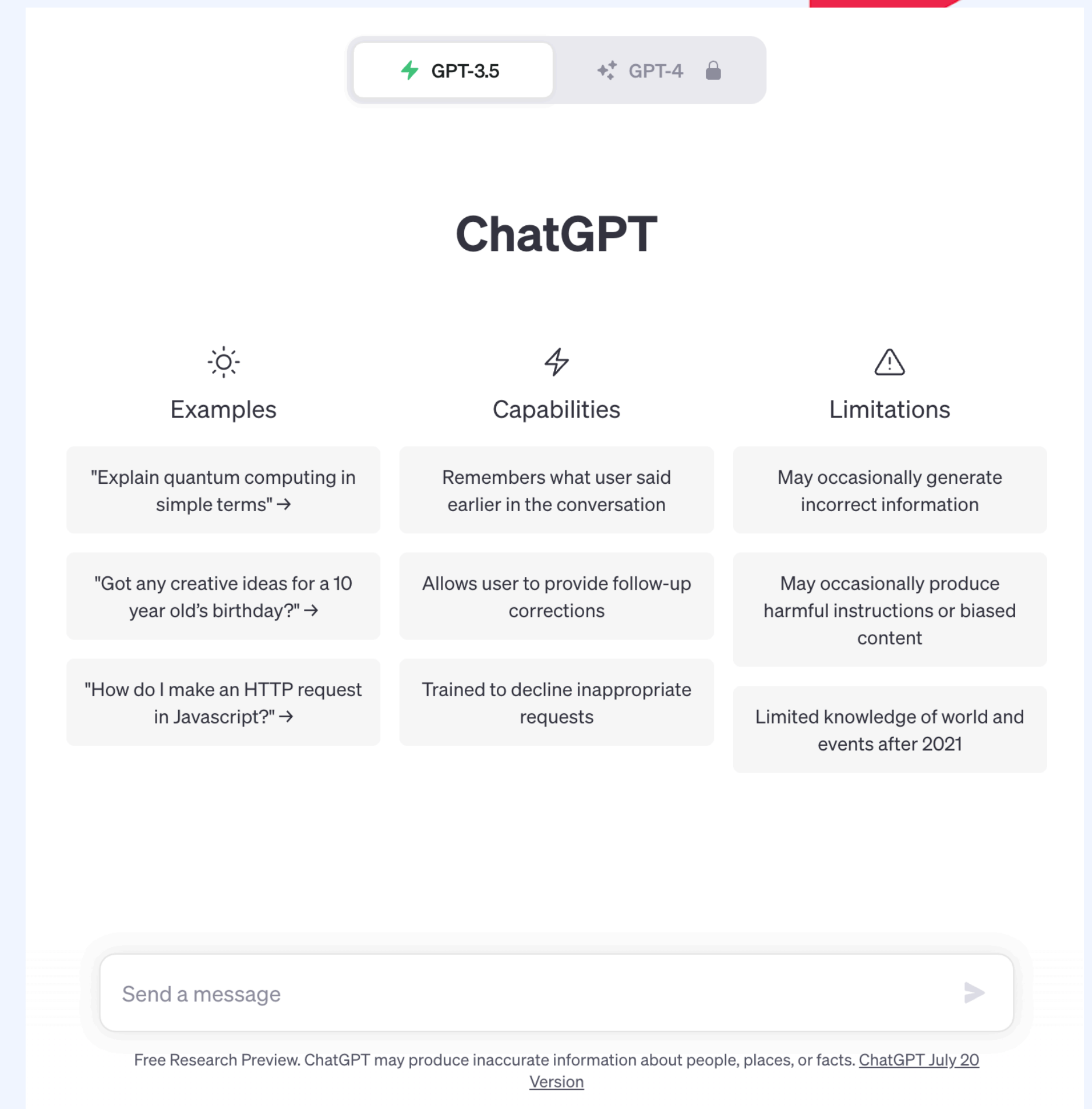
## 나만의 비서 앱

ChatGPT란?

## ChatGPT란?

### 정의

- OpenAI사에서 개발한 대화형 인공지능 서비스
- GPT-3.5, 4 모델을 기반으로 함.
- 2022년 11월 베타
- ChatGPT Plus : 유료 구독 서비스
- Chat API :
  - ChatGPT와 같은 서비스를 만들 수 있는 API 제공



출처: 강사 개인 GPT 화면 캡처

## ChatGPT란?

We've created GPT-4, the latest milestone in OpenAI's effort in scaling up deep learning. GPT-4 is a large multimodal model (accepting image and text inputs, emitting text outputs) that, while less capable than humans in many real-world scenarios, exhibits human-level performance on various professional and academic benchmarks.

March 14, 2023

[Read paper ↗](#)

[View system card ↗](#)

[Try on ChatGPT Plus ↗](#)

[Try in Playground ↗](#)

[Rewatch demo livestream ↗](#)

[Contribute to OpenAI Evals ↗](#)

[Language, GPT-4, Milestone, Publication](#)

<https://openai.com/research/gpt-4>

arXiv:2303.08774v3 [cs.CL] 27 Mar 2023

## GPT-4 Technical Report

OpenAI\*

### Abstract

We report the development of GPT-4, a large-scale, multimodal model which can accept image and text inputs and produce text outputs. While less capable than humans in many real-world scenarios, GPT-4 exhibits human-level performance on various professional and academic benchmarks, including passing a simulated bar exam with a score around the top 10% of test takers. GPT-4 is a Transformer-based model pre-trained to predict the next token in a document. The post-training alignment process results in improved performance on measures of factuality and adherence to desired behavior. A core component of this project was developing infrastructure and optimization methods that behave predictably across a wide range of scales. This allowed us to accurately predict some aspects of GPT-4's performance based on models trained with no more than 1/1,000th the compute of GPT-4.

### 1 Introduction

This technical report presents GPT-4, a large multimodal model capable of processing image and text inputs and producing text outputs. Such models are an important area of study as they have the potential to be used in a wide range of applications, such as dialogue systems, text summarization, and machine translation. As such, they have been the subject of substantial interest and progress in recent years [1–34].

One of the main goals of developing such models is to improve their ability to understand and generate natural language text, particularly in more complex and nuanced scenarios. To test its capabilities in such scenarios, GPT-4 was evaluated on a variety of exams originally designed for humans. In these evaluations it performs quite well and often outscores the vast majority of human test takers. For example, on a simulated bar exam, GPT-4 achieves a score that falls in the top 10% of test takers. This contrasts with GPT-3.5, which scores in the bottom 10%.

On a suite of traditional NLP benchmarks, GPT-4 outperforms both previous large language models and most state-of-the-art systems (which often have benchmark-specific training or hand-engineering). On the MMLU benchmark [35, 36], an English-language suite of multiple-choice questions covering 57 subjects, GPT-4 not only outperforms existing models by a considerable margin in English, but

출처: <https://arxiv.org/abs/2303.08774>

## ChatGPT란?

### 한계

데이터의 정보가 2021년 9월 이전의 정보를 기반으로 학습이 되어 있음.

Flutter 코드 생성의 경우 오래된 스타일의 코드가 생성되는 경우도 존재



뉴진스 알아?



"뉴진스"라는 용어가 무엇인지 정확히 알 수 없습니다. 제가 2021년 9월 이후의 정보를 알 수 없기 때문에 새로운 용어나 상품에 대한 정보가 없을 수 있습니다.



만약 "뉴진스"가 특정한 제품, 회사, 혹은 용어를 가리키는 것이라면 좀 더 구체적인 정보를 제공해주시면 최대한 도와드리겠습니다. 추가적인 정보를 주시면, 더 정확한 도움을 드릴 수 있습니다.

출처: 강사 개인 GPT 화면 캡처

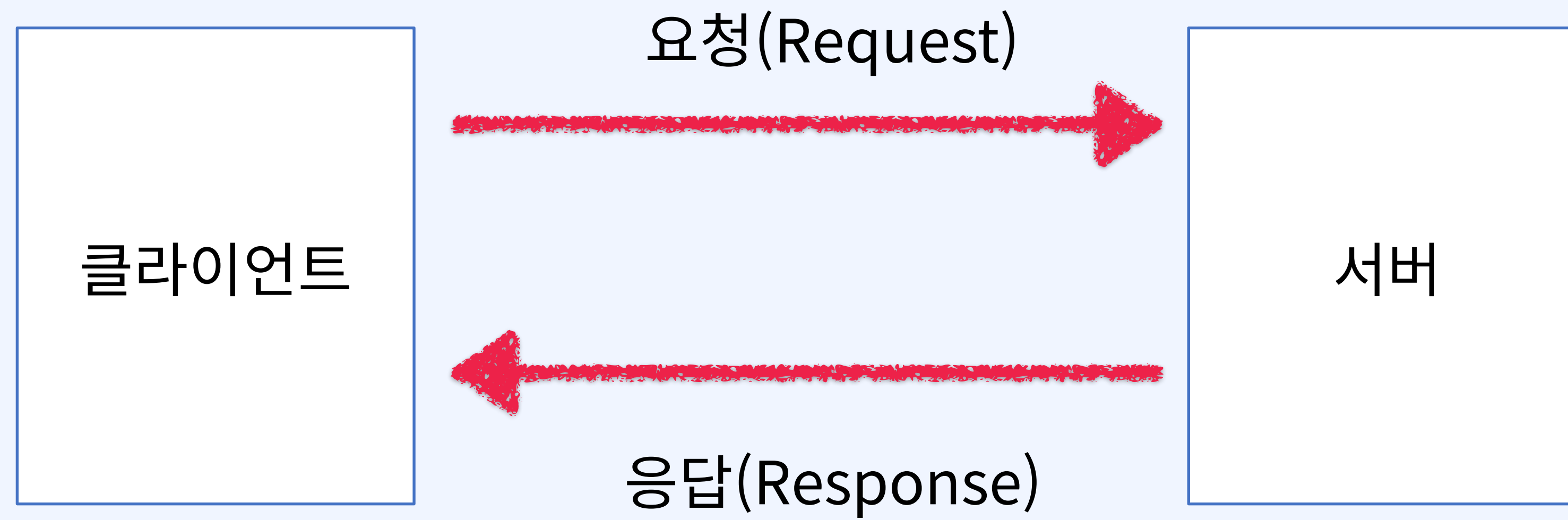
# Flutter ChatGPT 앱

## 나만의 비서 앱

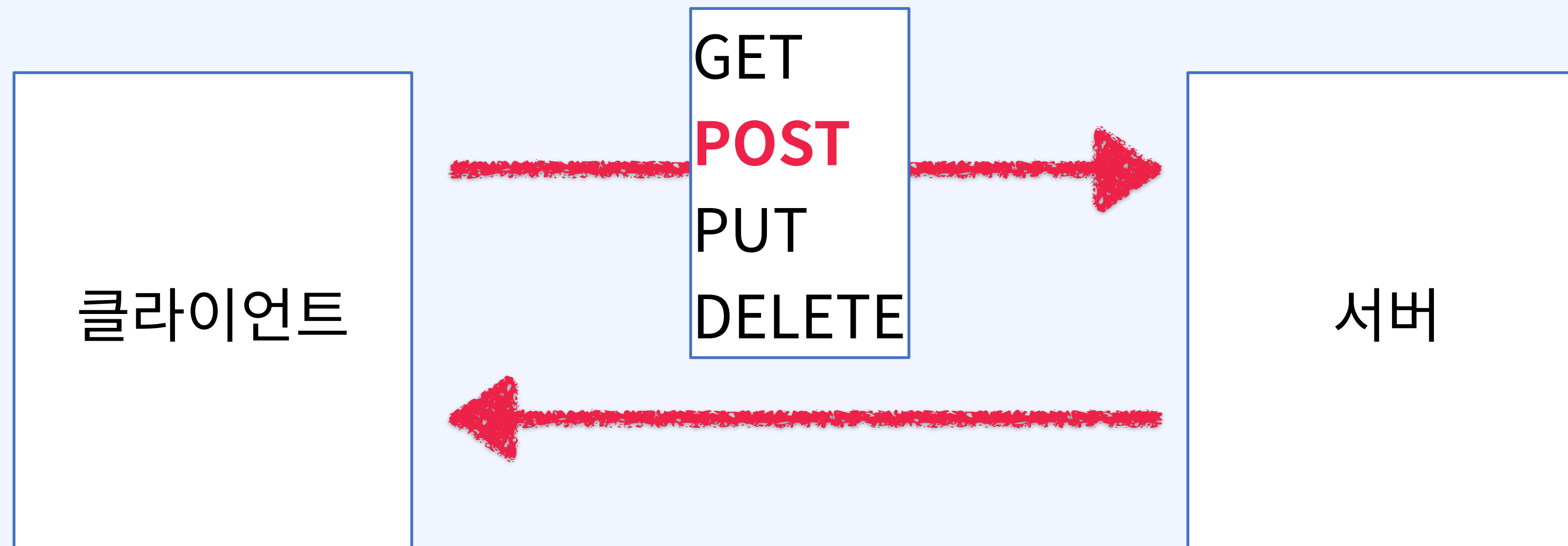
API 살펴보기



## ChatGPT API 살펴보기



## ChatGPT API 살펴보기





## ChatGPT API 살펴보기

### 차이점 확인

- Chat
  - <https://platform.openai.com/docs/api-reference/chat>
- Completion
  - <https://platform.openai.com/docs/api-reference/completions>

## ChatGPT API 살펴보기

### Completion

- <https://platform.openai.com/docs/api-reference/completions>
- Given a prompt, the model will return one or more predicted completions, and can also return the probabilities of alternative tokens at each position.
- **Note: We recommend most users use our Chat Completions API**

#### Create completion Legacy

POST <https://api.openai.com/v1/completions>

Creates a completion for the provided prompt and parameters.

<https://platform.openai.com/docs/deprecations>

#### 2023-07-06: GPT and embeddings

On July 06, 2023, we [announced](#) the upcoming retirements of older GPT-3 and GPT-3.5 models served via the completions endpoint. We also announced the upcoming retirement of our first-generation text embedding models. They will be shut down on January 04, 2024.

##### InstructGPT models

SHUTDOWN DATE	MODEL	PRICE	RECOMMENDED REPLACEMENT
2024-01-04	text-ada-001	\$0.0004 / 1K tokens	gpt-3.5-turbo-instruct
2024-01-04	text-babbage-001	\$0.0005 / 1K tokens	gpt-3.5-turbo-instruct
2024-01-04	text-curie-001	\$0.0020 / 1K tokens	gpt-3.5-turbo-instruct
2024-01-04	text-davinci-001	\$0.0200 / 1K tokens	gpt-3.5-turbo-instruct
2024-01-04	text-davinci-002	\$0.0200 / 1K tokens	gpt-3.5-turbo-instruct
2024-01-04	text-davinci-003	\$0.0200 / 1K tokens	gpt-3.5-turbo-instruct

**Note:** The recommended replacement, `gpt-3.5-turbo-instruct`, has not yet launched. Impacted customers will be notified by email when it becomes available.

## ChatGPT API 살펴보기

### Chat

- <https://platform.openai.com/docs/api-reference/chat>
- Given a list of messages comprising a conversation, the model will return a response.

#### Create chat completion

POST <https://api.openai.com/v1/chat/completions>

Creates a model response for the given chat conversation.

<https://platform.openai.com/docs/models/model-endpoint-compatibility>

#### Model endpoint compatibility

ENDPOINT	MODEL NAME
/v1/chat/completions	gpt-4, gpt-4-0613, gpt-4-32k, gpt-4-32k-0613, gpt-3.5-turbo, gpt-3.5-turbo-0613, gpt-3.5-turbo-16k, gpt-3.5-turbo-16k-0613
/v1/completions (Legacy)	text-davinci-003, text-davinci-002, text-davinci-001, text-curie-001, text-babbage-001, text-ada-001, davinci, curie, babbage, ada
/v1/audio/transcriptions	whisper-1
/v1/audio/translations	whisper-1
/v1/fine-tunes	davinci, curie, babbage, ada
/v1/embeddings	text-embedding-ada-002, text-similarity-*-001, text-search-*-001, code-search-*-001
/v1/moderations	text-moderation-stable, text-moderation-latest

This list does not include our [first-generation embedding models](#) nor our [DALL·E models](#).

## ChatGPT API 살펴보기

### Chat - Request Body

- model string Required
- messages array Required
  - Role Required
  - Content Required

```
curl https://api.openai.com/v1/chat/completions \
-H "Content-Type: application/json" \
-H "Authorization: Bearer $OPENAI_API_KEY" \
-d '{
  "model": "gpt-3.5-turbo",
  "messages": [
    {
      "role": "system",
      "content": "You are a helpful assistant."
    },
    {
      "role": "user",
      "content": "Hello!"
    }
  ]
}'
```

<https://platform.openai.com/docs/api-reference/chat/create>

#### Request body

**model** string **Required**

ID of the model to use. See the **model endpoint compatibility** table for details on which models work with the Chat API.

**messages** array **Required**

A list of messages comprising the conversation so far. **Example Python code.**

**role** string **Required**

The role of the messages author. One of `system`, `user`, `assistant`, or `function`.

**content** string **Required**

The contents of the message. `content` is required for all messages, and may be null for assistant messages with function calls.

**name** string **Optional**

The name of the author of this message. `name` is required if role is `function`, and it should be the name of the function whose response is in the `content`. May contain a-z, A-Z, 0-9, and underscores, with a maximum length of 64 characters.

**function\_call** object **Optional**

The name and arguments of a function that should be called, as generated by the model.



## ChatGPT API 살펴보기

### Chat - Request Body

- messages array Required
  - Role Required

The role of the messages author.

One of **system, user, assistant, or function.**

**사용자의 메시지는 user 로  
api의 응답은 assistant 로**

#### Request body

**model** string Required

ID of the model to use. See the [model endpoint compatibility](#) table for details on which models work with the Chat API.

**messages** array Required

A list of messages comprising the conversation so far. [Example Python code.](#)

**role** string Required

The role of the messages author. One of `system`, `user`, `assistant`, or `function`.

**content** string Required

The contents of the message. `content` is required for all messages, and may be null for assistant messages with function calls.

**name** string Optional

The name of the author of this message. `name` is required if role is `function`, and it should be the name of the function whose response is in the `content`. May contain a-z, A-Z, 0-9, and underscores, with a maximum length of 64 characters.

**function\_call** object Optional

The name and arguments of a function that should be called, as generated by the model.

## ChatGPT API 살펴보기

### Chat - Response Body

- API 호출에 대한 응답
- Flutter에서 JSON으로 받아서 값 처리

```
"id" "chatcmpl-123"
"object" "chat.completion"
"created" 1677652288
"choices"
  "index" 0
  "message"
    "role" "assistant"
    "content" "\n\nHello there, how may I assist you today?"

"finish_reason" "stop"

"usage"
  "prompt_tokens" 9
  "completion_tokens" 12
  "total_tokens" 21
```

## ChatGPT API 살펴보기

### Chat - Response Body

- Stream으로 받기
- Postman 활용

