

Fine Tuning of OpenAI

Which Models Can Be Fine-Tuned ?

Davinci babbage curie ada

Why to fine Tune a model ?

- Higher quality results than prompt design
 - Ability to train on more examples than can fit in a prompt
 - Token savings due to shorter prompts
 - Lower latency requests
-

Steps Involved in Fine Tuning in OpenAI

1. Need to install openAI in our systems by using command line prompt-

```
pip install --upgrade openai
```

2. Generate a secret key from Openai website-

API keys

Your secret API keys are listed below. Please note that we do not display your secret API keys again after you generate them.

Do not share your API key with others, or expose it in the browser or other client-side code. In order to protect the security of your account, OpenAI may also automatically rotate any API key that we've found has leaked publicly.

SECRET KEY	CREATED	LAST USED	
sk-...WW67	12 Mar 2023	Never	🗑
sk-...EETQ	13 Mar 2023	17 Mar 2023	🗑

[+ Create new secret key](#)

Default organization

If you belong to multiple organizations, this setting controls which organization is used by default when making requests with the API keys above.

Personal ⌵

Note: You can also specify which organization to use for each API request. See [Authentication](#) to learn more.

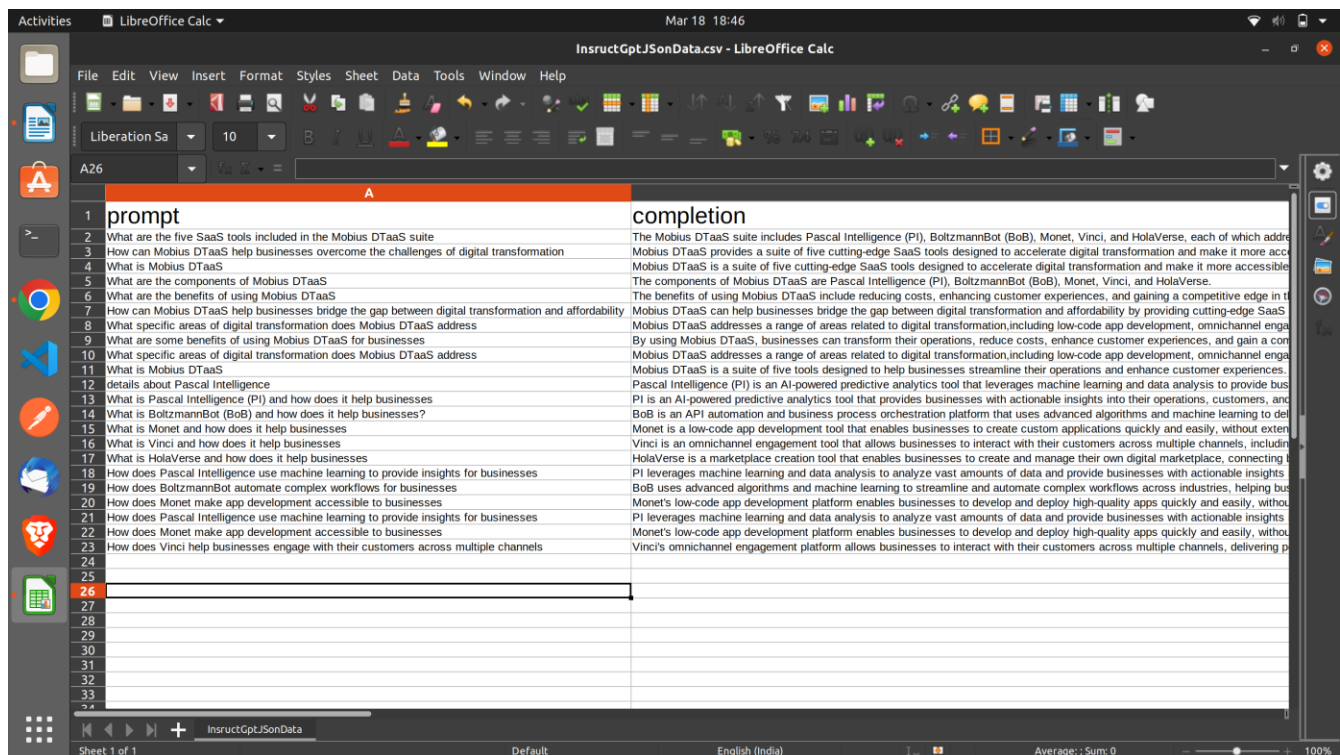
3. Export secret-key key on command line prompt-

```
export OPENAI_API_KEY="<OPENAI_API_KEY>"
```

4. Prepare a prompt and Completion for fine tuning-

Files can be prepared in Csv or json and then be converted in jsonl format. Command line for converting csv,json to **jsonl** format-

```
openai tools fine_tunes.prepare_data -f <LOCAL_FILE>
```



	prompt	completion
1		
2	What are the five SaaS tools included in the Mobius DTaaS suite	The Mobius DTaaS suite includes Pascal Intelligence (PI), BoltzmannBot (BoB), Monet, Vinci, and HolaVerse, each of which address different aspects of digital transformation.
3	How can Mobius DTaaS help businesses overcome the challenges of digital transformation	Mobius DTaaS provides a suite of five cutting-edge SaaS tools designed to accelerate digital transformation and make it more accessible for businesses of all sizes.
4	What is Mobius DTaaS	Mobius DTaaS is a suite of five cutting-edge SaaS tools designed to accelerate digital transformation and make it more accessible for businesses of all sizes.
5	What are the components of Mobius DTaaS	The components of Mobius DTaaS are Pascal Intelligence (PI), BoltzmannBot (BoB), Monet, Vinci, and HolaVerse.
6	What are the benefits of using Mobius DTaaS	The benefits of using Mobius DTaaS include reducing costs, enhancing customer experiences, and gaining a competitive edge in the market.
7	How can Mobius DTaaS help businesses bridge the gap between digital transformation and affordability	Mobius DTaaS can help businesses bridge the gap between digital transformation and affordability by providing cutting-edge SaaS tools at a fraction of the cost of traditional software solutions.
8	What specific areas of digital transformation does Mobius DTaaS address	Mobius DTaaS addresses a range of areas related to digital transformation, including low-code app development, omnichannel engagement, and predictive analytics.
9	What are some benefits of using Mobius DTaaS for businesses	By using Mobius DTaaS, businesses can transform their operations, reduce costs, enhance customer experiences, and gain a competitive edge in the market.
10	What specific areas of digital transformation does Mobius DTaaS address	Mobius DTaaS addresses a range of areas related to digital transformation, including low-code app development, omnichannel engagement, and predictive analytics.
11	What is Mobius DTaaS	Mobius DTaaS is a suite of five tools designed to help businesses streamline their operations and enhance customer experiences.
12	details about Pascal Intelligence	Pascal Intelligence (PI) is an AI-powered predictive analytics tool that leverages machine learning and data analysis to provide businesses with actionable insights into their operations, customers, and market trends.
13	What is Pascal Intelligence (PI) and how does it help businesses	PI is an AI-powered predictive analytics tool that provides businesses with actionable insights into their operations, customers, and market trends.
14	What is BoltzmannBot (BoB) and how does it help businesses?	BoB is an API automation and business process orchestration platform that uses advanced algorithms and machine learning to deliver personalized customer experiences and streamline complex workflows.
15	What is Monet and how does it help businesses	Monet is a low-code app development tool that enables businesses to create custom applications quickly and easily, without the need for extensive programming knowledge.
16	What is Vinci and how does it help businesses	Vinci is an omnichannel engagement tool that allows businesses to interact with their customers across multiple channels, including social media, email, and mobile apps.
17	What is HolaVerse and how does it help businesses	HolaVerse is a marketplace creation tool that enables businesses to create and manage their own digital marketplace, connecting buyers and sellers in a secure and efficient environment.
18	How does Pascal Intelligence use machine learning to provide insights for businesses	PI leverages machine learning and data analysis to analyze vast amounts of data and provide businesses with actionable insights into their operations, customers, and market trends.
19	How does BoltzmannBot automate complex workflows for businesses	BoB uses advanced algorithms and machine learning to streamline and automate complex workflows across industries, helping businesses improve efficiency and reduce costs.
20	How does Monet make app development accessible to businesses	Monet's low-code app development platform enables businesses to develop and deploy high-quality apps quickly and easily, without the need for extensive programming knowledge.
21	How does Pascal Intelligence use machine learning to provide insights for businesses	PI leverages machine learning and data analysis to analyze vast amounts of data and provide businesses with actionable insights into their operations, customers, and market trends.
22	How does Monet make app development accessible to businesses	Monet's low-code app development platform enables businesses to develop and deploy high-quality apps quickly and easily, without the need for extensive programming knowledge.
23	How does Vinci help businesses engage with their customers across multiple channels	Vinci's omnichannel engagement platform allows businesses to interact with their customers across multiple channels, delivering personalized experiences and increasing customer loyalty.
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		

5. Uploading of the prompts for fine tuning

```
openai api fine_tunes.create -t <TRAIN_FILE_ID_OR_PATH> -m <BASE_MODEL>
```

Base_Model can be davinci, babbage, curie and ada.

Ex: `openai api fine_tunes.create -t /home/gaian/Downloads/InstructGptJJsonData_prepared.jsonl -m babbage`

6. After Fine tuning the model

A fine tuned model gets displayed in cli and it could be tested for the prompt provided by us.

```
openai api fine_tunes.follow -i ft-HjbwtTZoNn2yXWZUMKf6k3iE
galan@galan:~$ ^C
galan@galan:~$ openai api fine_tunes.follow -i ft-HjbwtTZoNn2yXWZUMKf6k3iE
[2023-03-17 12:37:31] Created fine-tune: ft-HjbwtTZoNn2yXWZUMKf6k3iE
[2023-03-17 12:39:27] Fine-tune costs $0.00
[2023-03-17 12:39:28] Fine-tune enqueued. Queue number: 0
[2023-03-17 12:39:30] Fine-tune started
[2023-03-17 12:39:51] Completed epoch 1/4
[2023-03-17 12:39:54] Completed epoch 2/4
[2023-03-17 12:39:57] Completed epoch 3/4
[2023-03-17 12:40:01] Completed epoch 4/4
[2023-03-17 12:40:21] Uploaded model: babbage:ft-personal-2023-03-17-07-10-21
[2023-03-17 12:40:21] Uploaded result file: file-unbRwKmGqLYCWLZCUMCrcCbf
[2023-03-17 12:40:21] Fine-tune succeeded
```

Note : Make Sure You Copy the Name of Newly Updated FinedTuned Model

Ex: babbage:ft-personal-2023-03-17-12-20-00

Note :

Prompt and completion that we trained our model for

Prompt- What are the five SaaS tools included in the Mobius DTaaS suite

Answer after fine tuning-

The Mobius DTaaS suite includes five SaaS tools: Advantages of using the Mobius DTaaS suite include low-code app development, low-code app installation, omnichannel engagement, and low-code monetization. The suite includes three low-code app development tools: MinimalVu, Nucleus, and Launchpad; two omnichannel engagement tools, Omnichannel Intelligence and Omnichannel Engagement; and two low-code monetization tools, Monetium and Monetium Pro. The suite also includes two high-performance analytics tools: Omnic insight and Omnic surf; and two low-code analytics tools, Hadoop Verification and Hadoop Verification Pro. The suite also includes two high-performance analytics tools: Omnic surf and Omnic surf Pro; and two low-code analytics tools, Hadoop Verification and Hadoop Verification Pro.

7. Answer Expecting from model for a prompt after fine-tuning

Prompt-What are the five SaaS tools included in the Mobius DTaaS suite

Answer- The Mobius DTaaS suite includes Pascal Intelligence (PI), BoltzmannBot (BoB), Monet, Vinci, and HolaVerse, each of which addresses specific areas of digital transformation, from low-code app development to omnichannel engagement and marketplace creation.

Note : if we are getting answer near to the expected answer then we can assume that our model is trained well else we can again fine tune our updated model with the same JSONL File

Python Code To ask Prompt to Our Trained Model :

```
import openai;
API_KEY="sk-A20dapa8E0T1fUcyPIeST3B1bkFJZ3XEmP8qCJa0qugbEETQ"
openai.api_key=API_KEY

# model = 'babbage:ft-personal-2023-03-16-11-28-01'
# model = 'text-davinci-003'
# model="babbage:ft-personal-2023-03-17-05-45-03"
model="babbage:ft-personal-2023-03-17-07-10-21"

inp= input('statement ')
# model="babbage:ft-personal-2023-03-17-09-12-53"
# model="davinci:ft-personal-2023-03-17-07-41-37";
prompt= inp;
response =openai.Completion.create(
    prompt=prompt,
    model=model,
    max_tokens= 500,
    temperature=0.7,
)
print(response['choices'][0]['text']);
```

9. Fine Tuning of our own model for better results-

```
Try out your fine-tuned model:
openai api completions.create -m davinci:ft-personal-2023-03-17-07-41-37 -p <YOUR_PROMPT>
gagan@gagan:~$ openai api fine_tunes.create -t /home/gagan/Desktop/csvfiles/InstructGptJSONData_prepared.jsonl -m babbage:ft-personal-2023-03-17-07-10-21
Found potentially duplicated files with name 'InstructGptJSONData_prepared.jsonl', purpose 'fine-tune' and size 6214 bytes
file-QNzjLEIPOLVbLSbnpalmvve7
file-FAxjJ0c9gR0a28F0hsz2B1x1q
Enter file ID to reuse an already uploaded file, or an empty string to upload this file anyway:
Upload progress: 100% | 6.21k/6.21k [00:00<00:00, 12.8M/s]
Uploaded file from /home/gagan/Desktop/csvfiles/InstructGptJSONData_prepared.jsonl: file-M31ZtQAYxPFCB8SeFQnLfw
Created fine-tune: ft-x8tqlRMonYoUKZRBvvQvz2K
Streaming events until fine-tuning is complete...

(Ctrl-C will interrupt the stream, but not cancel the fine-tune)
[2023-03-17 14:38:30] Created fine-tune: ft-x8tqlRMonYoUKZRBvvQvz2K

Stream interrupted (client disconnected).
To resume the stream, run:

    openai api fine_tunes.follow -i ft-x8tqlRMonYoUKZRBvvQvz2K

gagan@gagan:~$ ^C
gagan@gagan:~$ openai api fine_tunes.follow -i ft-x8tqlRMonYoUKZRBvvQvz2K
[2023-03-17 14:38:30] Created fine-tune: ft-x8tqlRMonYoUKZRBvvQvz2K

Stream interrupted (client disconnected).
To resume the stream, run:

    openai api fine_tunes.follow -i ft-x8tqlRMonYoUKZRBvvQvz2K

gagan@gagan:~$ openai api fine_tunes.follow -i ft-x8tqlRMonYoUKZRBvvQvz2K
[2023-03-17 14:38:30] Created fine-tune: ft-x8tqlRMonYoUKZRBvvQvz2K
[2023-03-17 14:41:57] Fine-tune costs $0.00
[2023-03-17 14:41:57] Fine-tune enqueued. Queue number: 0

Stream interrupted (client disconnected).
To resume the stream, run:

    openai api fine_tunes.follow -i ft-x8tqlRMonYoUKZRBvvQvz2K

gagan@gagan:~$ openai api fine_tunes.follow -i ft-x8tqlRMonYoUKZRBvvQvz2K
[2023-03-17 14:38:30] Created fine-tune: ft-x8tqlRMonYoUKZRBvvQvz2K
[2023-03-17 14:41:57] Fine-tune costs $0.00
[2023-03-17 14:41:57] Fine-tune enqueued. Queue number: 0
[2023-03-17 14:42:02] Fine-tune started
[2023-03-17 14:42:24] Completed epoch 1/4
[2023-03-17 14:42:27] Completed epoch 2/4
[2023-03-17 14:42:30] Completed epoch 3/4
[2023-03-17 14:42:34] Completed epoch 4/4
[2023-03-17 14:42:53] Uploaded model: babbage:ft-personal-2023-03-17-09-12-53
[2023-03-17 14:42:53] Uploaded result file: file-xKj1q3fsN6VDDQlJzxadsvku
[2023-03-17 14:42:53] Fine-tune succeeded

Job complete! Status: succeeded
```

Prompt- What are the five SaaS tools included in the Mobius DTaaS suite?

Answer after tuning of our model-

The Mobius DTaaS suite includes Pascal Intelligence (PI), BoltzmannBot (BoB), Monet, Vinci, and HolaVerse, each of which addresses specific areas of digital transformation, from low-code app development to omnichannel engagement and sales. PI provides low-code app development tools that enable businesses to create and deliver customized digital experiences to customers. BoB provides a suite of omnichannel tools that enable businesses to interact with their customers, create personalized customer journeys, and gain a better understanding of their habits and preferences. Vinci provides a suite of tools that enable businesses to deliver high-quality digital experiences to customers, enhance customer experiences, and gain a better understanding of their habits and preferences. HolaVerse provides a suite of tools that enable businesses to interact with their customers, create personalized customer journeys, and gain a better understanding of their habits and preferences.

