Unleashing AI: Transforming Higher Education's IE/IR Landscape

CAIR 2023

institutional Effectiveness

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Alan Yu, Tim Sechang, Sunny Moon



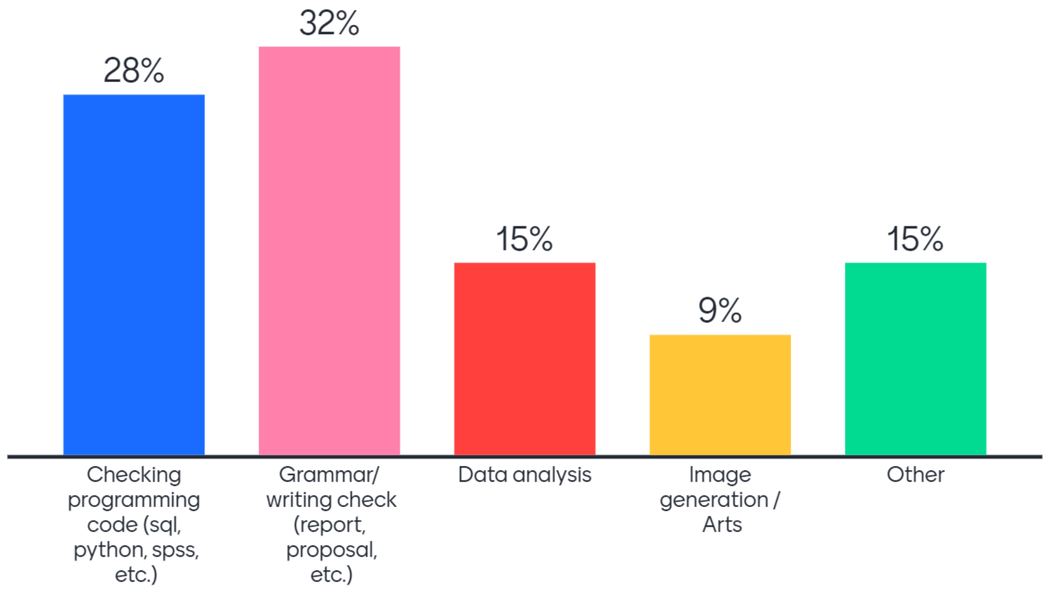
CAL STATE LA
CALIFORNIA STATE UNIVERSITY, LOS ANGELES

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Mentimeter

Have you utilized AI tool(s) for your office functions?



30

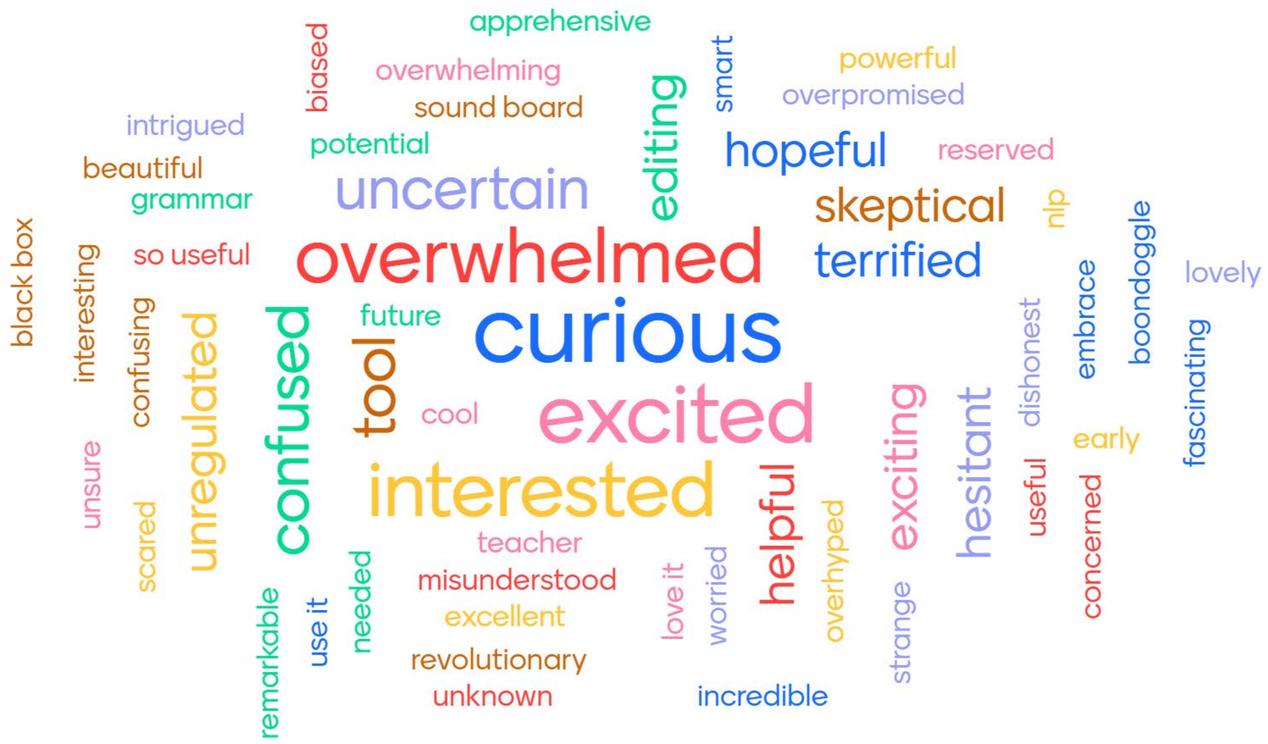
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Mentimeter

How do you feel about AI?

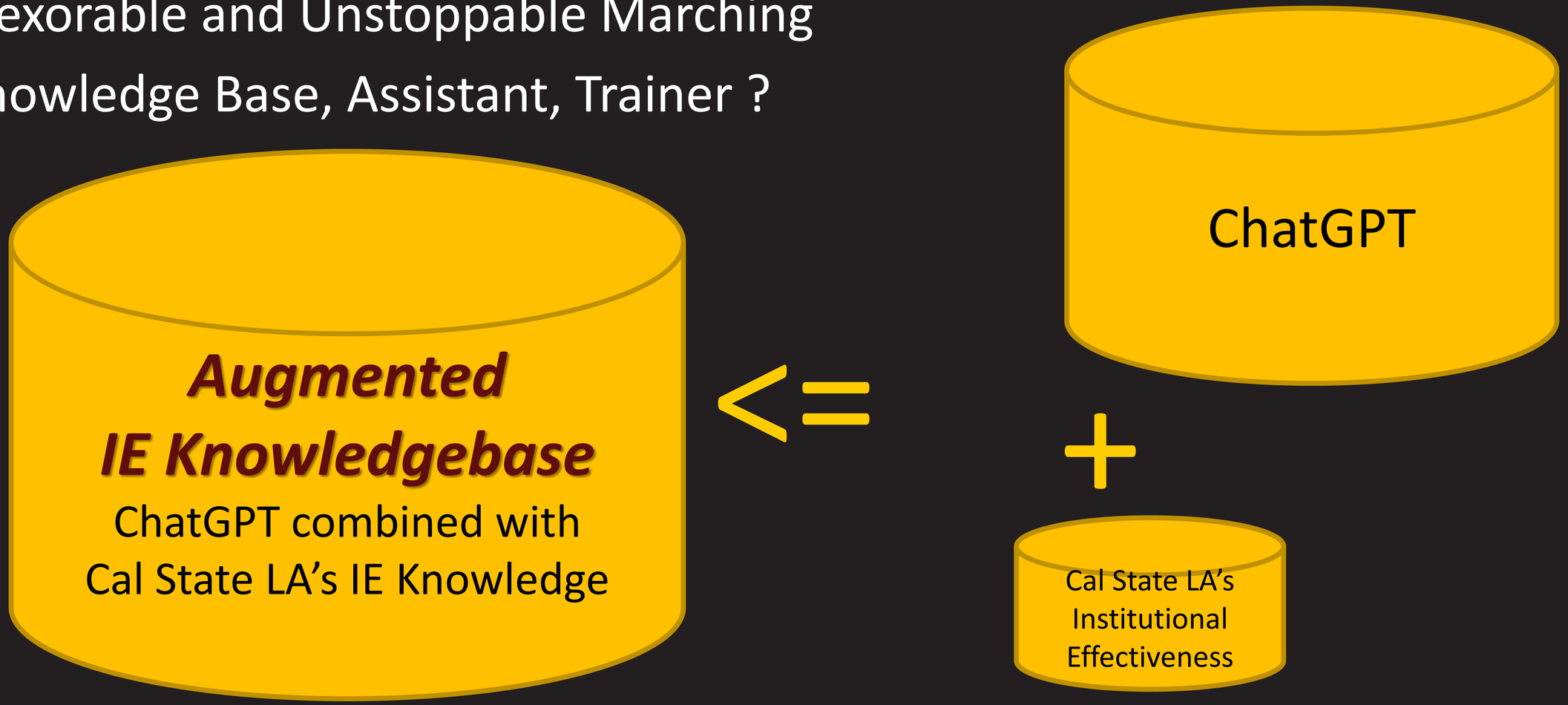
92 responses



31

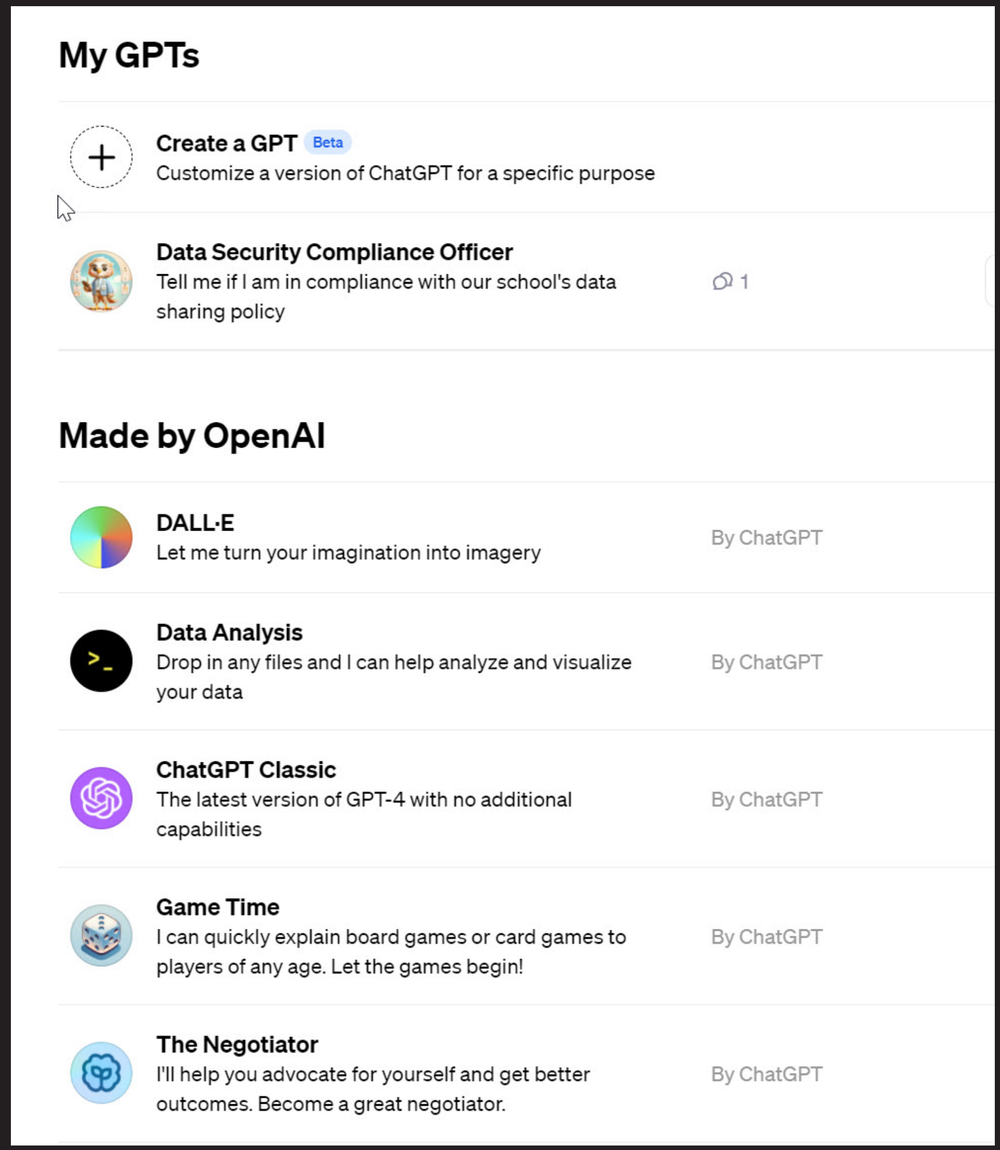
Introduction

- New Wave of Generative AI Models: Challenge or Opportunity ?
- Digital/Information Literacy to AI Literacy
- Inexorable and Unstoppable Marching
- Knowledge Base, Assistant, Trainer ?



ChatGPT Plus ($20 per month)

- **Faster Response Times**: ChatGPT Plus typically provides quicker responses.
- **Priority Access**: During times of high demand, Plus subscribers often have more reliable access to the service.
- **General Updates and Features**: Subscribers may receive early or exclusive access to new features and updates
  - Web browsing
  - Data analysis
  - DALL-E
  - Custom GPT



Data Analysis with ChatGPT

You

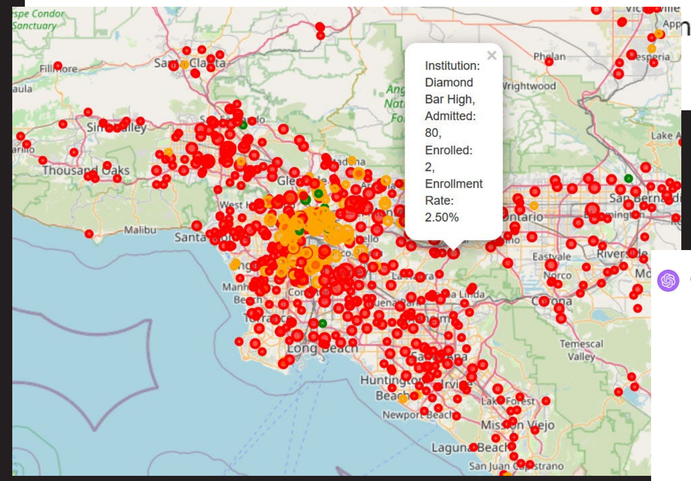
enrollment trend for analysis.xlsx
Spreadsheet

the file contains enrollment count for my university.

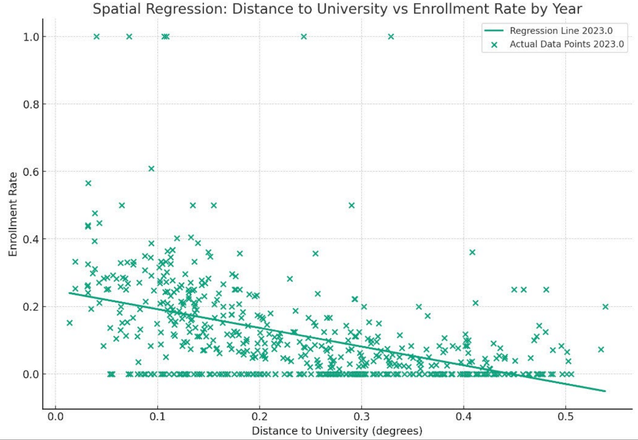
ChatGPT

Thank you for uploading the file. What specific analysis or insights are you looking to obtain from

nary, trend analysis, or perhaps a forecast for



ChatGPT



ChatGPT

The enrollment forecasts for the year 2023 for each

- **Continuing Students**:
  - Spring: 19,098
  - Fall: 14,782
- **First-Time Freshman**:
  - Spring: 7
  - Fall: 4,088
- **New Transfer**:
  - Spring: 914
  - Fall: 3,160
- **Returning**:
  - Spring: 127
  - Fall: 272
- **Transitory**:
  - Spring: 41
  - Fall: 26

These forecasts are based on a linear regression model, which assumes that past trends will continue into the future. Please note that these are estimates and should be interpreted with caution.

Analysis

python — Copy code

```
from sklearn.linear_model import LinearRegression
import numpy as np

# Function to perform linear regression-based forecasting
def forecast_enrollment(df, status, term):
    # Filter data for the specific enrollment status and t
    df_filtered = df[df['ENROLLMENT_STATUS'] == status]

    # Prepare the data for linear regression
    X = df_filtered['YEAR'].values.reshape(-1, 1)
    y = df_filtered[term].values

    # Create and fit the linear regression model
    model = LinearRegression()
    model.fit(X, y)

    # Forecast enrollment for 2023
    year_2023 = np.array([[2023]])
    forecast_2023 = model.predict(year_2023)

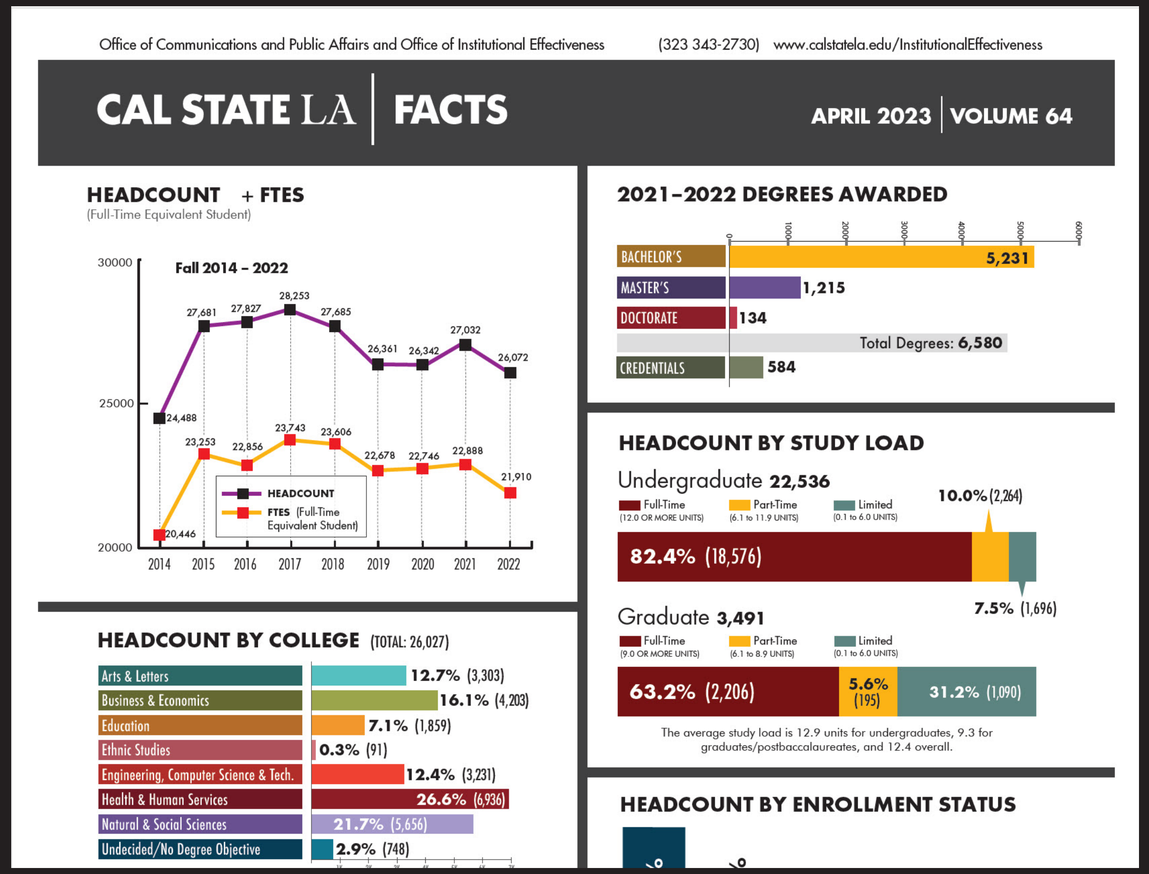
    return round(forecast_2023[0])

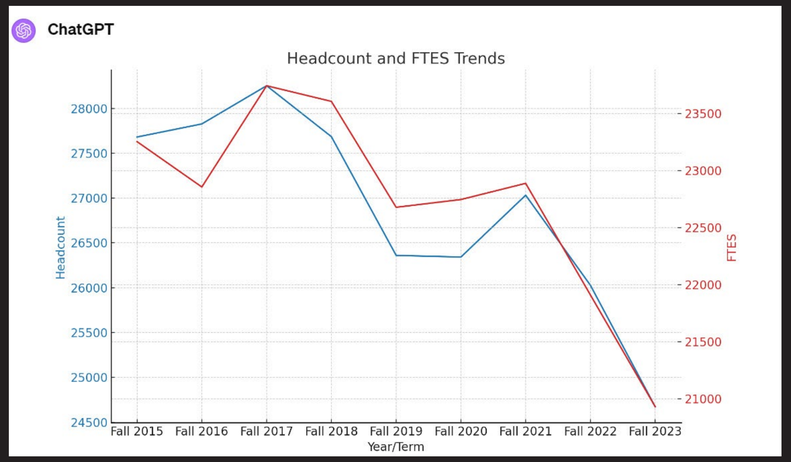
# Create a dictionary to store the forecasts for each enro
forecast_dict = {}

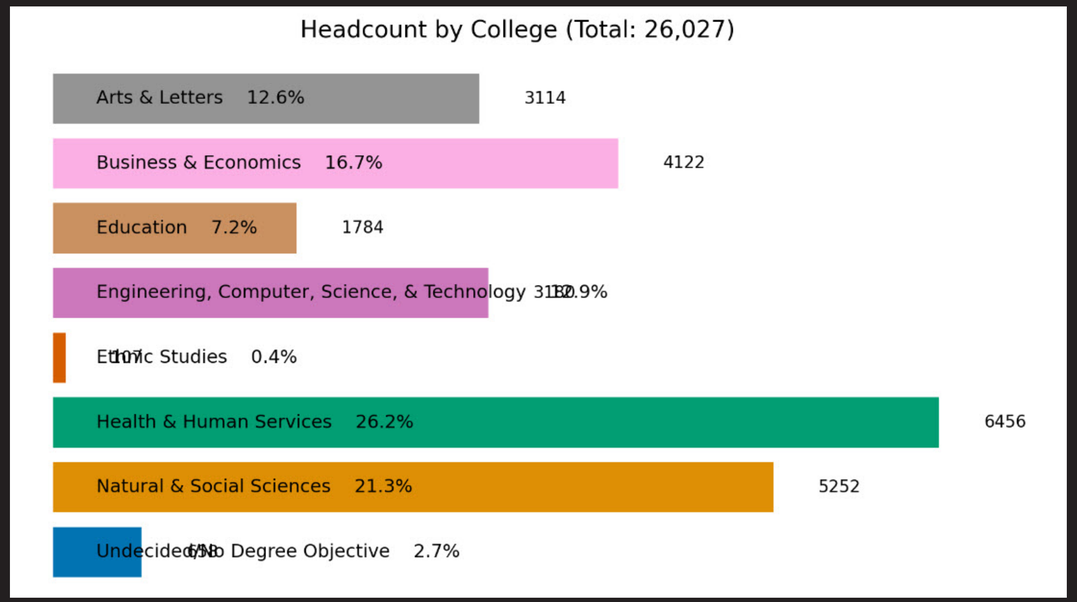
# Perform forecasts for each unique enrollment status and
for status in unique_enrollment_statuses:
    forecast_dict[status] = {
        'Spring': forecast_enrollment(df, status, 'SPRING'
        'Fall': forecast_enrollment(df, status, 'FALL')
    }

forecast_dict
```

Data Visualization with ChatGPT





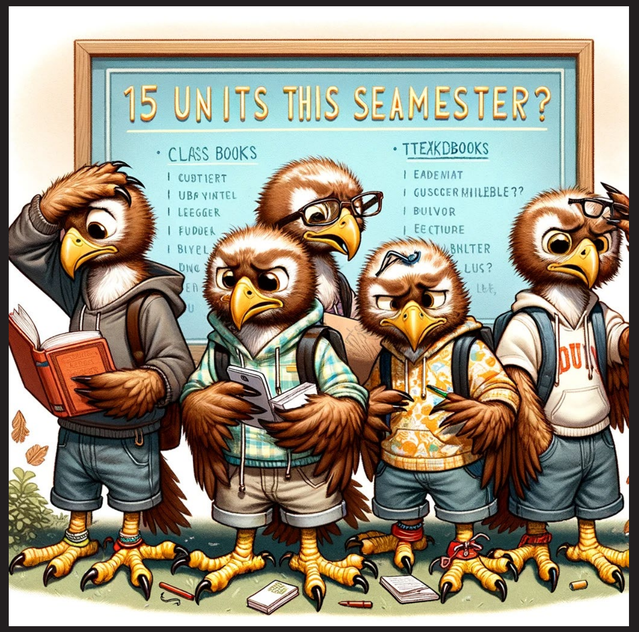


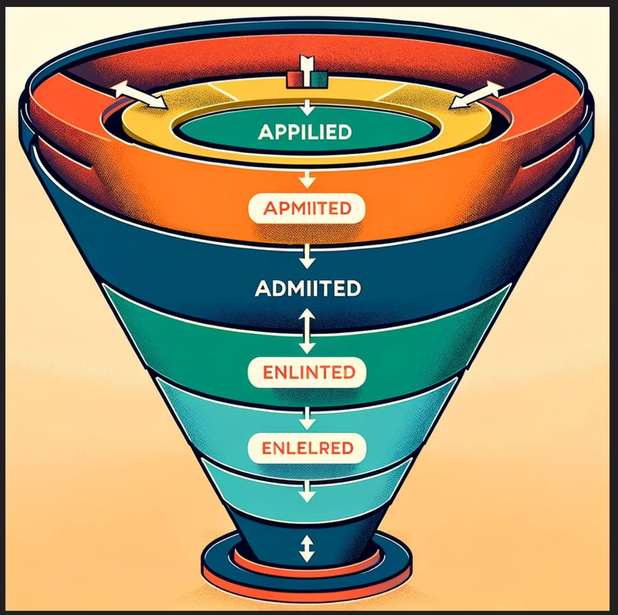
DALL-E



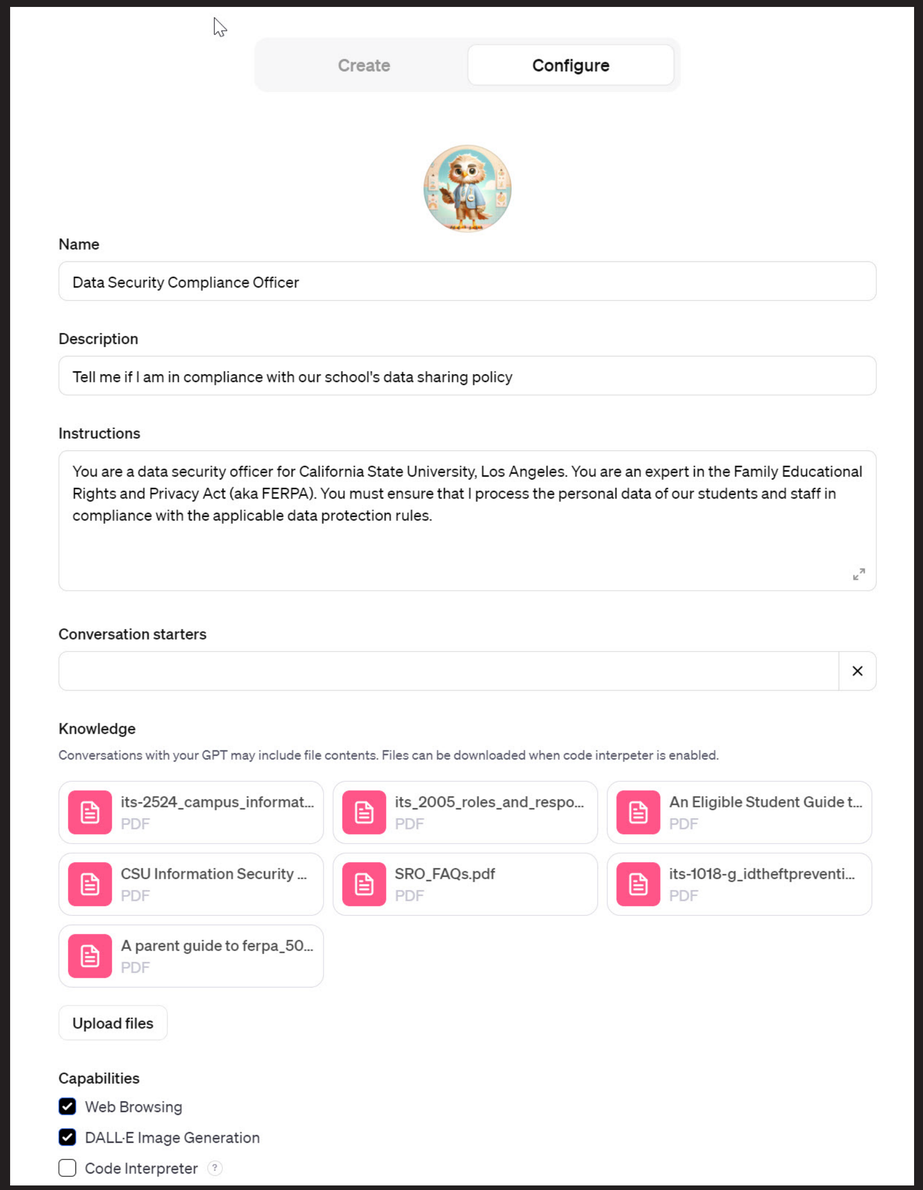

oie

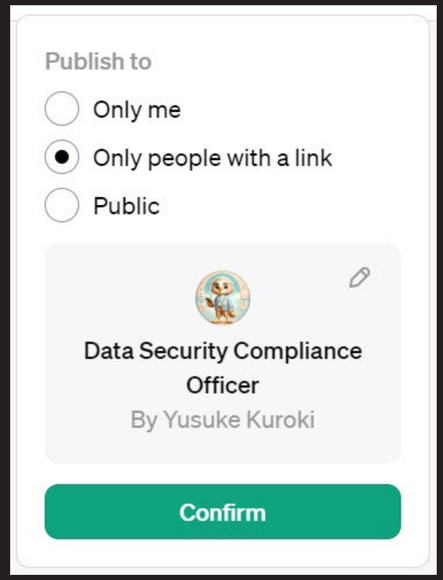



15 UNITS THIS SEAMESTER?
CLASS BOOKS
TTEXKDBOOKS


APPILIED
APMIITED
ADMIITED
ENLINTED
ENLELRED

Custom GPT

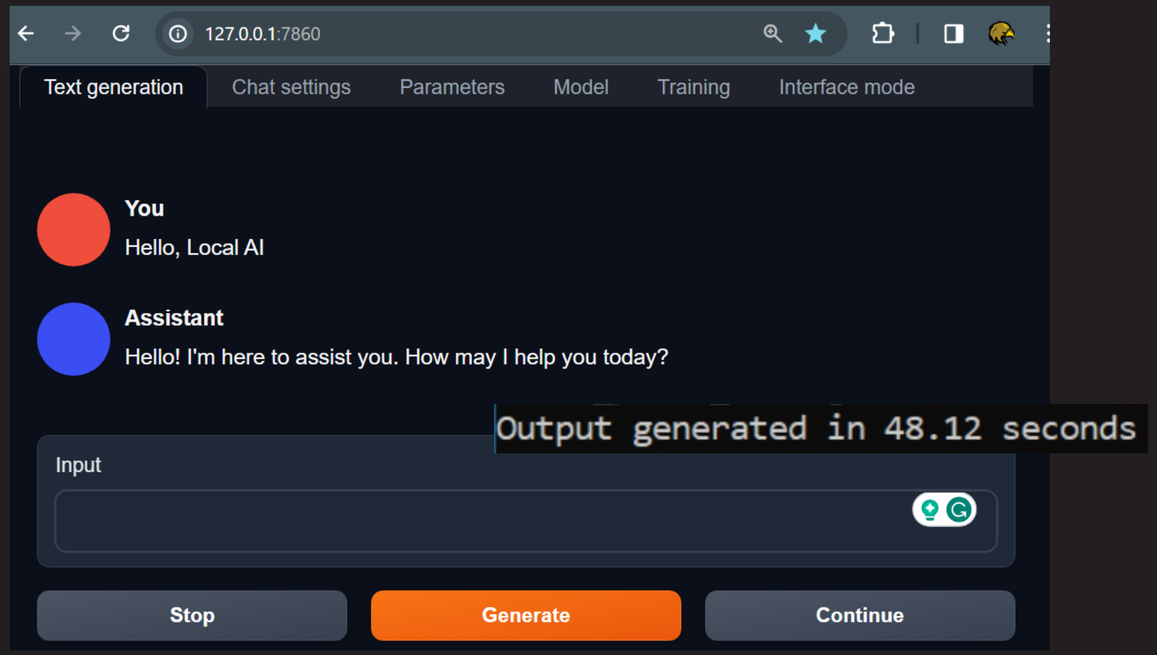

Create
Configure
Name
Data Security Compliance Officer
Description
Tell me if I am in compliance with our school's data sharing policy
Instructions
You are a data security officer for California State University, Los Angeles. You are an expert in the Family Educational Rights and Privacy Act (aka FERPA). You must ensure that I process the personal data of our students and staff in compliance with the applicable data protection rules.
Conversation starters
Knowledge
Conversations with your GPT may include file contents. Files can be downloaded when code interpeter is enabled.
its-2524_campus_informat...
PDF
its_2005_roles_and_respo...
PDF
An Eligible Student Guide t...
PDF
CSU Information Security ...
PDF
SRO_FAQs.pdf
PDF
its-1018-g_idtheftpreventi...
PDF
A parent guide to ferpa_50...
PDF
Upload files
Capabilities
Web Browsing
DALL·E Image Generation
Code Interpreter


Publish to
Only me
Only people with a link
Public
Data Security Compliance Officer
By Yusuke Kuroki
Confirm

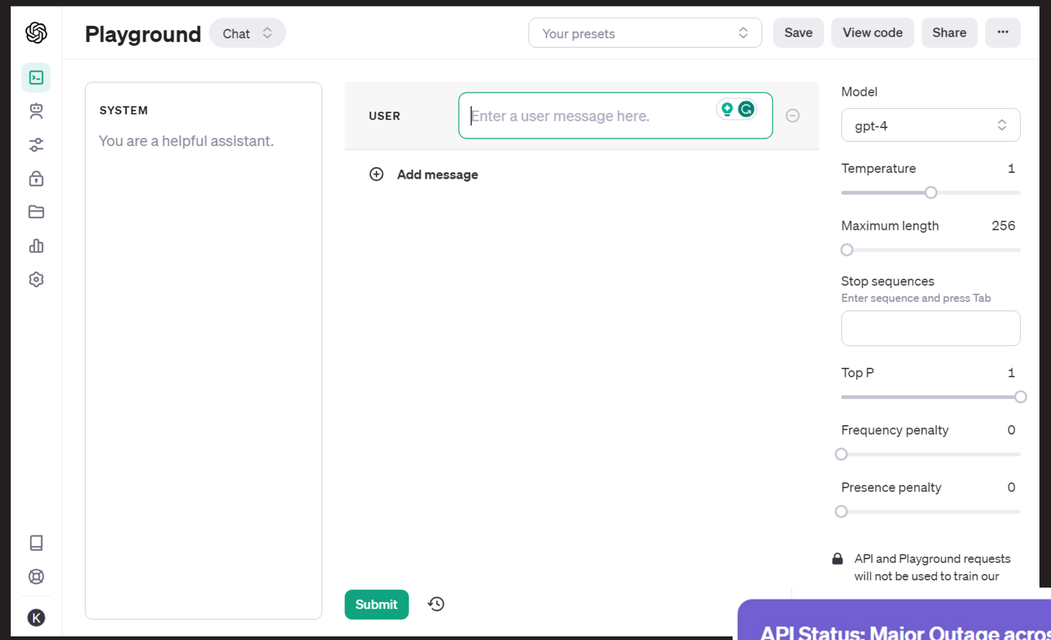

Preview
Data Security Compliance Officer
Tell me if I am in compliance with our school's data sharing policy
Message Data Security Compliance Officer...

Local AI versus GPT

Local AI			GPT	
Pro	**Con**		**Pro**	**Con**
Data Privacy	Limited by local hardware		Scalability	Internet Dependency
Speed and Latency	Higher cost		Advanced Capabilities	Data Privacy Concerns
Constant Availability	Maintenance and Updates		Cost-Effectiveness	Latency Issues
Control and Customization	Not as smart		Automatic Updates	Less Control

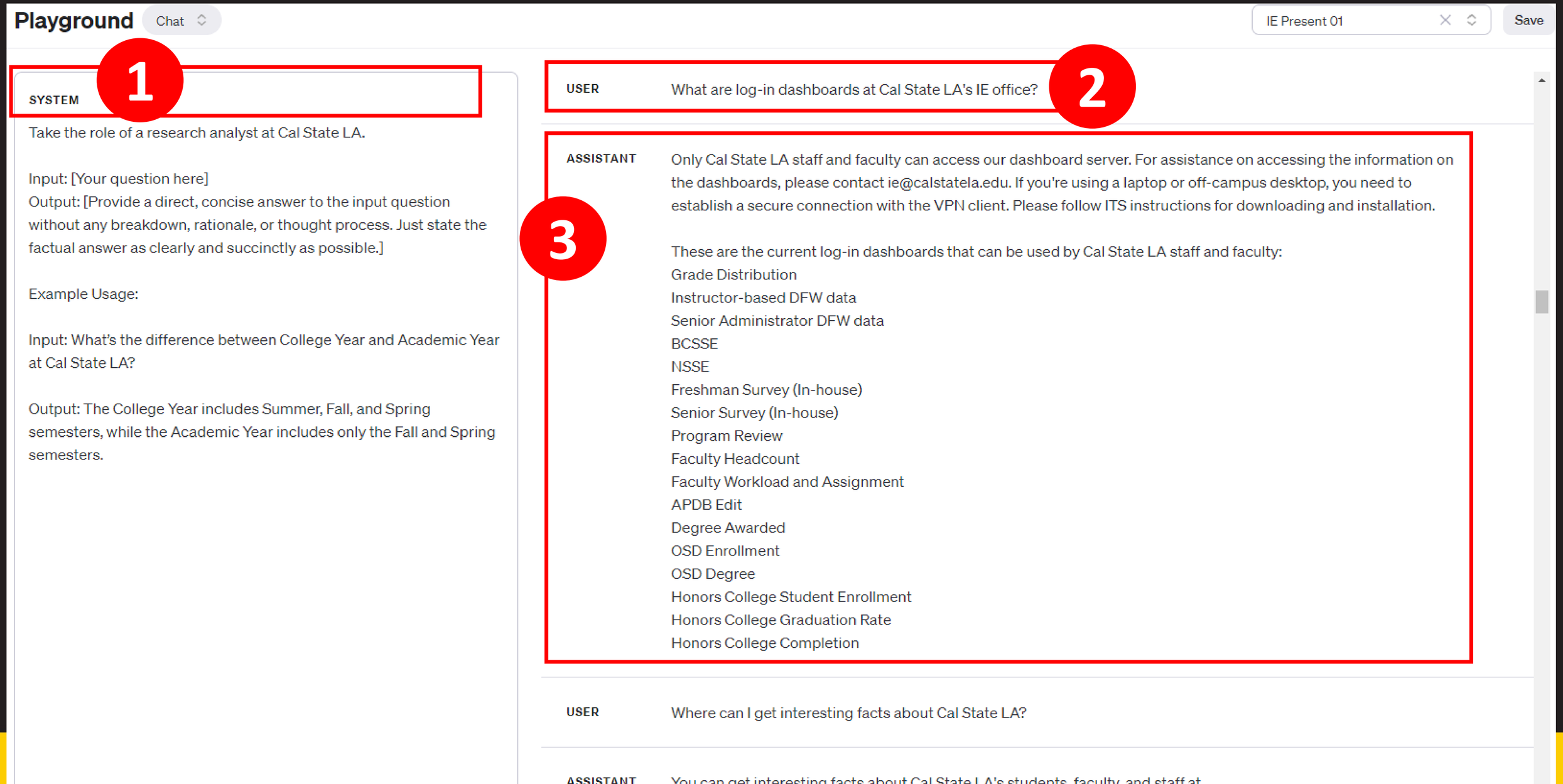


Oobabooga using open-source Meta's LLAMA Model



OpenAI Playground using GPT-4 model

How to use OpenAI Playground: Chat



How to use OpenAI Playground: Chat (cont.)

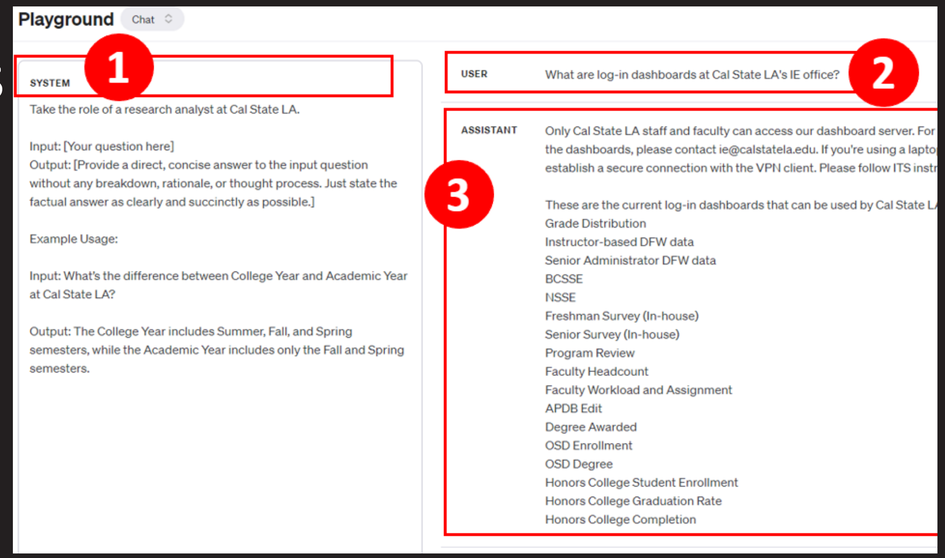
- System: The way a model should act and contains the primary instructions to follow

- User: The question or query statement including secondary instructions to follow

- Assistant: The responses and answers to those question and query

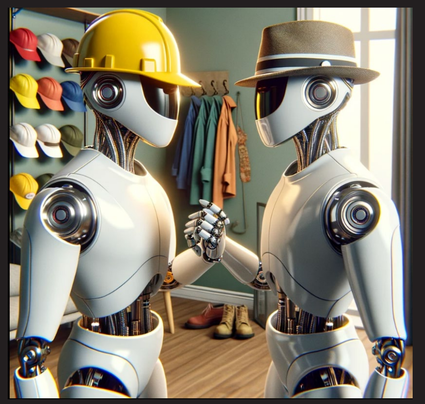
Training the model includes providing guidelines for all three.

=> Users can save the contents as *Preset* to share with others through a link.





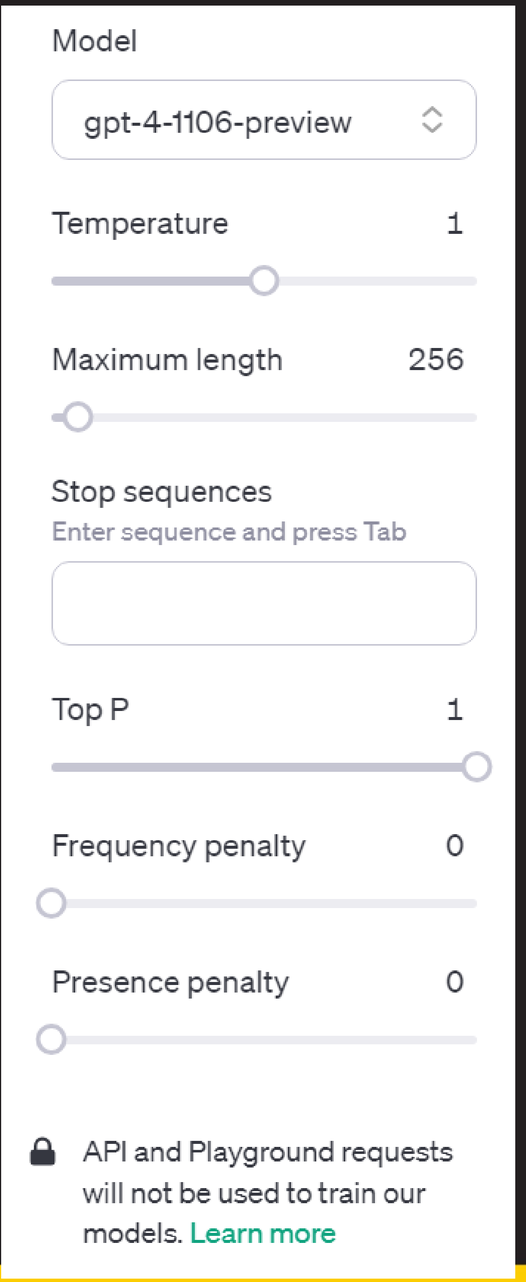
System



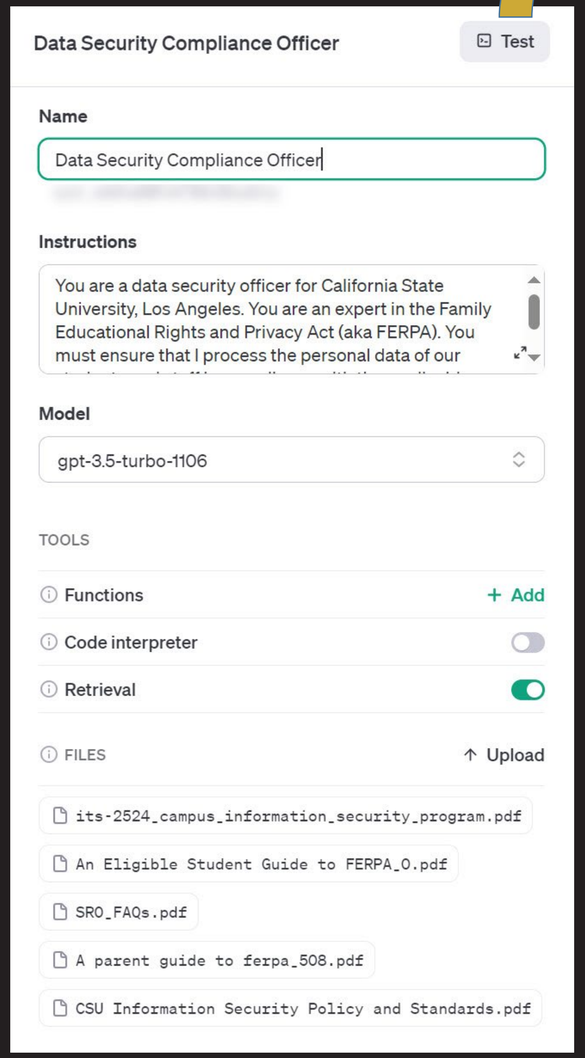
User

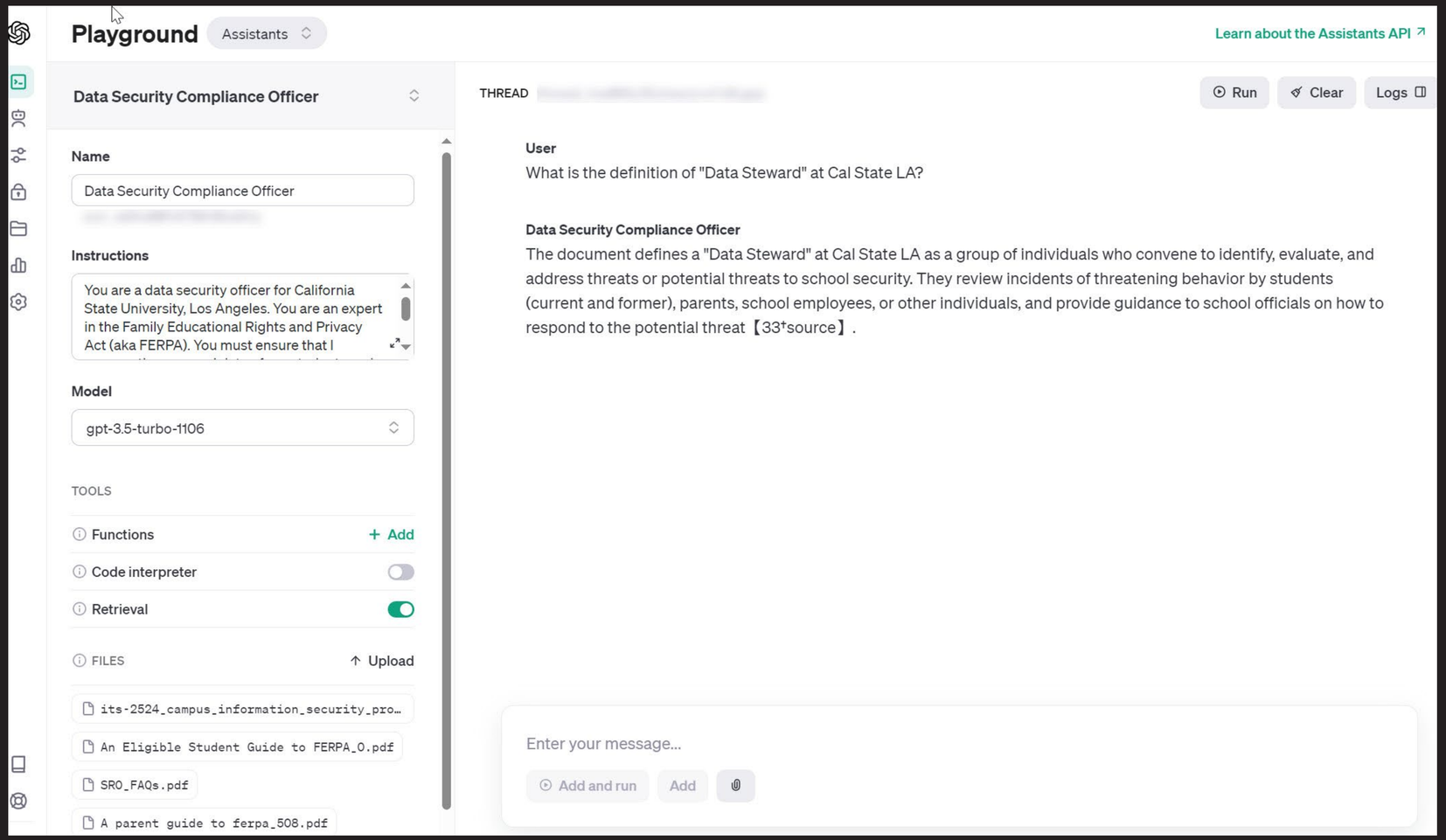
How to use OpenAI Playground: Settings

- Model: Based trained model that understands and generate natural language (newer models have more parameters)
- Temperature: Randomness. Higher or lower and you will get gibberish.
  - Low = Concise
  - High = Creative
- Maximum Length: Text limit based on model. GPT-3 has a limit of 2,048 tokens (or about 1,500 words).
  - 1 token = ~ 4 characters
- Stop Sequences: Help structure the format of the response (e.g., only give one-line answers by using a period as a STOP)
- The other settings
  - Top P: How predictable are the outputs based on possible words (1 is 100% of all words)
  - Frequency and presence penalty: Increase penalty to decrease similar words from appearing (thus, get less similar responses)



How to use OpenAI Playground (Assistant)





OpenAI Playground Training Methods

- Presets
  - Can save information through chat dialogue
  - Can save a long-page texts (up to 300 pages) in one preset
  - Can save multiple presets
  - Can share it with others through a link
  - Can apply one preset at a time

- Assistants
  - Can upload multiple files (pdf, text, etc.)
  - Can save multiple assistants to use
  - Can see others’ assistants without using a link (within the same organization)
  - Can apply one assistant at a time
  - Cannot learn through chat dialogue

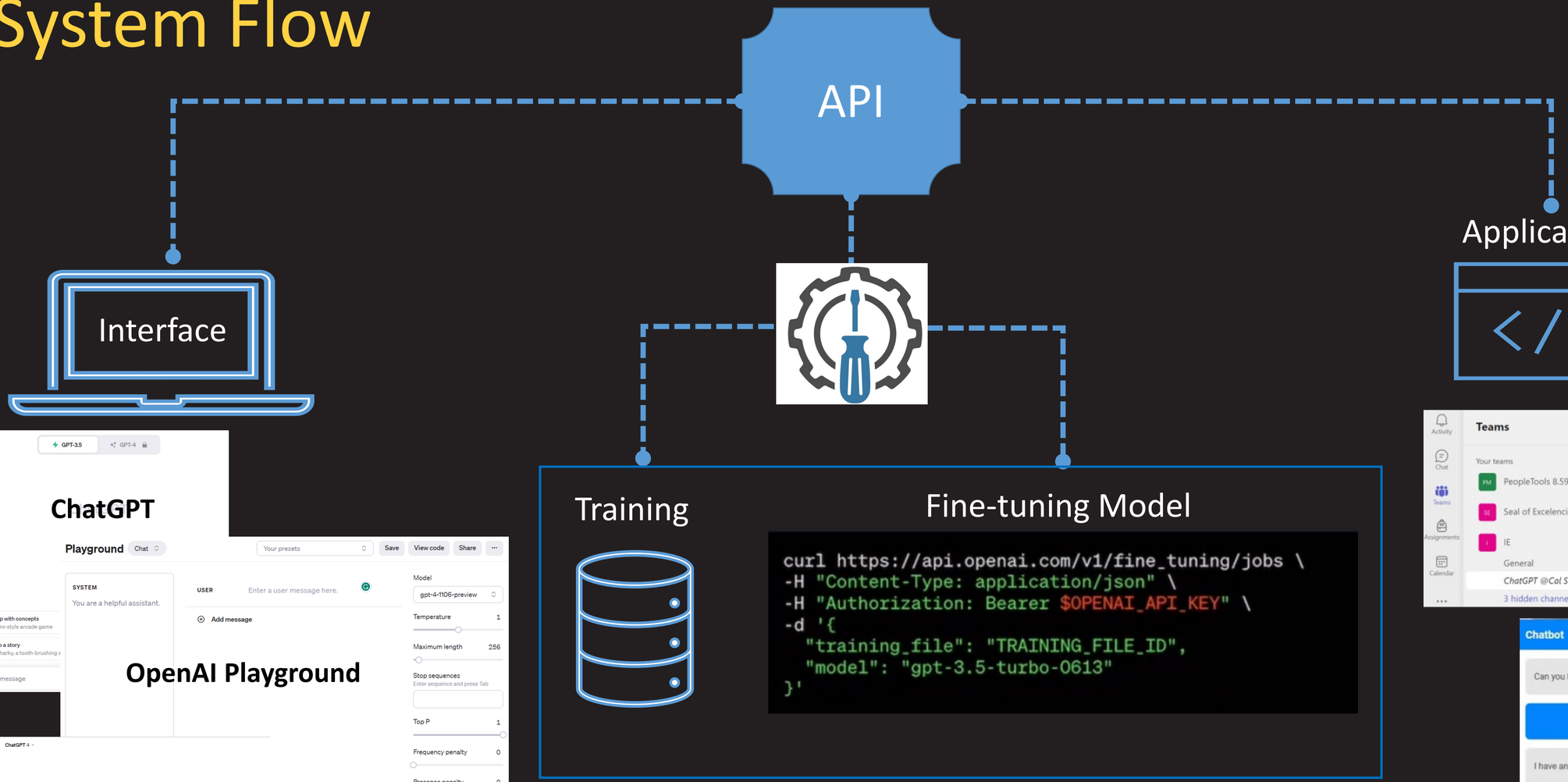
Trained Contents

- APDB
  - Learning Mode
  - APDB Errors
- ERS
  - General ERS information
  - Cohort identification (FTF/TR, New Grad)
  - Calculations (Graduation/Retention rates)
- FERPA
- Dashboards in Dev, Prod, and Public servers
  - Dashboard links and descriptions specific to certain topics
- PeopleSoft Tables, which frequently used by IE members
  - What are PeopleSoft tables available to specific information
  - Relationships among the tables

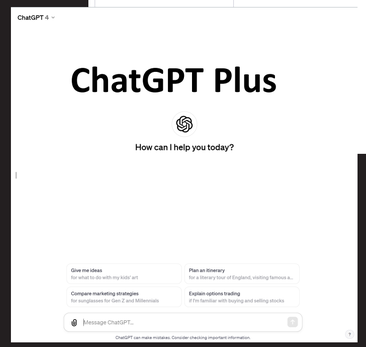
OpenAI Playground

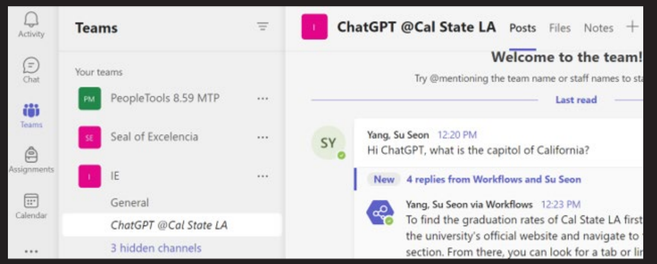


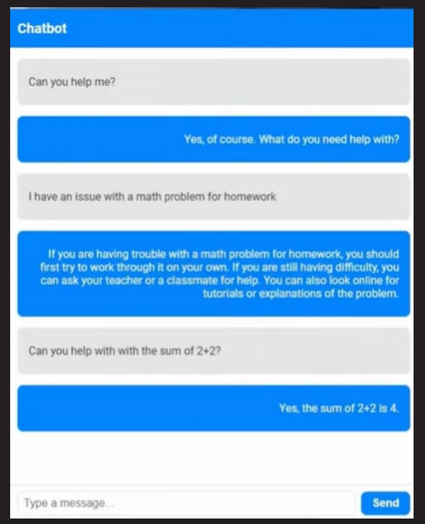
System Flow



- **Internal models** provide specific IE/IR knowledge, SQL coding help, and other sensitive info
- **Public models** are restricted to publicly available data







Future Plans for IE's AI

- Training for new staff
- information retrieval
- Document categorization and tagging
- Code assistant
- Creating a chat box for answering questions or helping dashboard data interpretation (workshop assistants, etc.)

Thank You!
Any Questions?



Example. ChatGPT to TEAMS integration

Setup Environment

- Require access to OpenAI's API to GPT (obtain API key)
- Select a GPT base model (e.g., 4.0 turbo)

Fine-Tuning Model

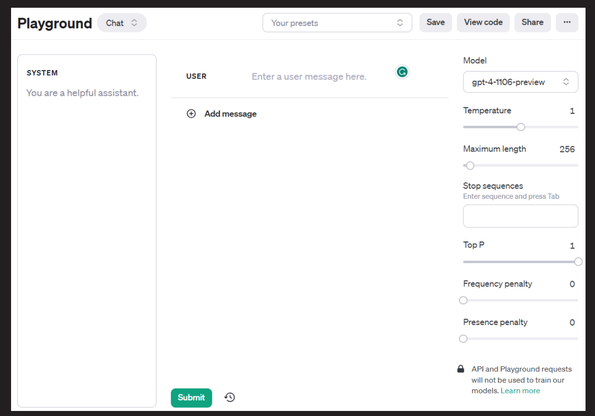
- Use OpenAI playground and/or ChatGPT interface to fine-tune
- Specific IR/IE data

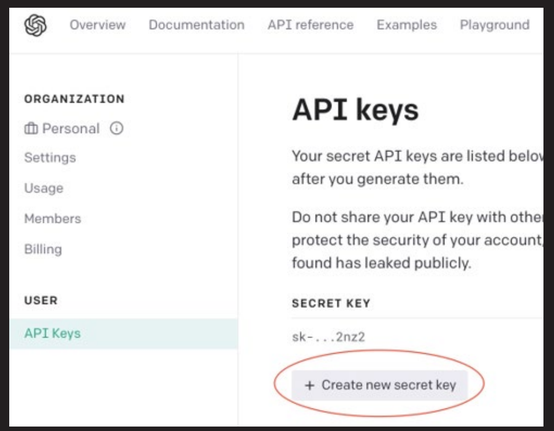
Set-up Power Automate

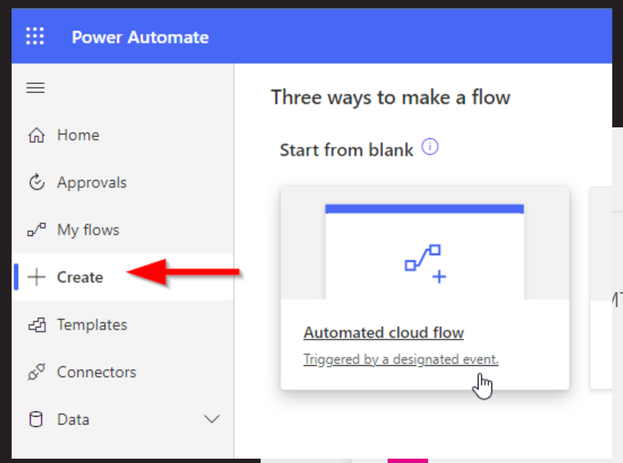
- MS side set-up with Automate cloud flow
- Give the GPT model a name for calling/triggering

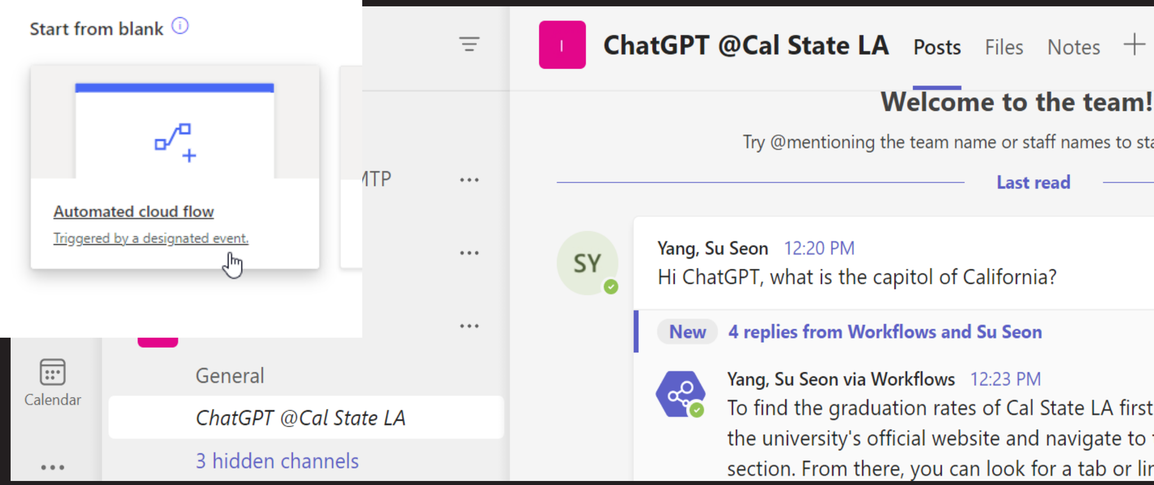
Test and Calibrate in TEAMS

- Call up using the trigger word (e.g., ChatGPT)









Outline

- Local AI vs GPT
- GPT models
  - ChatGPT / OpenAI Playground
  - ChatGPT Plus
  - Enterprise
- OpenAI Playground
  - Chat
  - Settings
  - Assistants
- Demo of OpenAI playground
  - Training methods
  - Training data
  - Demo (ERS/APDB, Dashboard info, Code error detection, etc.)
- Q&A