HU22CSEN0100999
Eshwar Deshmukh Chavan

Report on the Following:

Natural Language Processing (NLP)

NLP is a field of AI that enables machines to understand and process human language.

Its key components are:

- Tokenization: Breaking text into words or phrases
- Parts-of-speech Tagging: Labeling words by grammatical roles.
- Named Entity Recognition: Identifying names of people, places, etc.
- Semantic Analysis: Understanding meaning in text.
- Text Summarization and Machine Translation are additional applications

Sentiment Analysis

Sentiment analysis determines emotional tone in text, classifying it as positive, negative or neutral. It is widely used for social media monitoring, customer feedback, and market analysis. Techniques includes:

Lexicon-Based: Using predefined sentiment words.

Machine Learning-Based: Using models to classify text.

Hybrid Approach: This combines Lexicon-based and machine learning techniques to improve accuracy.

There are three main types of sentiment analysis are:

- Polarity-Based Sentiment Analysis
- Emotion-Based Sentiment Analysis
- Aspect-Based Sentiment Analysis.

Speech Synthesis

Speech Synthesis is the artificial production of human speech. It is a critical component of text to speech systems, which convert written text into spoken words. Speech Synthesis is used in a variety of applications, including virtual assistants navigation systems, accessibility tools for the visually impaired and more.

The two primary methods for Speech Synthesis:

- Concatenative Synthesis: Uses pre-recorded speech units.
- parametric Synthesis: Generates speech using model for more flexibility.

Neural TTS has improved naturalness in synthesized speech.

Architecture of Chatbot, Designing Elements and Best Practices

A chatbot is an AI-driven program that interacts with user via natural language, often through text or voice. It can be used for customer support, personal assistance or other interactive applications.

Architecture:

UI: Interface for user interaction.

NLU: Understands user intents and entities

Dialog Manager: Manage conversation flow.

NLG: Generates responses.

Backend/API: Handles integrations and data retrieval.

Design Elements:

Intent Recognition : Understanding user goals.

Entity Recognition : Identifying key information.

Contextual Awareness : Maintaining Conversation flow.

Best Practices:

- Define clear use cases
- focus on user experience
- Ensure security and privacy.

Sentiment analysis and polarity detection

17-10-2024

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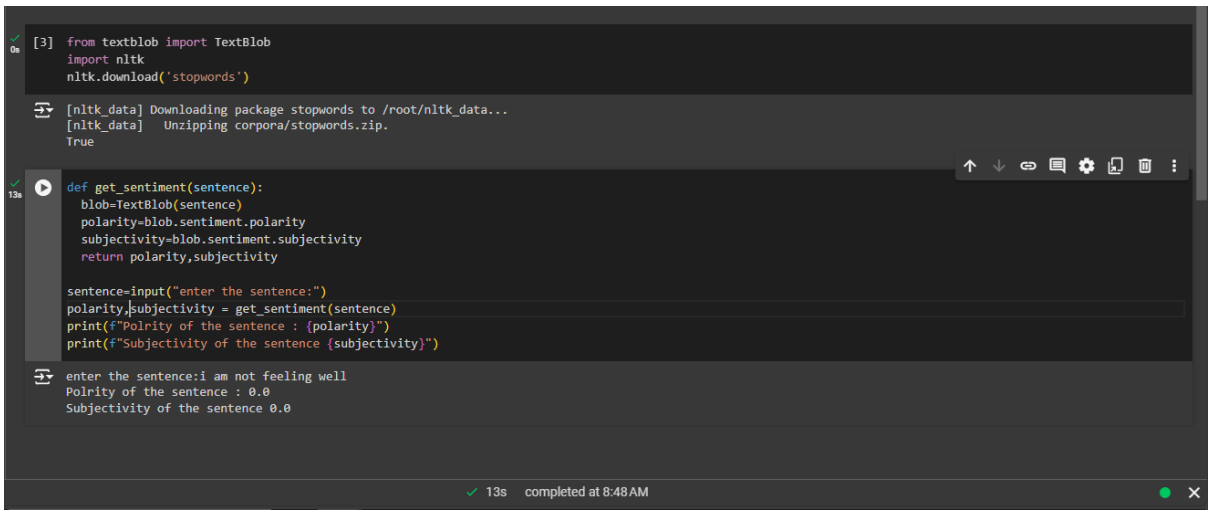
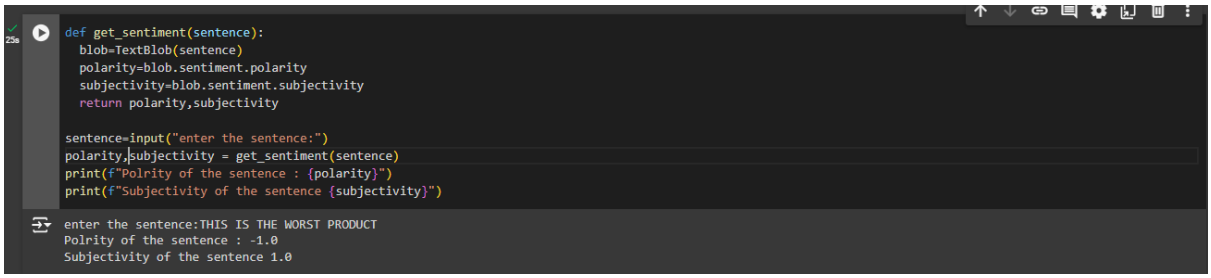
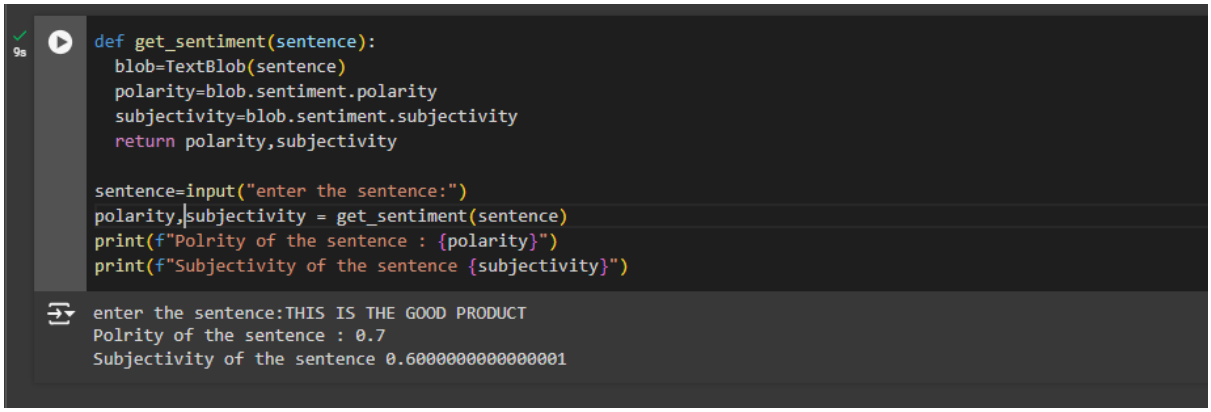


```
[3] from textblob import TextBlob
    import nltk
    nltk.download('stopwords')

[nltk_data] Downloading package stopwords to /root/nltk_data...
[nltk_data]   Unzipping corpora/stopwords.zip.
True

def get_sentiment(sentence):
  blob=TextBlob(sentence)
  polarity=blob.sentiment.polarity
  subjectivity=blob.sentiment.subjectivity
  return polarity,subjectivity

sentence=input("enter the sentence:")
polarity,subjectivity = get_sentiment(sentence)
print(f"Polrity of the sentence : {polarity}")
print(f"Subjectivity of the sentence {subjectivity}")

enter the sentence:i am not feeling well
Polrity of the sentence : 0.0
Subjectivity of the sentence 0.0

✓ 13s  completed at 8:48 AM
```



```
def get_sentiment(sentence):
  blob=TextBlob(sentence)
  polarity=blob.sentiment.polarity
  subjectivity=blob.sentiment.subjectivity
  return polarity,subjectivity

sentence=input("enter the sentence:")
polarity,subjectivity = get_sentiment(sentence)
print(f"Polrity of the sentence : {polarity}")
print(f"Subjectivity of the sentence {subjectivity}")

enter the sentence:THIS IS THE WORST PRODUCT
Polrity of the sentence : -1.0
Subjectivity of the sentence 1.0
```



```
def get_sentiment(sentence):
  blob=TextBlob(sentence)
  polarity=blob.sentiment.polarity
  subjectivity=blob.sentiment.subjectivity
  return polarity,subjectivity

sentence=input("enter the sentence:")
polarity,subjectivity = get_sentiment(sentence)
print(f"Polrity of the sentence : {polarity}")
print(f"Subjectivity of the sentence {subjectivity}")

enter the sentence:THIS IS THE GOOD PRODUCT
Polrity of the sentence : 0.7
Subjectivity of the sentence 0.6000000000000001
```

```
def get_sentiment(sentence):
  blob=TextBlob(sentence)
  polarity=blob.sentiment.polarity
  subjectivity=blob.sentiment.subjectivity
  return polarity,subjectivity

sentence=input("enter the sentence:")
polarity,subjectivity = get_sentiment(sentence)
print(f"Polrity of the sentence : {polarity}")
print(f"Subjectivity of the sentence {subjectivity}")
```

```
enter the sentence:it si ok
Polrity of the sentence : 0.5
Subjectivity of the sentence 0.5
```

```
def get_sentiment(sentence):
  blob=TextBlob(sentence)
  polarity=blob.sentiment.polarity
  subjectivity=blob.sentiment.subjectivity
  return polarity,subjectivity

sentence=input("enter the sentence:")
polarity,subjectivity = get_sentiment(sentence)
print(f"Polrity of the sentence : {polarity}")
print(f"Subjectivity of the sentence {subjectivity}")
```

```
enter the sentence:it is neither bad nor good
Polrity of the sentence : 5.551115123125783e-17
Subjectivity of the sentence 0.6333333333333333
```

```
def get_sentiment(sentence):
  blob=TextBlob(sentence)
  polarity=blob.sentiment.polarity
  subjectivity=blob.sentiment.subjectivity
  return polarity,subjectivity

sentence=input("enter the sentence:")
polarity,subjectivity = get_sentiment(sentence)
print(f"Polrity of the sentence : {polarity}")
print(f"Subjectivity of the sentence {subjectivity}")
```

```
enter the sentence:it is normal
Polrity of the sentence : 0.15
Subjectivity of the sentence 0.6499999999999999
```

15s

```
def get_sentiment(sentence):
  blob=TextBlob(sentence)
  polarity=blob.sentiment.polarity
  subjectivity=blob.sentiment.subjectivity
  return polarity,subjectivity

sentence=input("enter the sentence:")
polarity,subjectivity = get_sentiment(sentence)
print(f"Polrity of the sentence : {polarity}")
print(f"Subjectivity of the sentence {subjectivity}")
```

```
enter the sentence:it is neutral
Polrity of the sentence : 0.0
Subjectivity of the sentence 0.0
```

Text to Speech program

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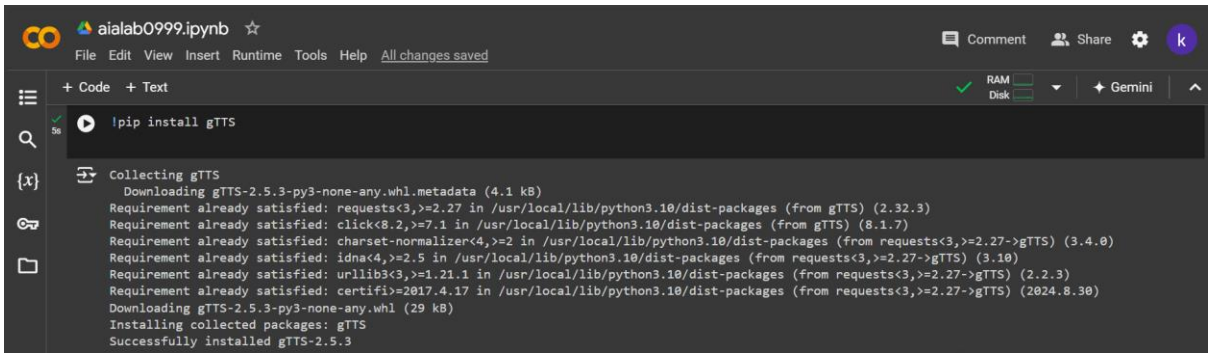

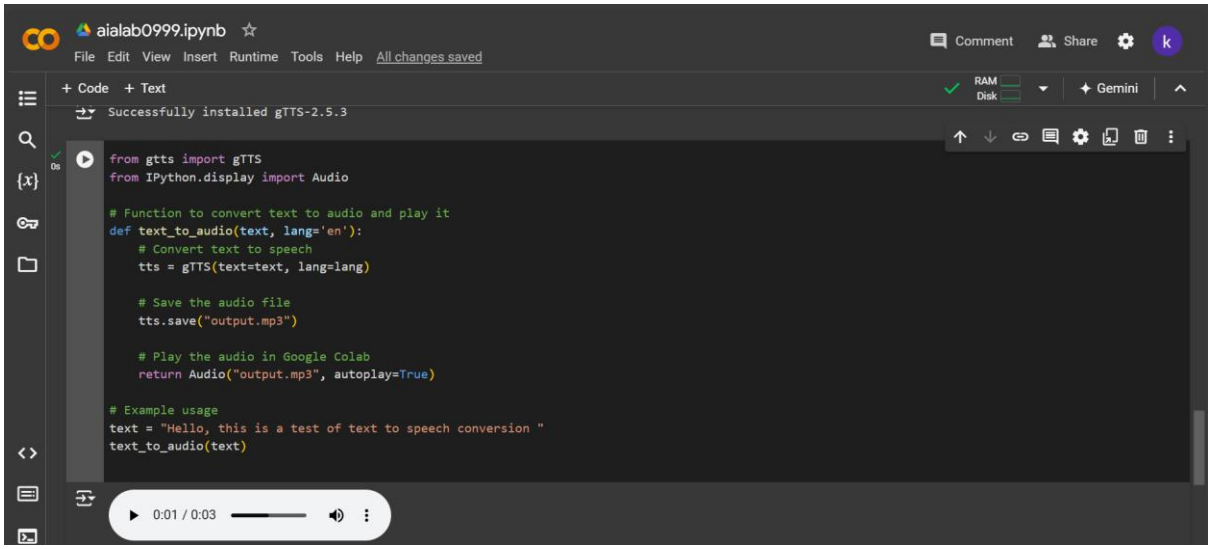

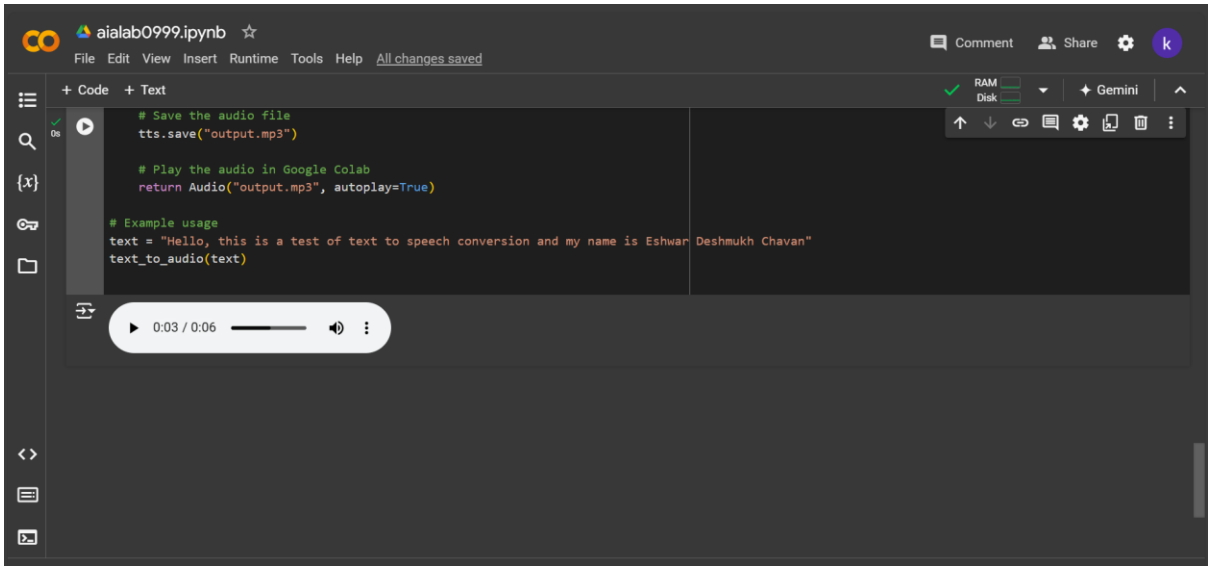

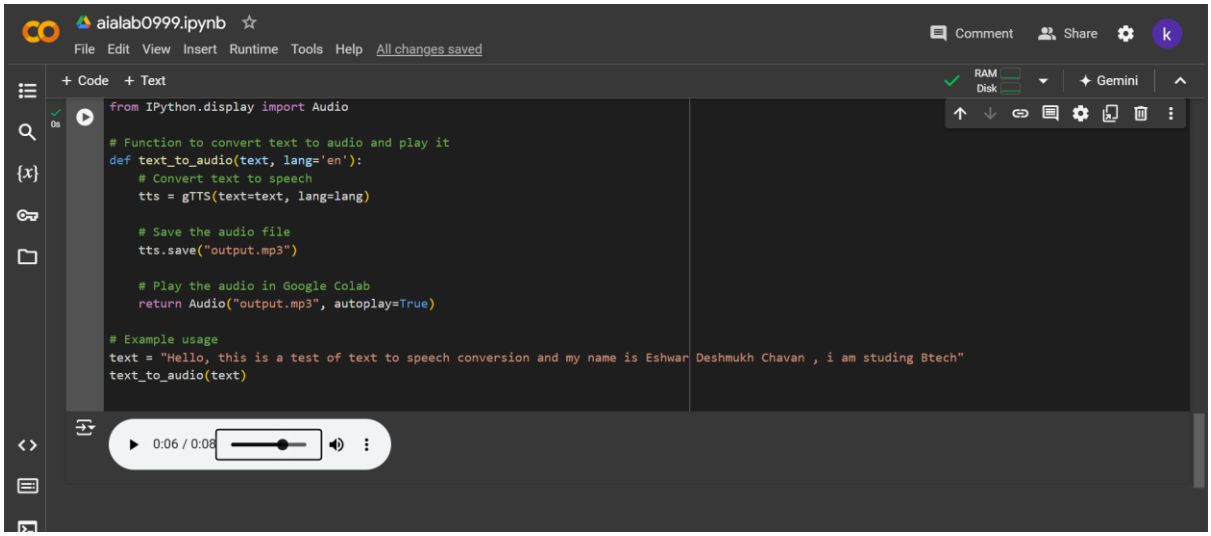
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0s
from IPython.display import Audio
# Function to convert text to audio and play it
def text_to_audio(text, lang='en'):
# Convert text to speech
tts = gTTS(text=text, lang=lang)
# Save the audio file
tts.save("output.mp3")
# Play the audio in Google Colab
return Audio("output.mp3", autoplay=True)
# Example usage
text = "Hello, this is a test of text to speech conversion and my name is Eshwar Deshmukh Chavan , i am studing Btech"
text_to_audio(text)
0:06 / 0:08

Speech to text program

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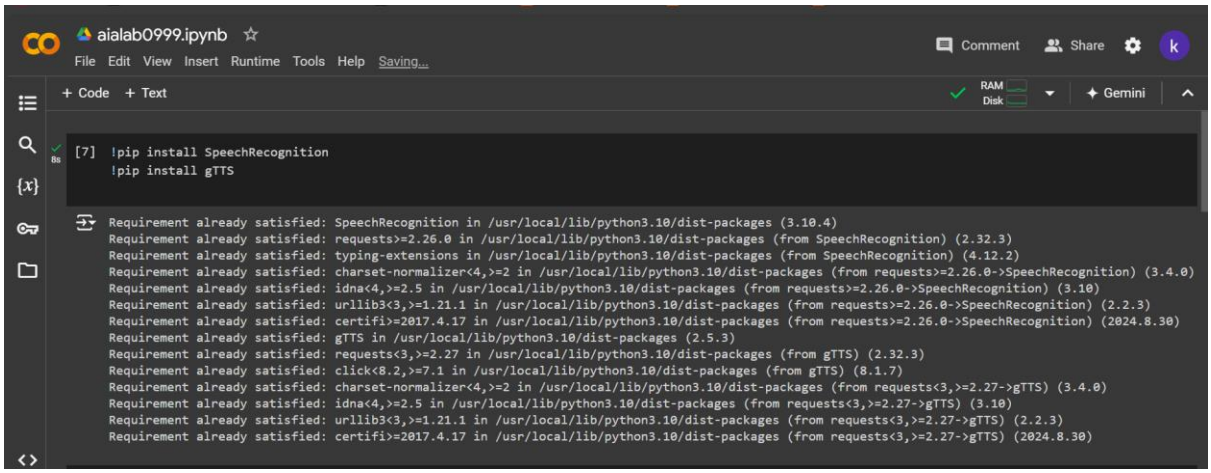

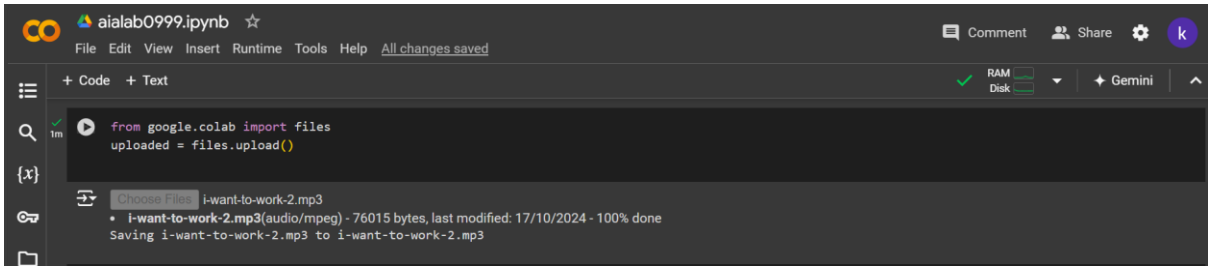

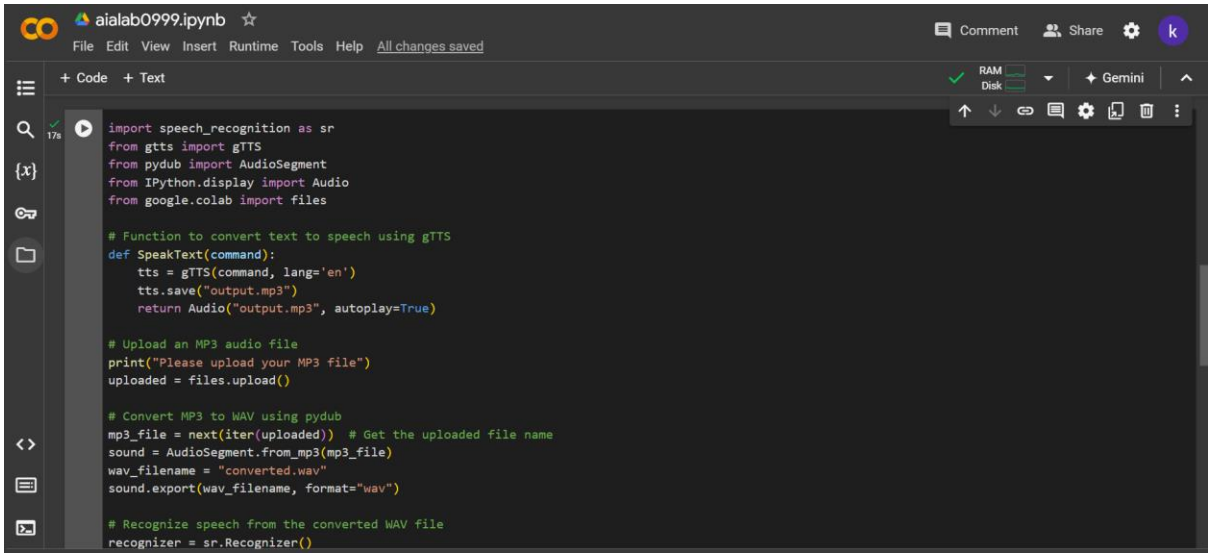
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File Edit View Insert Runtime Tools Help All changes saved
Comment
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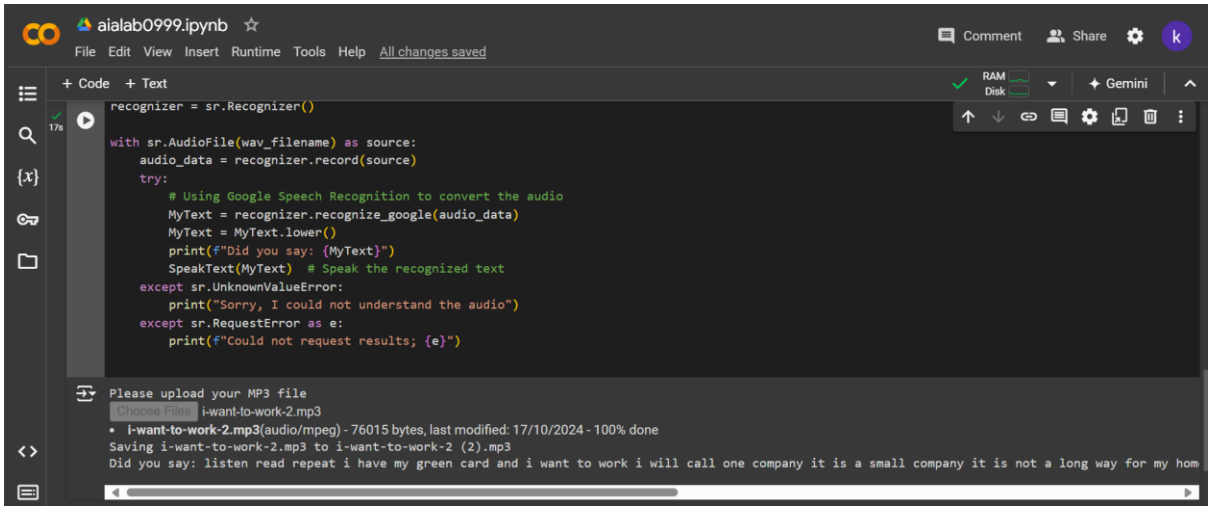
Gemini
import speech_recognition as sr
from gtts import gTTS
from pydub import AudioSegment
from IPython.display import Audio
from google.colab import files
# Function to convert text to speech using gTTS
def SpeakText(command):
tts = gTTS(command, lang='en')
tts.save("output.mp3")
return Audio("output.mp3", autoplay=True)
# Upload an MP3 audio file
print("Please upload your MP3 file")
uploaded = files.upload()
# Convert MP3 to WAV using pydub
mp3_file = next(iter(uploaded)) # Get the uploaded file name
sound = AudioSegment.from_mp3(mp3_file)
wav_filename = "converted.wav"
sound.export(wav_filename, format="wav")
# Recognize speech from the converted WAV file
recognizer = sr.Recognizer()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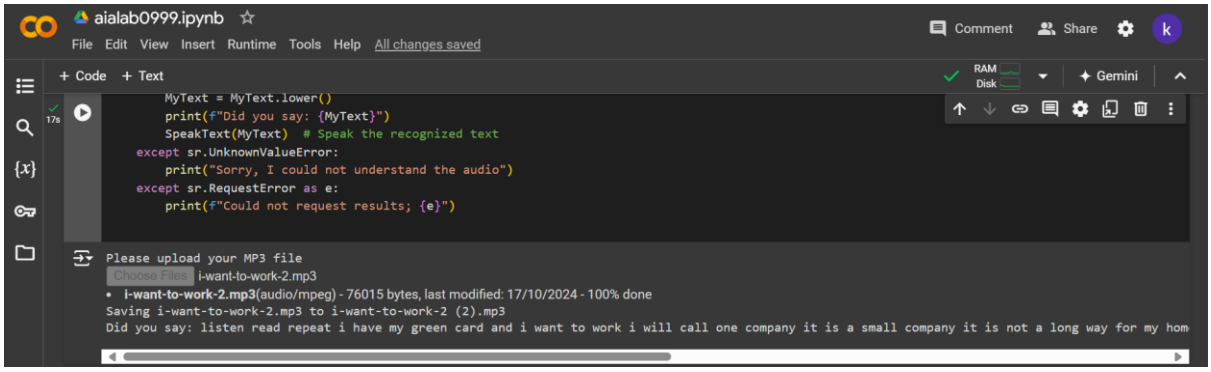
File Edit View Insert Runtime Tools Help All changes saved
Comment
Share
+ Code + Text
RAM
Disk
Gemini
recognizer = sr.Recognizer()
with sr.AudioFile(wav_filename) as source:
audio_data = recognizer.record(source)
try:
# Using Google Speech Recognition to convert the audio
MyText = recognizer.recognize_google(audio_data)
MyText = MyText.lower()
print(f"Did you say: {MyText}")
SpeakText(MyText) # Speak the recognized text
except sr.UnknownValueError:
print("Sorry, I could not understand the audio")
except sr.RequestError as e:
print(f"Could not request results; {e}")
Please upload your MP3 file
Choose Files i-want-to-work-2.mp3
i-want-to-work-2.mp3(audio/mpeg) - 76015 bytes, last modified: 17/10/2024 - 100% done
Saving i-want-to-work-2.mp3 to i-want-to-work-2 (2).mp3
Did you say: listen read repeat i have my green card and i want to work i will call one company it is a small company it is not a long way for my hom


aialab0999.ipynb
File Edit View Insert Runtime Tools Help All changes saved
Comment
Share
+ Code + Text
RAM
Disk
Gemini
MyText = MyText.lower()
print(f"Did you say: {MyText}")
SpeakText(MyText) # Speak the recognized text
except sr.UnknownValueError:
print("Sorry, I could not understand the audio")
except sr.RequestError as e:
print(f"Could not request results; {e}")
Please upload your MP3 file
Choose Files i-want-to-work-2.mp3
i-want-to-work-2.mp3(audio/mpeg) - 76015 bytes, last modified: 17/10/2024 - 100% done
Saving i-want-to-work-2.mp3 to i-want-to-work-2 (2).mp3
Did you say: listen read repeat i have my green card and i want to work i will call one company it is a small company it is not a long way for my hom

Building a chatbot using Pandora Bots

17-10-2024

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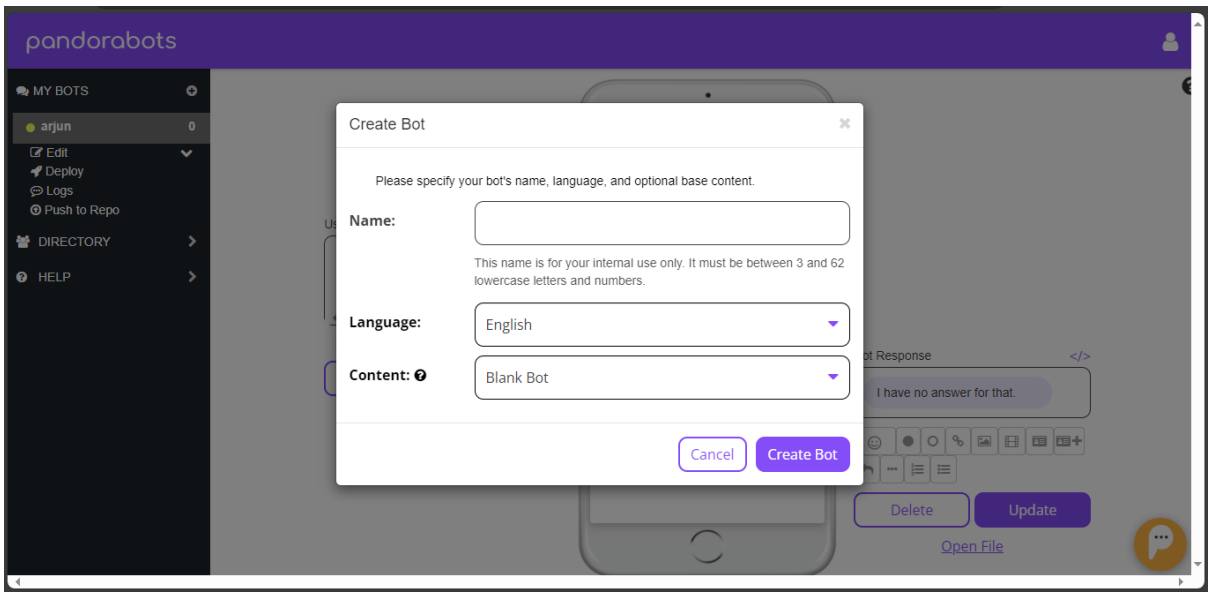
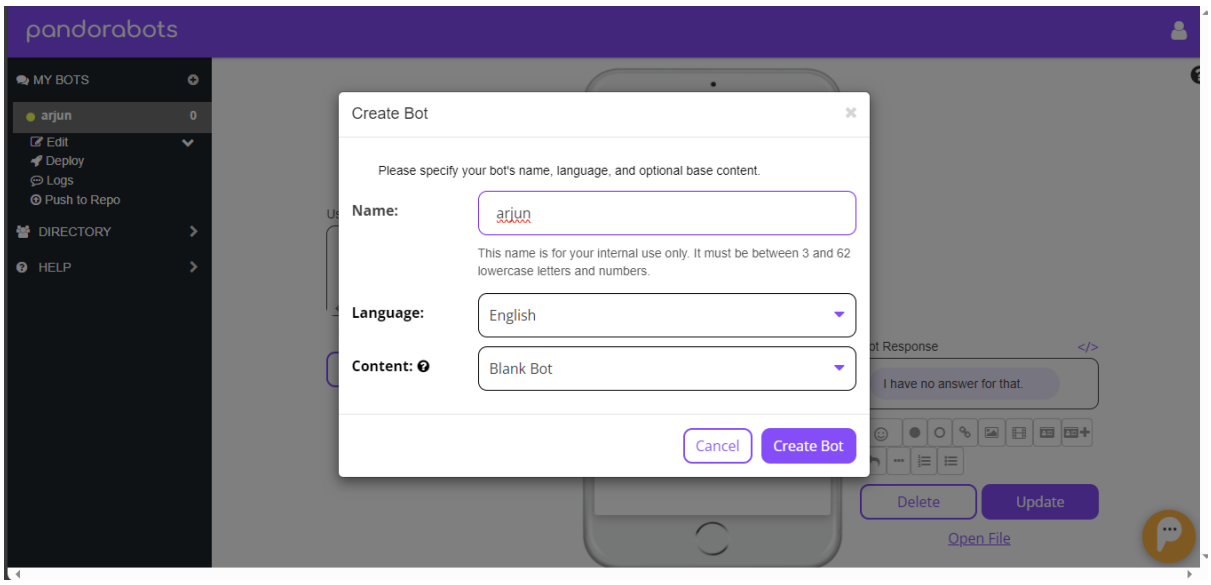
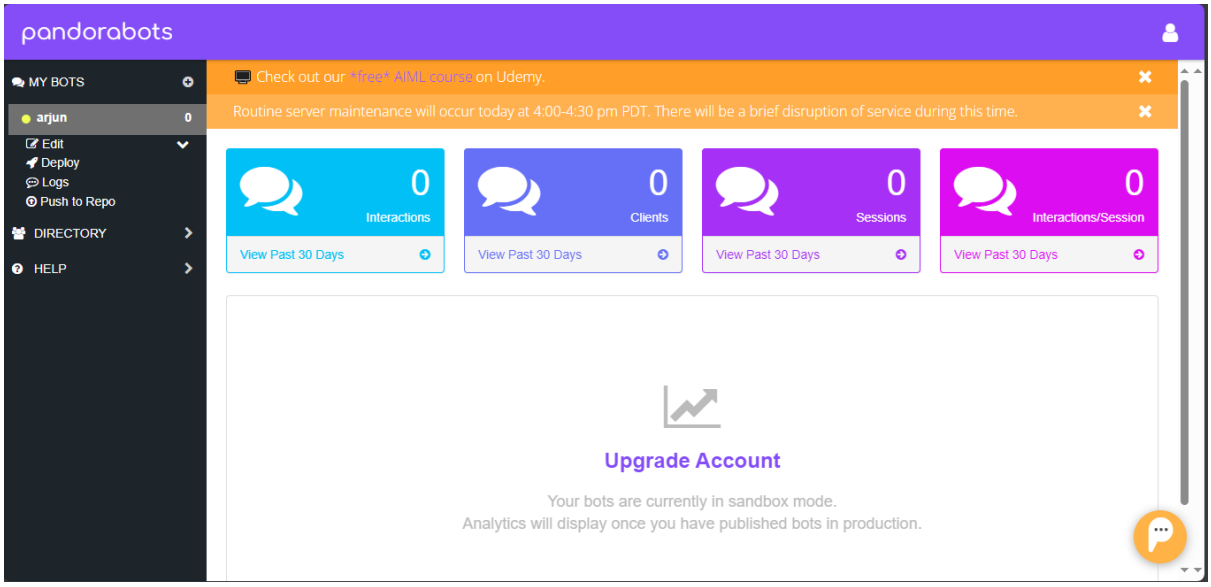
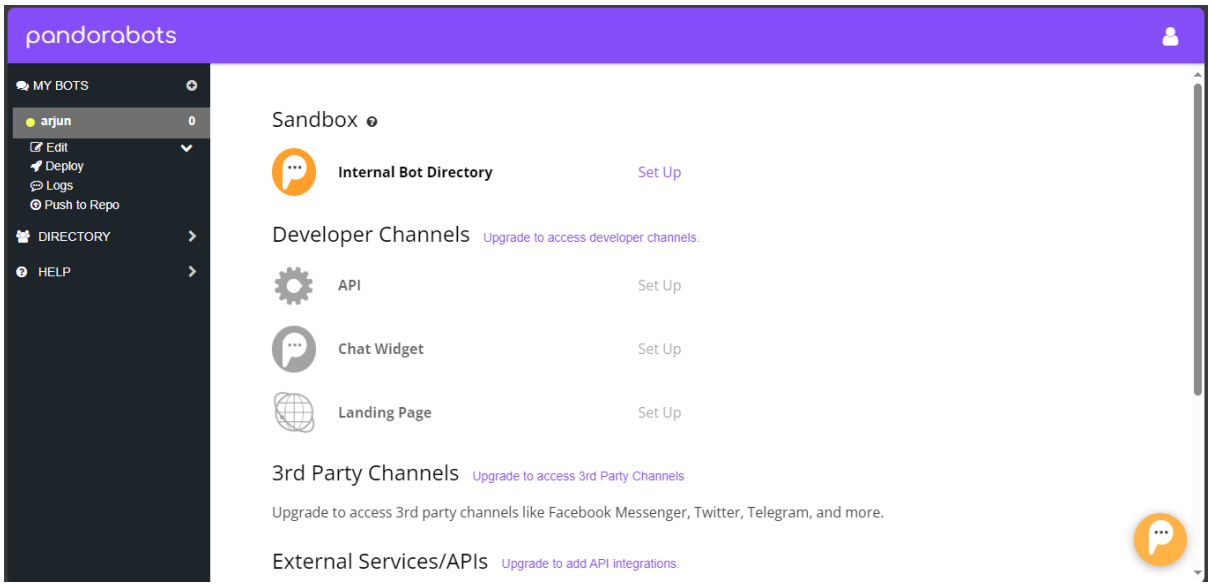
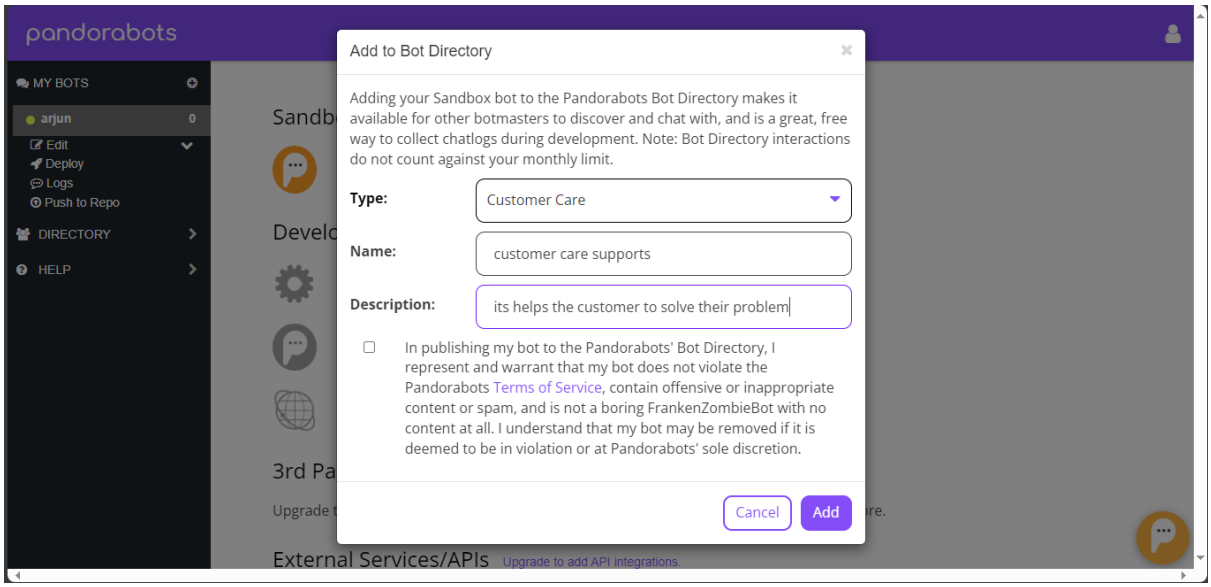
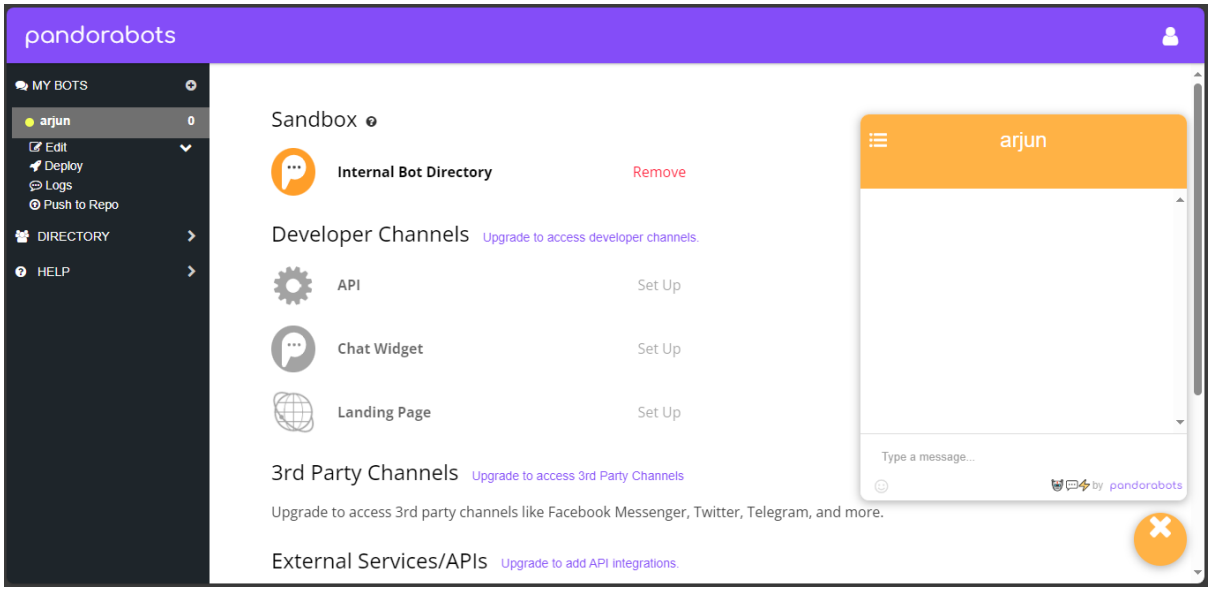


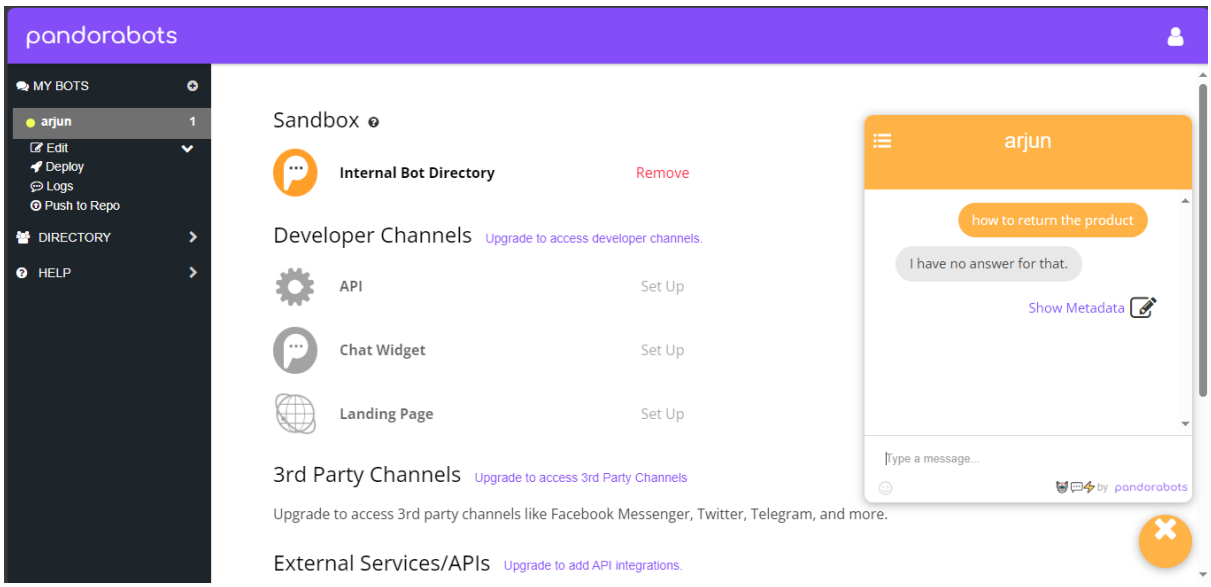



pandorabots
MY BOTS
arjun 0
Edit
Deploy
Logs
Push to Repo
DIRECTORY
HELP
Check out our *free* AIML course on Udemy.
Routine server maintenance will occur today at 4:00-4:30 pm PDT. There will be a brief disruption of service during this time.
0 Interactions
View Past 30 Days
0 Clients
View Past 30 Days
0 Sessions
View Past 30 Days
0 Interactions/Session
View Past 30 Days
Upgrade Account
Your bots are currently in sandbox mode.
Analytics will display once you have published bots in production.


pandorabots
MY BOTS
arjun 0
Edit
Deploy
Logs
Push to Repo
DIRECTORY
HELP
Sandbox
Internal Bot Directory
Set Up
Developer Channels
Upgrade to access developer channels.
API
Set Up
Chat Widget
Set Up
Landing Page
Set Up
3rd Party Channels
Upgrade to access 3rd Party Channels
Upgrade to access 3rd party channels like Facebook Messenger, Twitter, Telegram, and more.
External Services/APIs
Upgrade to add API integrations.


pandorabots
MY BOTS
arjun 0
Edit
Deploy
Logs
Push to Repo
DIRECTORY
HELP
Add to Bot Directory
Adding your Sandbox bot to the Pandorabots Bot Directory makes it available for other botmasters to discover and chat with, and is a great, free way to collect chatlogs during development. Note: Bot Directory interactions do not count against your monthly limit.
Type:
Customer Care
Name:
customer care supports
Description:
its helps the customer to solve their problem
In publishing my bot to the Pandorabots' Bot Directory, I represent and warrant that my bot does not violate the Pandorabots Terms of Service, contain offensive or inappropriate content or spam, and is not a boring FrankenZombieBot with no content at all. I understand that my bot may be removed if it is deemed to be in violation or at Pandorabots' sole discretion.
Cancel
Add
External Services/APIs
Upgrade to add API integrations.


pandorabots
MY BOTS
arjun 0
Edit
Deploy
Logs
Push to Repo
DIRECTORY
HELP
Sandbox
Internal Bot Directory
Remove
Developer Channels
Upgrade to access developer channels.
API
Set Up
Chat Widget
Set Up
Landing Page
Set Up
3rd Party Channels
Upgrade to access 3rd Party Channels
Upgrade to access 3rd party channels like Facebook Messenger, Twitter, Telegram, and more.
External Services/APIs
Upgrade to add API integrations.
arjun
Type a message...
by pandorabots


pandorabots
MY BOTS
arjun 1
Edit
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Logs
Push to Repo
DIRECTORY
HELP
Sandbox
Internal Bot Directory
Remove
Developer Channels
Upgrade to access developer channels.
API
Set Up
Chat Widget
Set Up
Landing Page
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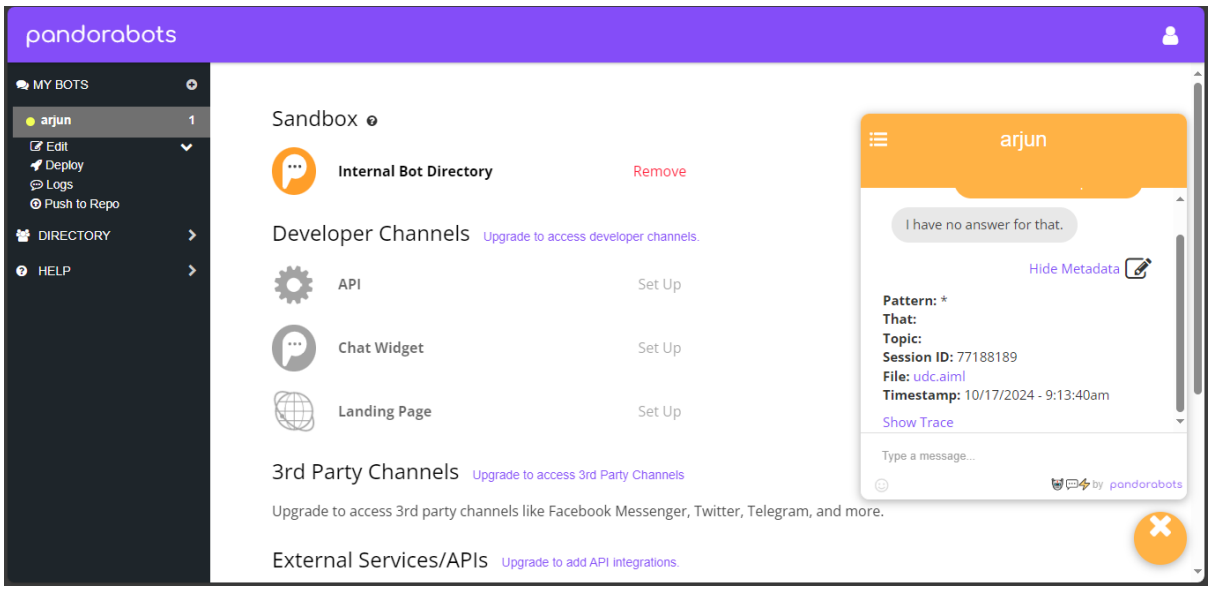
3rd Party Channels
Upgrade to access 3rd Party Channels
Upgrade to access 3rd party channels like Facebook Messenger, Twitter, Telegram, and more.
External Services/APIs
Upgrade to add API integrations.
arjun
how to return the product
I have no answer for that.
Show Metadata
Type a message...
by pandorabots


pandorabots
MY BOTS
arjun 1
Edit
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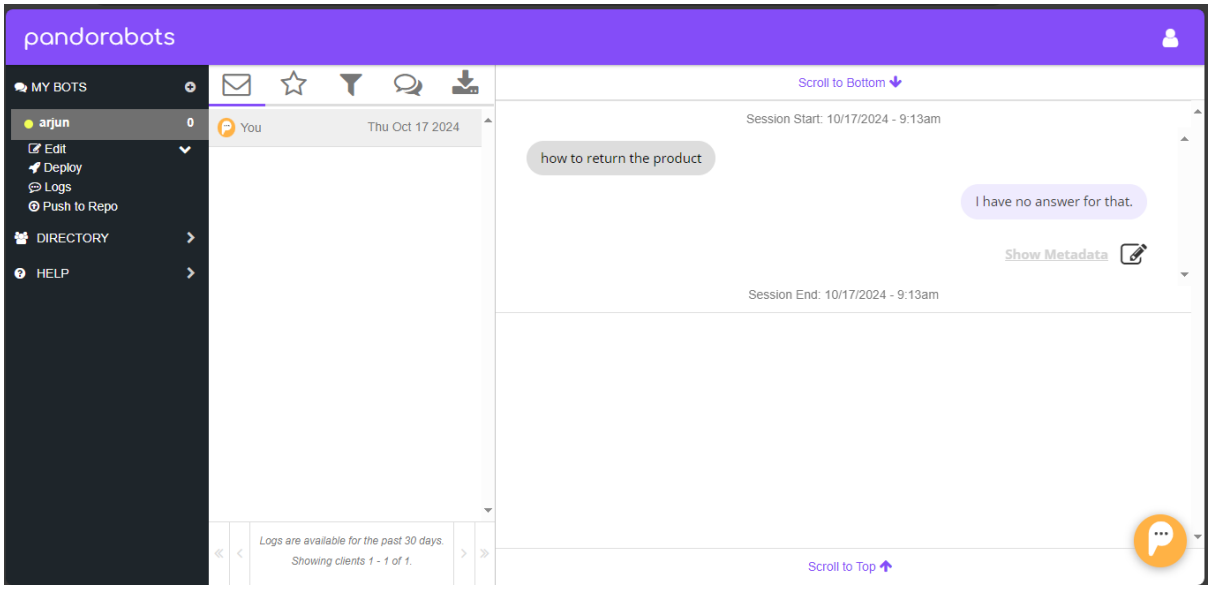
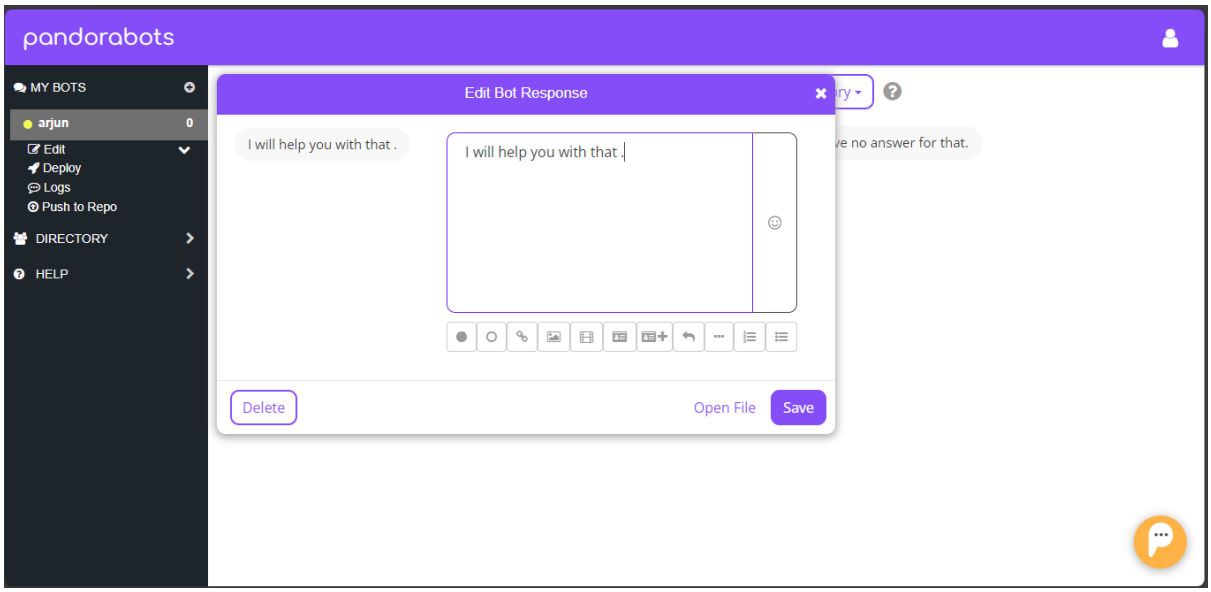
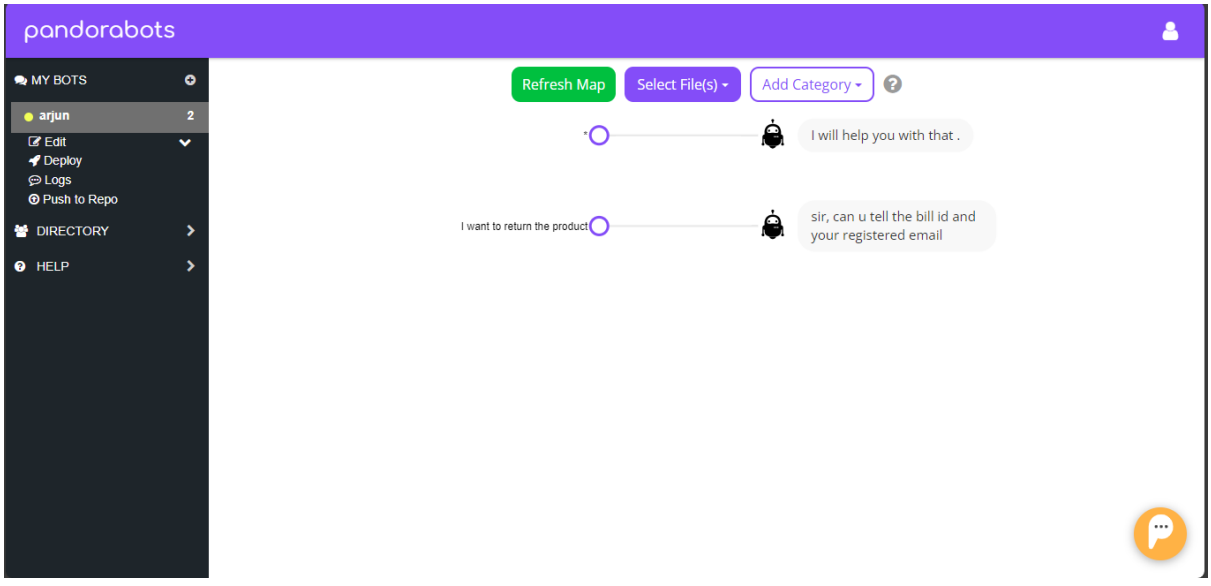
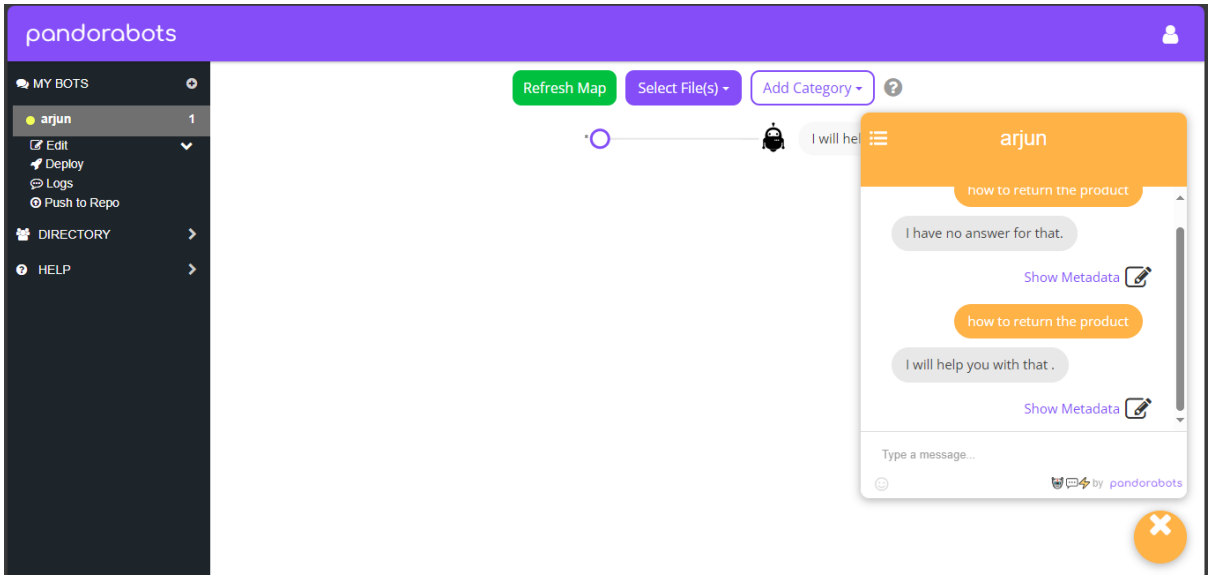
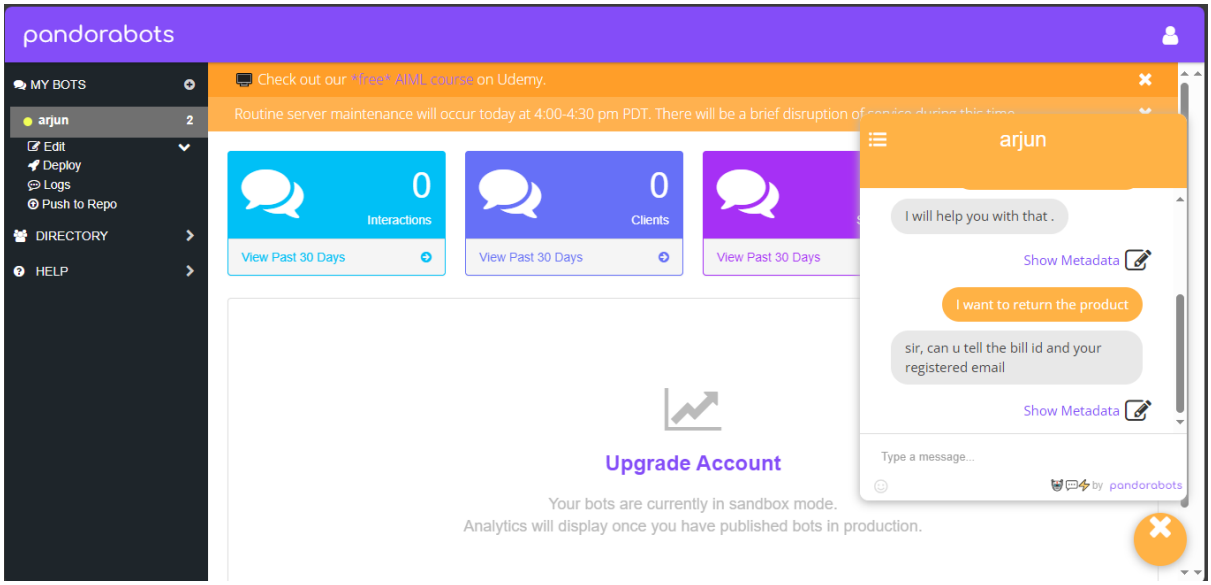
Landing Page
Set Up
3rd Party Channels
Upgrade to access 3rd Party Channels
Upgrade to access 3rd party channels like Facebook Messenger, Twitter, Telegram, and more.
External Services/APIs
Upgrade to add API integrations.
arjun
I have no answer for that.
Hide Metadata
Pattern: *
That:
Topic:
Session ID: 77188189
File: udc.aiml
Timestamp: 10/17/2024 - 9:13:40am
Show Trace
Type a message...
by pandorabots

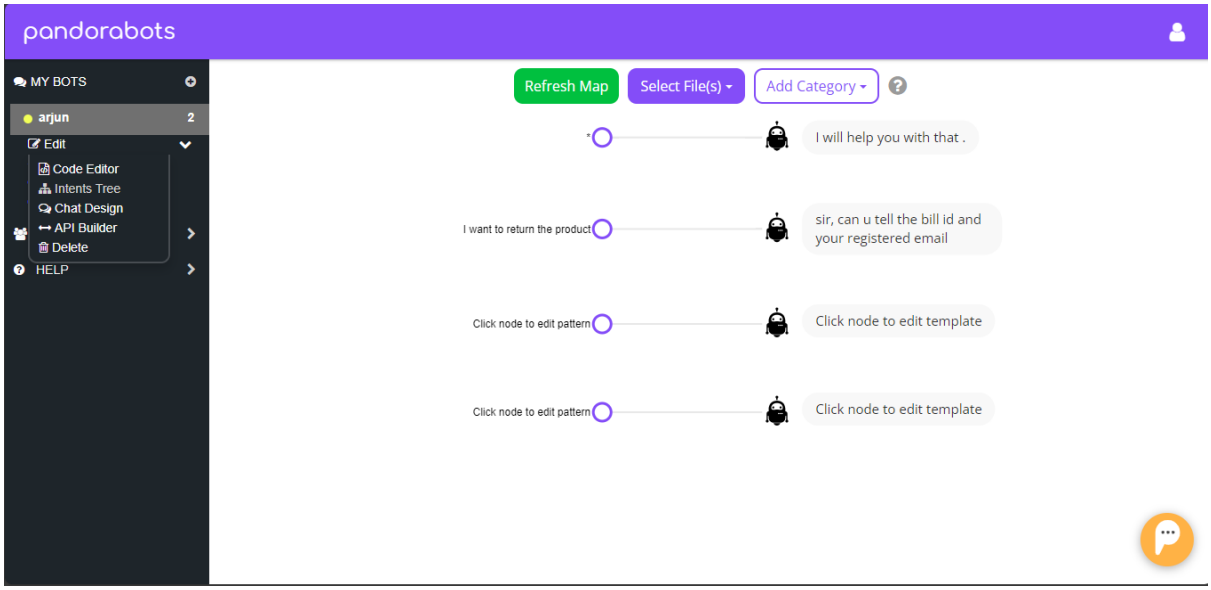

pandorabots
MY BOTS
arjun 0
Edit
Deploy
Logs
Push to Repo
DIRECTORY
HELP
You Thu Oct 17 2024
Logs are available for the past 30 days.
Showing clients 1 - 1 of 1.
Scroll to Bottom
Session Start: 10/17/2024 - 9:13am
how to return the product
I have no answer for that.
Show Metadata
Session End: 10/17/2024 - 9:13am
Scroll to Top


pandorabots
MY BOTS
arjun 0
Edit
Deploy
Logs
Push to Repo
DIRECTORY
HELP
Edit Bot Response
I will help you with that .
I will help you with that .
Delete
Open File
Save


pandorabots
MY BOTS
arjun 2
Edit
Deploy
Logs
Push to Repo
DIRECTORY
HELP
Refresh Map
Select File(s)
Add Category
I will help you with that .
I want to return the product
sir, can u tell the bill id and your registered email


pandorabots
MY BOTS
arjun 1
Edit
Deploy
Logs
Push to Repo
DIRECTORY
HELP
Refresh Map
Select File(s)
Add Category
arjun
how to return the product
I have no answer for that.
Show Metadata
how to return the product
I will help you with that .
Show Metadata
Type a message...
by pandorabots


pandorabots
MY BOTS
arjun 2
Edit
Deploy
Logs
Push to Repo
DIRECTORY
HELP
Check out our *free* AIML course on Udemy.
Routine server maintenance will occur today at 4:00-4:30 pm PDT. There will be a brief disruption of
0
Interactions
View Past 30 Days
0
Clients
View Past 30 Days
View Past 30 Days
arjun
I will help you with that .
Show Metadata
I want to return the product
sir, can u tell the bill id and your registered email
Show Metadata
Type a message...
by pandorabots
Upgrade Account
Your bots are currently in sandbox mode.
Analytics will display once you have published bots in production.


pandorabots
MY BOTS
arjun 2
Edit
Code Editor
Intents Tree
Chat Design
API Builder
Delete
HELP
Refresh Map
Select File(s)
Add Category
I will help you with that .
I want to return the product
sir, can u tell the bill id and your registered email
Click node to edit pattern
Click node to edit template
Click node to edit pattern
Click node to edit template