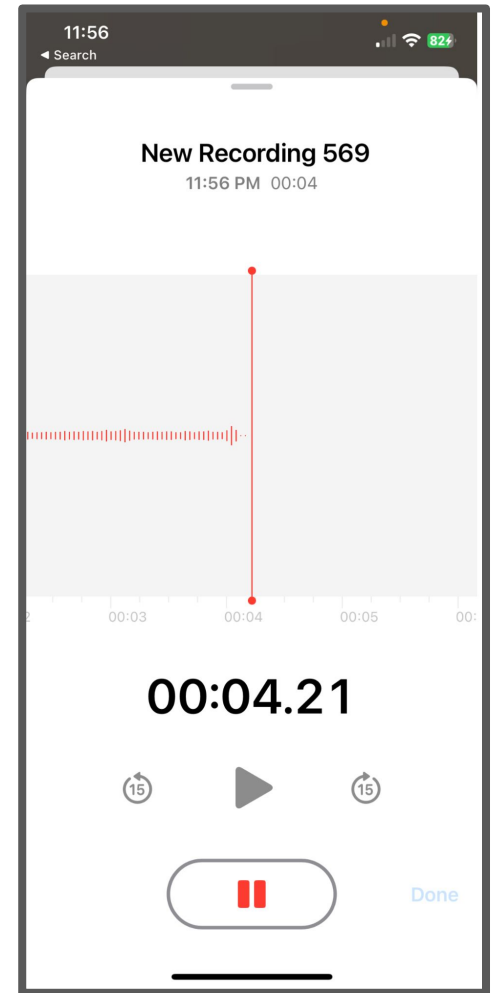
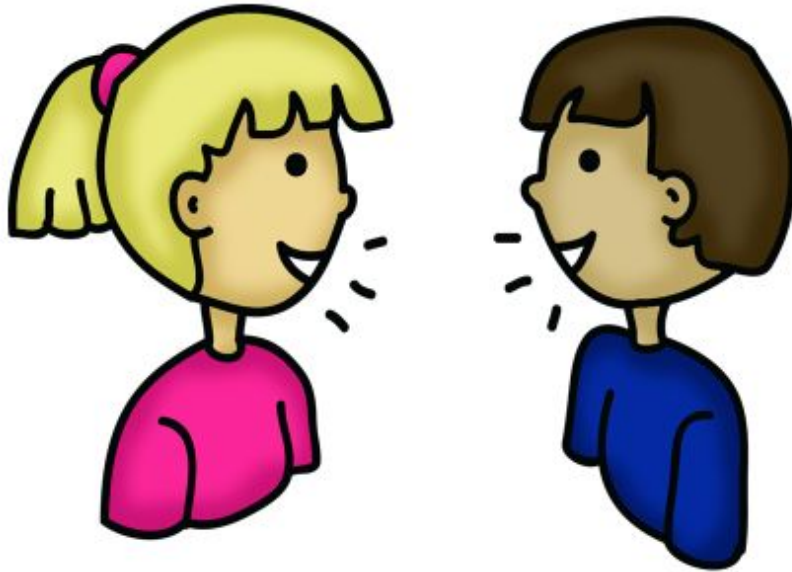


Google Colab & Gemini for batch speech analysis



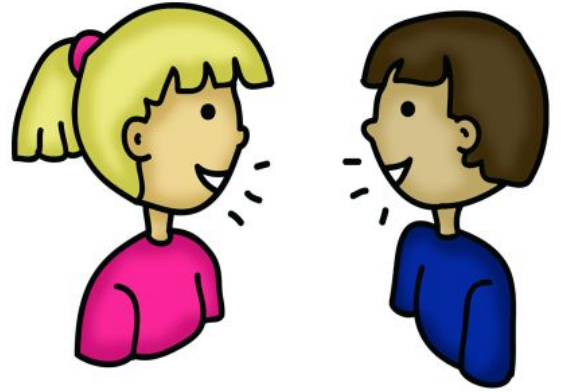
daniels@kochi-tech.ac.jp

Speaking assessment



Batch assessment

- audio to text
- prosody & fluency
- grammar & vocabulary
- CEFR level
- words spoken & sentence length
- lexical density



Colaboratory



- Free
- Access to computing resources (GPU / TPU)
- Access via web browser
- Write & execute Python code
- Machine learning & data science
- No setup or configuration

Google Gen AI Python SDK

The screenshot shows the GitHub repository page for `googleapis/python-genai`. The repository is public and has 70 branches and 29 tags. The main branch is selected. The repository description states: "Google Gen AI Python SDK provides an interface for developers to integrate Google's generative models into their Python applications." The repository has 1.8k stars, 236 watchers, and 359 forks. The latest release is `v1.19.0`, labeled as "Latest", released 4 days ago. The repository includes a README, Code of conduct, Apache-2.0 license, and Security policy. The file list shows various files and folders, including `.github`, `docs`, `google/genai`, `.gitignore`, `CHANGELOG.md`, `CONTRIBUTING.md`, `LICENSE`, `MANIFEST.in`, `README.md`, `pyproject.toml`, and `requirements.txt`. The commit history shows a recent commit by `matthew29tang` and `copybara-github` with the message "feat: Add Video.from_file() support in Python SDK" 2 days ago.

github.com/googleapis/python-genai

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googleapis / python-genai Public

Notifications Fork 359

<> Code Issues 98 Pull requests 95 Actions Projects Security Insights

main 70 Branches 29 Tags Go to file Code

matthew29tang and copybara-github feat: Add Video.from_file() support in Python SDK 7eb5b07 · 2 days ago 484 Commits

.github	test: Upgrade to mypy 1.16 in GitHub workflows	last week
docs	docs: Generate docs for 1.19.0	4 days ago
google/genai	feat: Add Video.from_file() support in Python SDK	2 days ago
.gitignore	chore: Add .gitignore	2 months ago
CHANGELOG.md	chore(main): release 1.19.0 (#914)	4 days ago
CONTRIBUTING.md	docs: Fix typo in CONTRIBUTING.md	6 months ago
LICENSE	Project import generated by Copybara.	6 months ago
MANIFEST.in	chore: Add LICENSE/README to package distribution	4 months ago
README.md	docs: Fix README typo.	2 weeks ago
pyproject.toml	chore(main): release 1.19.0 (#914)	4 days ago
requirements.txt	No public description	3 weeks ago

README Code of conduct Apache-2.0 license Security

About

Google Gen AI Python SDK provides an interface for developers to integrate Google's generative models into their Python applications.

googleapis.github.io/python-genai/

Readme

Apache-2.0 license

Code of conduct

Security policy

Activity

Custom properties

1.8k stars

236 watching

359 forks

Report repository

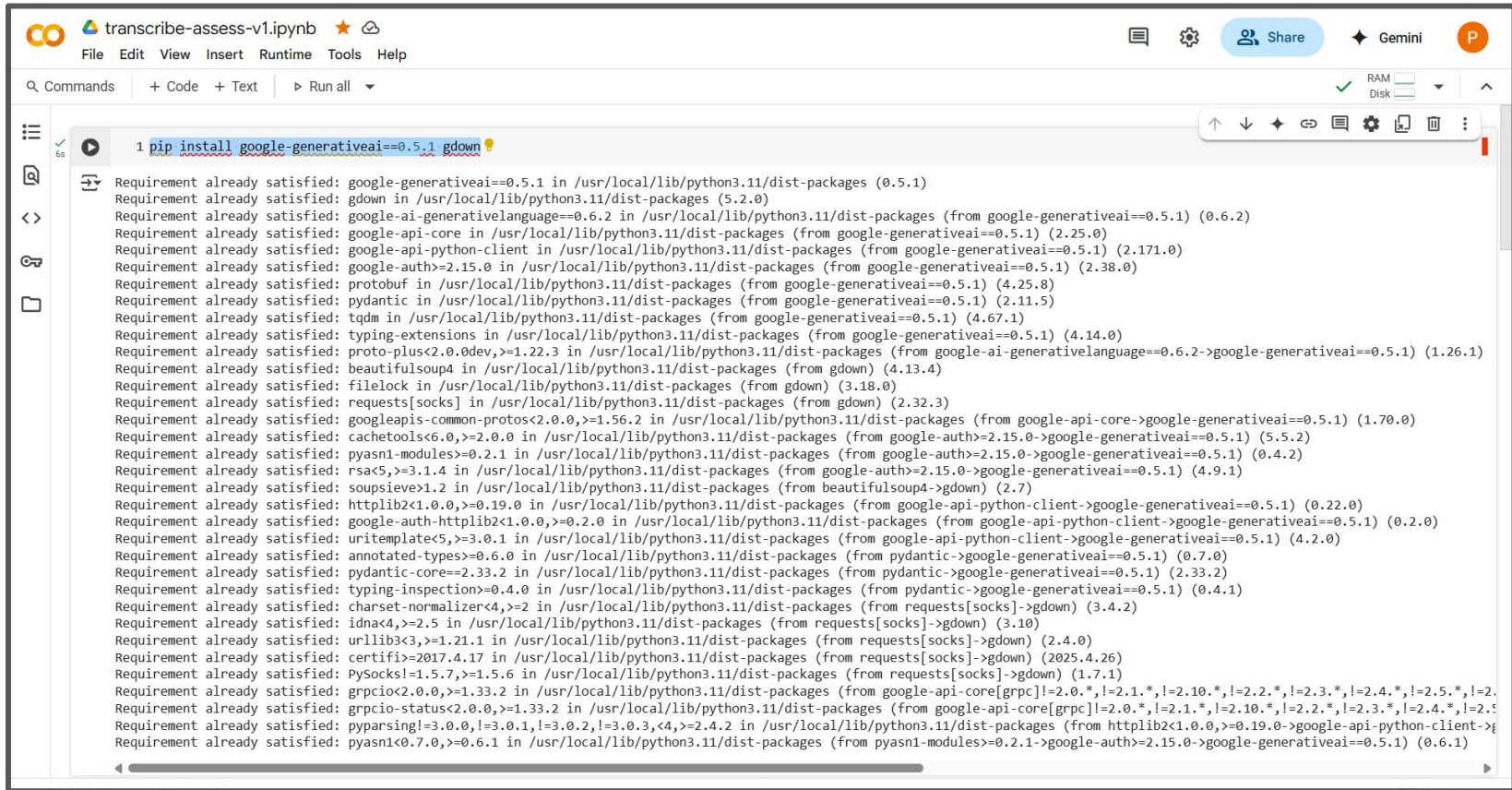
Releases 29

v1.19.0 (Latest) 4 days ago

+ 28 releases

integrate Google's generative models into Python applications

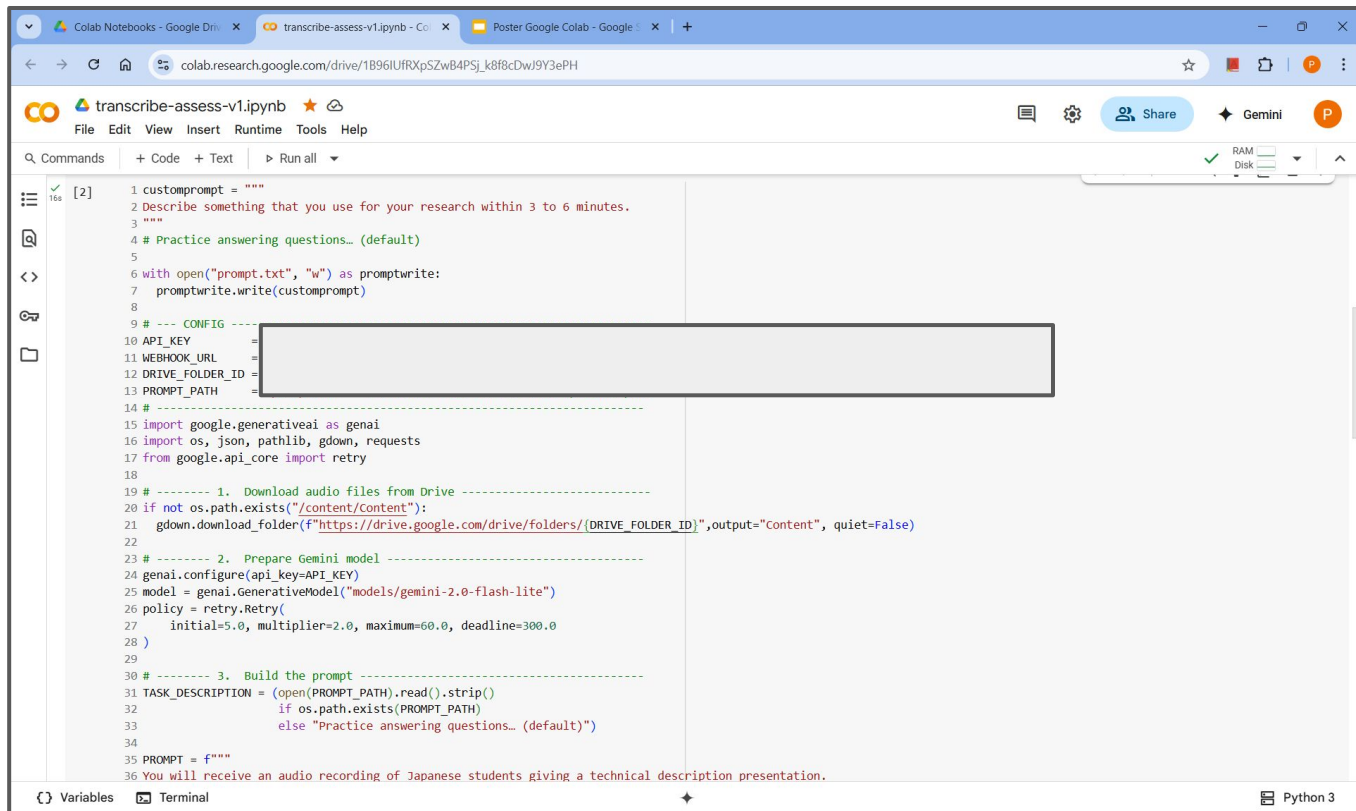
Install Google generative AI



The screenshot shows a Jupyter Notebook titled "transcribe-assess-v1.ipynb" with a menu bar (File, Edit, View, Insert, Runtime, Tools, Help) and a toolbar (Commands, Code, Text, Run all). The code cell contains the command `1 pip install google-generativeai==0.5.1 gdown`. The output displays a list of requirements already satisfied, including `google-generativeai==0.5.1`, `gdown`, `google-ai-generativelanguage==0.6.2`, `google-api-core`, `google-api-python-client`, `google-auth`, `protobuf`, `pydantic`, `tqdm`, `typing-extensions`, `proto-plus`, `beautifulsoup4`, `filelock`, `requests[socks]`, `googleapis-common-protos`, `cachetools`, `pyasn1-modules`, `rsa`, `soupsieve`, `httplib2`, `google-auth-httplib2`, `uritemplate`, `annotated-types`, `pydantic-core`, `typing-inspection`, `charset-normalizer`, `idna`, `urllib3`, `certifi`, `PySocks`, `grpcio`, `grpcio-status`, `pparsing`, and `pyasn1`.

```
transcribe-assess-v1.ipynb
File Edit View Insert Runtime Tools Help
Q Commands + Code + Text ▶ Run all
1 pip install google-generativeai==0.5.1 gdown
Requirement already satisfied: google-generativeai==0.5.1 in /usr/local/lib/python3.11/dist-packages (0.5.1)
Requirement already satisfied: gdown in /usr/local/lib/python3.11/dist-packages (5.2.0)
Requirement already satisfied: google-ai-generativelanguage==0.6.2 in /usr/local/lib/python3.11/dist-packages (from google-generativeai==0.5.1) (0.6.2)
Requirement already satisfied: google-api-core in /usr/local/lib/python3.11/dist-packages (from google-generativeai==0.5.1) (2.25.0)
Requirement already satisfied: google-api-python-client in /usr/local/lib/python3.11/dist-packages (from google-generativeai==0.5.1) (2.171.0)
Requirement already satisfied: google-auth>=2.15.0 in /usr/local/lib/python3.11/dist-packages (from google-generativeai==0.5.1) (2.38.0)
Requirement already satisfied: protobuf in /usr/local/lib/python3.11/dist-packages (from google-generativeai==0.5.1) (4.25.8)
Requirement already satisfied: pydantic in /usr/local/lib/python3.11/dist-packages (from google-generativeai==0.5.1) (2.11.5)
Requirement already satisfied: tqdm in /usr/local/lib/python3.11/dist-packages (from google-generativeai==0.5.1) (4.67.1)
Requirement already satisfied: typing-extensions in /usr/local/lib/python3.11/dist-packages (from google-generativeai==0.5.1) (4.14.0)
Requirement already satisfied: proto-plus<2.0.0dev,>=1.22.3 in /usr/local/lib/python3.11/dist-packages (from google-ai-generativelanguage==0.6.2->google-generativeai==0.5.1) (1.26.1)
Requirement already satisfied: beautifulsoup4 in /usr/local/lib/python3.11/dist-packages (from gdown) (4.13.4)
Requirement already satisfied: filelock in /usr/local/lib/python3.11/dist-packages (from gdown) (3.18.0)
Requirement already satisfied: requests[socks] in /usr/local/lib/python3.11/dist-packages (from gdown) (2.32.3)
Requirement already satisfied: googleapis-common-protos<2.0.0,>=1.56.2 in /usr/local/lib/python3.11/dist-packages (from google-api-core->google-generativeai==0.5.1) (1.70.0)
Requirement already satisfied: cachetools<6.0,>=2.0.0 in /usr/local/lib/python3.11/dist-packages (from google-auth>=2.15.0->google-generativeai==0.5.1) (5.5.2)
Requirement already satisfied: pyasn1-modules>=0.2.1 in /usr/local/lib/python3.11/dist-packages (from google-auth>=2.15.0->google-generativeai==0.5.1) (0.4.2)
Requirement already satisfied: rsa<5,>=3.1.4 in /usr/local/lib/python3.11/dist-packages (from google-auth>=2.15.0->google-generativeai==0.5.1) (4.9.1)
Requirement already satisfied: soupsieve>=1.2 in /usr/local/lib/python3.11/dist-packages (from beautifulsoup4->gdown) (2.7)
Requirement already satisfied: httplib2<1.0.0,>=0.19.0 in /usr/local/lib/python3.11/dist-packages (from google-api-python-client->google-generativeai==0.5.1) (0.22.0)
Requirement already satisfied: google-auth-httplib2<1.0.0,>=0.2.0 in /usr/local/lib/python3.11/dist-packages (from google-api-python-client->google-generativeai==0.5.1) (0.2.0)
Requirement already satisfied: uritemplate<5,>=3.0.1 in /usr/local/lib/python3.11/dist-packages (from google-api-python-client->google-generativeai==0.5.1) (4.2.0)
Requirement already satisfied: annotated-types>=0.6.0 in /usr/local/lib/python3.11/dist-packages (from pydantic->google-generativeai==0.5.1) (0.7.0)
Requirement already satisfied: pydantic-core==2.33.2 in /usr/local/lib/python3.11/dist-packages (from pydantic->google-generativeai==0.5.1) (2.33.2)
Requirement already satisfied: typing-inspection>=0.4.0 in /usr/local/lib/python3.11/dist-packages (from pydantic->google-generativeai==0.5.1) (0.4.1)
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.11/dist-packages (from requests[socks]->gdown) (3.4.2)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.11/dist-packages (from requests[socks]->gdown) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.11/dist-packages (from requests[socks]->gdown) (2.4.0)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.11/dist-packages (from requests[socks]->gdown) (2025.4.26)
Requirement already satisfied: PySocks<1.5.7,>=1.5.6 in /usr/local/lib/python3.11/dist-packages (from requests[socks]->gdown) (1.7.1)
Requirement already satisfied: grpcio<2.0.0,>=1.33.2 in /usr/local/lib/python3.11/dist-packages (from google-api-core[grpc]!=2.0.*,!=2.1.*,!=2.10.*,!=2.2.*,!=2.3.*,!=2.4.*,!=2.5.*,!=2.6.*->google-generativeai==0.5.1) (1.67.0)
Requirement already satisfied: grpcio-status<2.0.0,>=1.33.2 in /usr/local/lib/python3.11/dist-packages (from google-api-core[grpc]!=2.0.*,!=2.1.*,!=2.10.*,!=2.2.*,!=2.3.*,!=2.4.*,!=2.5.*,!=2.6.*->google-generativeai==0.5.1) (1.67.0)
Requirement already satisfied: pparsing!=3.0.0,!=3.0.1,!=3.0.2,!=3.0.3,<4,>=2.4.2 in /usr/local/lib/python3.11/dist-packages (from httplib2<1.0.0,>=0.19.0->google-api-python-client->google-generativeai==0.5.1) (3.0.4)
Requirement already satisfied: pyasn1<0.7.0,>=0.6.1 in /usr/local/lib/python3.11/dist-packages (from pyasn1-modules>=0.2.1->google-auth>=2.15.0->google-generativeai==0.5.1) (0.6.1)
```

Copy Python code

A screenshot of a Google Colab notebook interface. The browser tabs at the top show "Colab Notebooks - Google Drive", "transcribe-assess-v1.ipynb - Co", and "Poster Google Colab - Google". The address bar shows the URL "colab.research.google.com/drive/1B96IUfRXpSZwB4PSj_k8f8cDwJ9Y3ePH". The notebook title is "transcribe-assess-v1.ipynb". The menu bar includes "File", "Edit", "View", "Insert", "Runtime", "Tools", and "Help". The toolbar has a search icon, a "+ Code" button, a "+ Text" button, a "Run all" button, a "Share" button, a "Gemin" button, and a "P" button. The code editor shows a Python script with line numbers 1 to 36. A grey rectangular box is placed over the configuration section of the code, specifically covering lines 10 through 13. The code defines a custom prompt, configures the Gemini API, and sets up a retry policy. The bottom of the interface shows "Variables" and "Terminal" tabs, and a "Python 3" indicator in the bottom right corner.

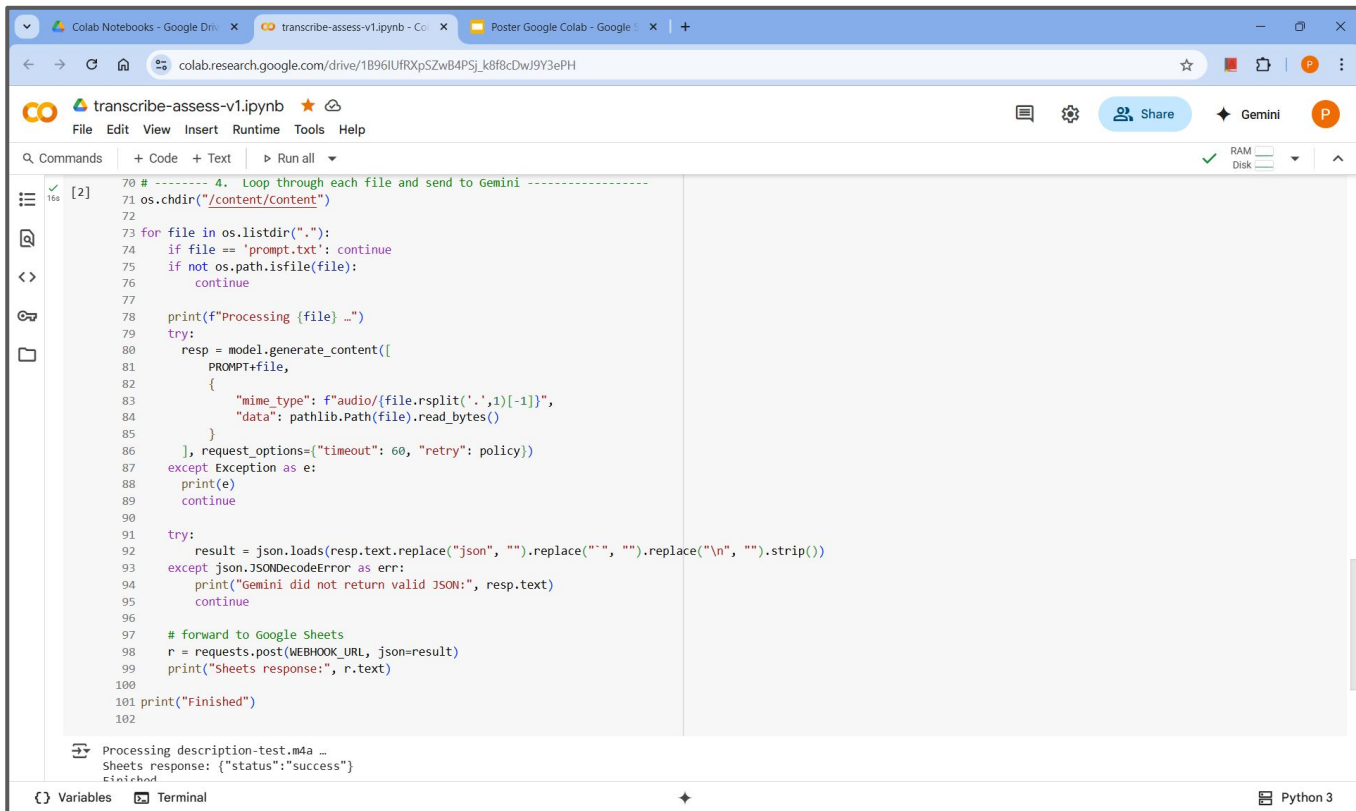
```
[2] 1 customprompt = """
2 Describe something that you use for your research within 3 to 6 minutes.
3 """
4 # Practice answering questions... (default)
5
6 with open("prompt.txt", "w") as promptwrite:
7     promptwrite.write(customprompt)
8
9 # --- CONFIG ---
10 API_KEY =
11 WEBHOOK_URL =
12 DRIVE_FOLDER_ID =
13 PROMPT_PATH =
14 # -----
15 import google.generativeai as genai
16 import os, json, pathlib, gdown, requests
17 from google.api_core import retry
18
19 # ----- 1. Download audio files from Drive -----
20 if not os.path.exists("/content/Content"):
21     gdown.download_folder(f"https://drive.google.com/drive/folders/{DRIVE_FOLDER_ID}", output="Content", quiet=False)
22
23 # ----- 2. Prepare Gemini model -----
24 genai.configure(api_key=API_KEY)
25 model = genai.GenerativeModel("models/gemini-2.0-flash-lite")
26 policy = retry.Retry(
27     initial=5.0, multiplier=2.0, maximum=60.0, deadline=300.0
28 )
29
30 # ----- 3. Build the prompt -----
31 TASK_DESCRIPTION = (open(PROMPT_PATH).read().strip()
32     if os.path.exists(PROMPT_PATH)
33     else "Practice answering questions... (default)")
34
35 PROMPT = f"""
36 You will receive an audio recording of Japanese students giving a technical description presentation.
```

Python code

A screenshot of a Google Colab notebook titled "transcribe-assess-v1.ipynb". The interface includes a top navigation bar with "File", "Edit", "View", "Insert", "Runtime", "Tools", and "Help" menus. Below the menu is a toolbar with icons for commands, code, text, and running all cells. The main area displays a Python script with line numbers 36 to 71. The code defines a task description, a rubric for assessment, and a JSON schema for the output. It also includes instructions for the AI model to generate a transcript and return a JSON object. The bottom of the notebook shows a "Variables" panel and a "Terminal" panel, both currently empty. The status bar at the bottom indicates "Python 3".

```
[2] 36 You will receive an audio recording of Japanese students giving a technical description presentation.
37 Your task is to transcribe and assess each audio recording.
38
39 Here is a description of the task that the students were told to do:
40 =====
41 {TASK_DESCRIPTION}
42 =====
43
44 Use the following rubric for assessment:
45
46 [1] Fluency: 0-10 points
47 [2] Pronunciation: 0-10 points
48 [3] Grammar and Vocabulary: 0-10 points
49 [4] Task Completion: 0-10 points
50 [5] CEFR level
51
52 Important instructions:
53 1. Do not include any HTML or markdown in your response.
54 2. Generate an English-only "transcript" of the audio
55 3. Do not transcribe words spoken in Japanese.
56 4. Return ONLY a JSON object with:
57 {{
58     "audiofile":    "<file name>",
59     "transcript":    "<english transcript>",
60     "fluency":       "<0-10>",
61     "pronunciation": "<0-10>",
62     "grammar_vocab": "<0-10>",
63     "task":          "<0-10>",
64     "CEFR":          "<A1-C2>"
65 }}
66 6. Do not wrap the JSON in back-ticks or any other characters.
67 Audiofile name is:
68 ""
69
70 # ----- 4. Loop through each file and send to Gemini -----
71 os.chdir("/content/content")
```

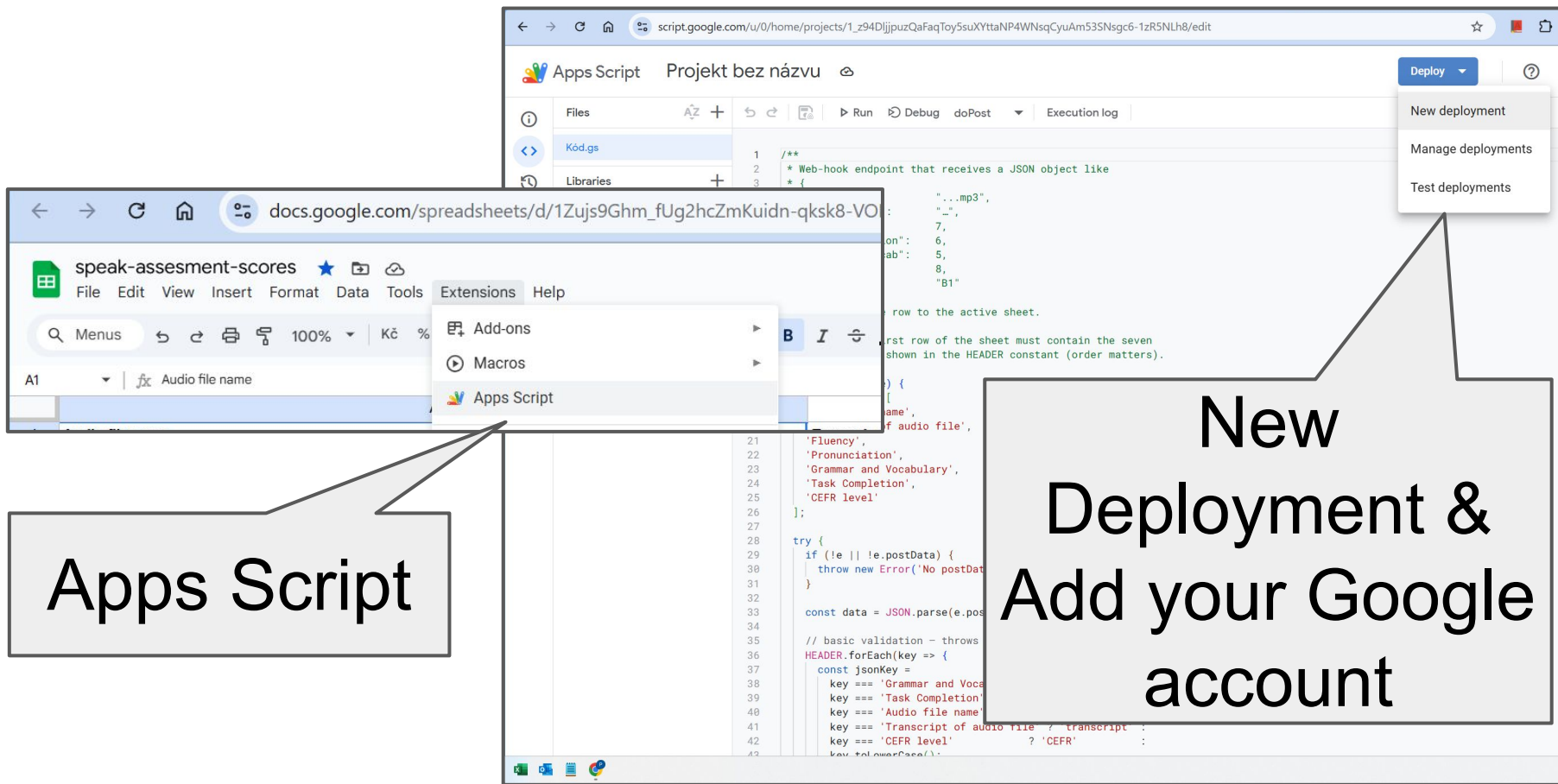

Python code

A screenshot of a Google Colab notebook interface. The browser tabs at the top show "Colab Notebooks - Google Drive", "transcribe-assess-v1.ipynb - Co", and "Poster Google Colab - Google". The address bar shows the URL "colab.research.google.com/drive/1B96IUFRXp5ZwB4PSj_k8f8cDwJ9Y3ePH". The notebook title is "transcribe-assess-v1.ipynb". The menu bar includes "File", "Edit", "View", "Insert", "Runtime", "Tools", and "Help". On the right, there are buttons for "Share", "Gemin", and a profile icon. The left sidebar has icons for "Commands", "Code", "Text", "Run all", "RAM", and "Disk". The main code area shows a Python script with line numbers 70 to 102. The script is a loop that processes files in a directory, sends audio data to Gemini, and forwards the response to Google Sheets. The output area at the bottom shows the execution of the script, with the message "Processing description-test.m4a ..." and "Sheets response: {'status': 'success'}". The status bar at the bottom indicates "Python 3".

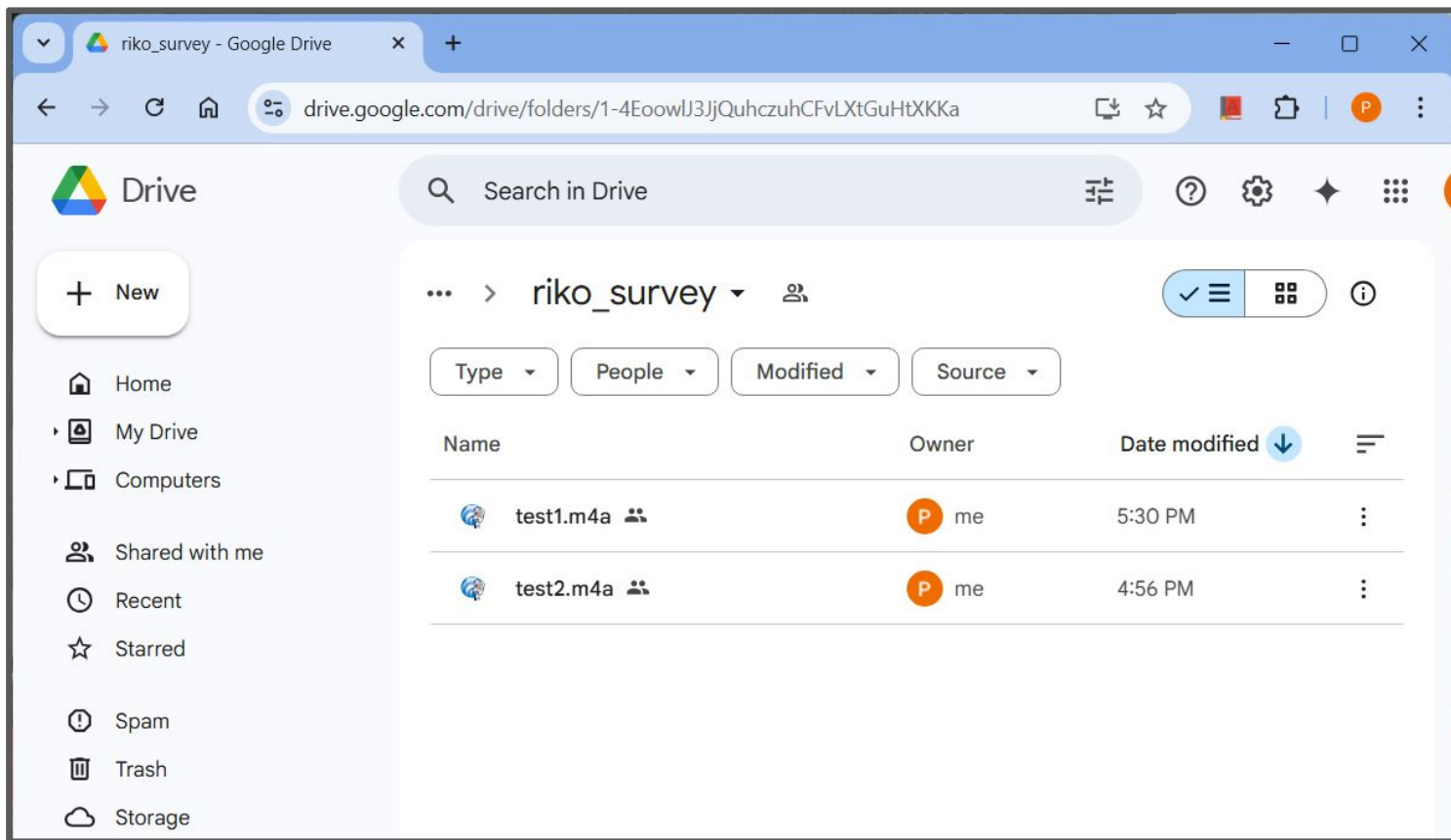
```
70 # ----- 4. Loop through each file and send to Gemini -----
71 os.chdir("/content/Content")
72
73 for file in os.listdir("."):
74     if file == 'prompt.txt': continue
75     if not os.path.isfile(file):
76         continue
77
78     print(f"Processing {file} ...")
79     try:
80         resp = model.generate_content([
81             PROMPT+file,
82             {
83                 "mime_type": f"audio/{file.rsplit('.',1)[-1]}",
84                 "data": pathlib.Path(file).read_bytes()
85             }
86         ], request_options={"timeout": 60, "retry": policy})
87     except Exception as e:
88         print(e)
89         continue
90
91     try:
92         result = json.loads(resp.text.replace("json", "").replace("'", "").replace("\n", "").strip())
93     except json.JSONDecodeError as err:
94         print("Gemini did not return valid JSON:", resp.text)
95         continue
96
97     # forward to Google Sheets
98     r = requests.post(WEBHOOK_URL, json=result)
99     print("Sheets response:", r.text)
100
101 print("Finished")
102
```

Processing description-test.m4a ...
Sheets response: {'status': 'success'}
finished

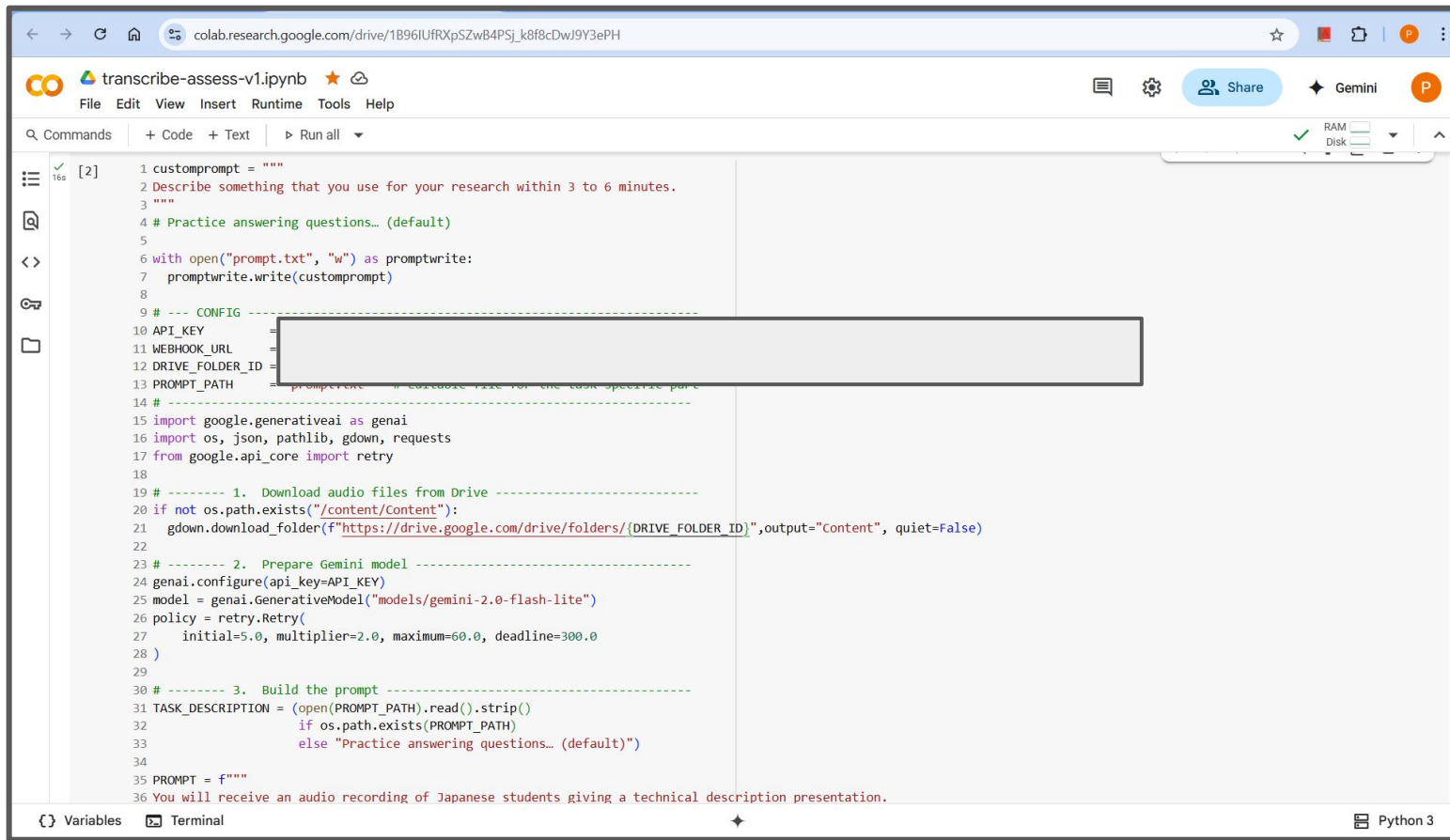
Google Sheets Apps Script



Add audio files to Drive

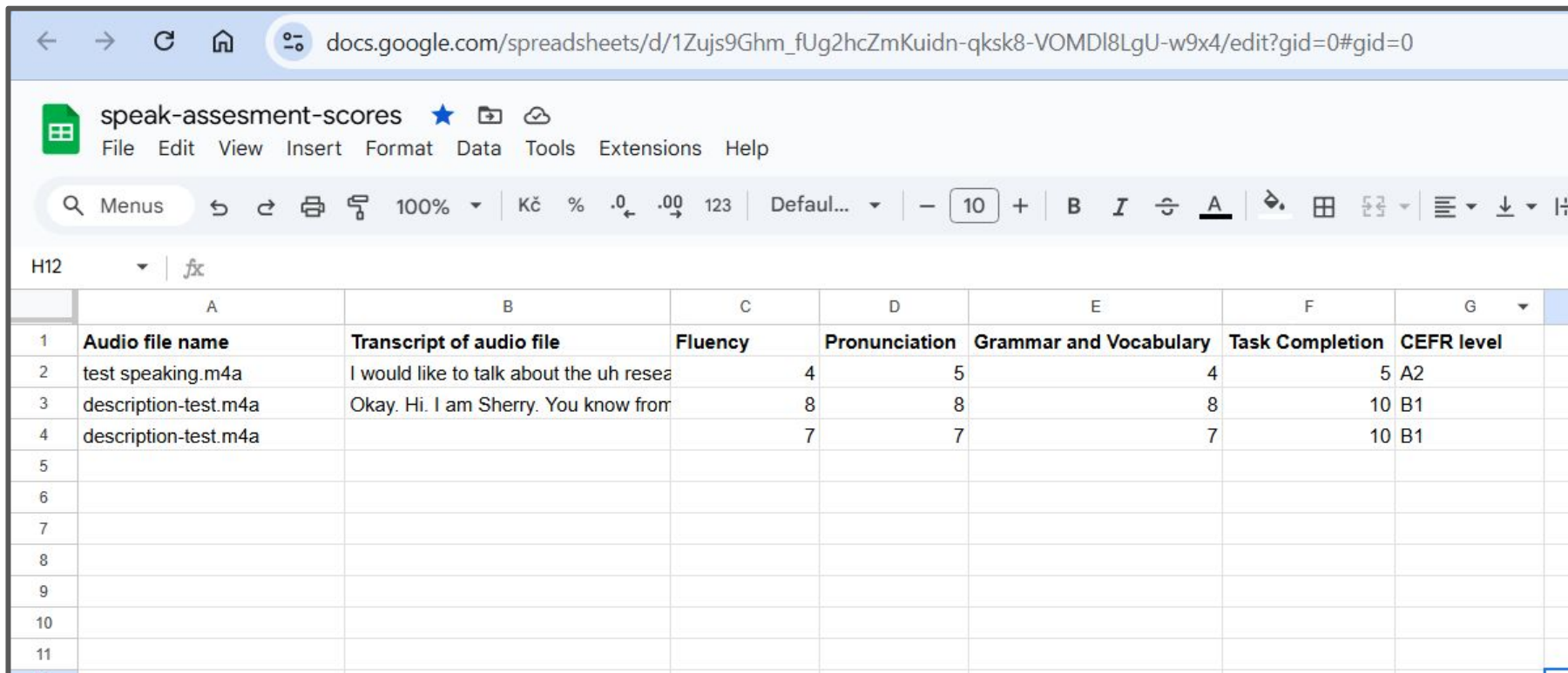


Run script



```
[2] 1 customprompt = """
2 Describe something that you use for your research within 3 to 6 minutes.
3 """
4 # Practice answering questions... (default)
5
6 with open("prompt.txt", "w") as promptwrite:
7     promptwrite.write(customprompt)
8
9 # --- CONFIG ---
10 API_KEY =
11 WEBHOOK_URL =
12 DRIVE_FOLDER_ID =
13 PROMPT_PATH =
14 #
15 import google.generativeai as genai
16 import os, json, pathlib, gdown, requests
17 from google.api_core import retry
18
19 # ----- 1. Download audio files from Drive -----
20 if not os.path.exists("/content/Content"):
21     gdown.download_folder(f"https://drive.google.com/drive/folders/{DRIVE_FOLDER_ID}", output="Content", quiet=False)
22
23 # ----- 2. Prepare Gemini model -----
24 genai.configure(api_key=API_KEY)
25 model = genai.GenerativeModel("models/gemini-2.0-flash-lite")
26 policy = retry.Retry(
27     initial=5.0, multiplier=2.0, maximum=60.0, deadline=300.0
28 )
29
30 # ----- 3. Build the prompt -----
31 TASK_DESCRIPTION = (open(PROMPT_PATH).read().strip()
32                     if os.path.exists(PROMPT_PATH)
33                     else "Practice answering questions... (default)")
34
35 PROMPT = f"""
36 You will receive an audio recording of Japanese students giving a technical description presentation.
```

Results posted to Google Sheets

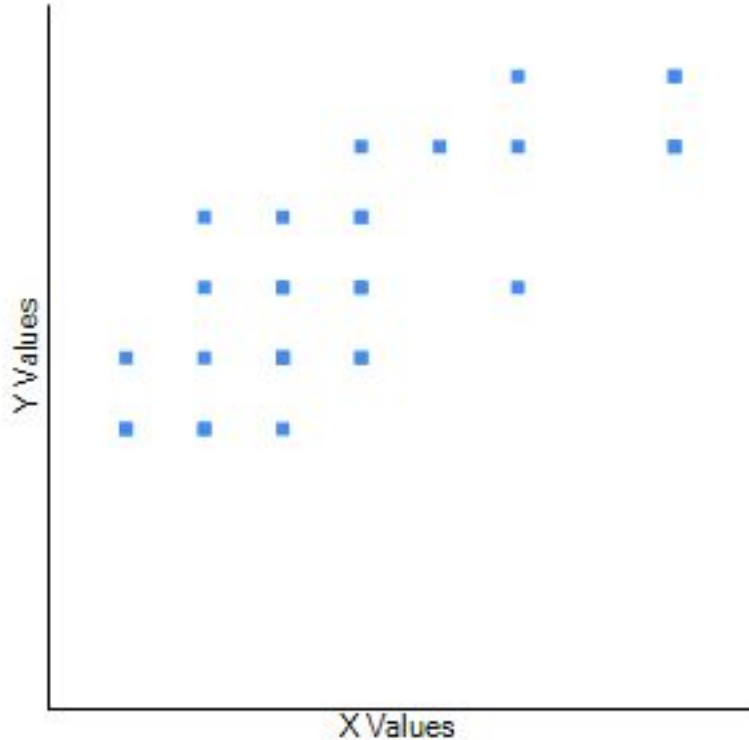


The screenshot shows a Google Sheets interface with the following elements:

- Browser Address Bar:** docs.google.com/spreadsheets/d/1Zujs9Ghm_fUg2hcZmKuidn-qksk8-VOMDI8LgU-w9x4/edit?gid=0#gid=0
- Spreadsheet Title:** speak-assesment-scores
- Menu Bar:** File, Edit, View, Insert, Format, Data, Tools, Extensions, Help
- Toolbar:** Includes undo, redo, print, copy, paste, zoom (100%), text color, background color, and other formatting options.
- Formula Bar:** H12 | fx
- Table:** A table with 7 columns: Audio file name, Transcript of audio file, Fluency, Pronunciation, Grammar and Vocabulary, Task Completion, and CEFR level. The first four rows contain data, and the remaining rows are empty.

	A	B	C	D	E	F	G
	Audio file name	Transcript of audio file	Fluency	Pronunciation	Grammar and Vocabulary	Task Completion	CEFR level
1	test speaking.m4a	I would like to talk about the uh resea	4	5	4	5	A2
2	description-test.m4a	Okay. Hi. I am Sherry. You know from	8	8	8	10	B1
3	description-test.m4a		7	7	7	10	B1
4							
5							
6							
7							
8							
9							
10							
11							

Human & AI scores



$R = 0.7953$

$N = 31$

Positive
correlation