Improving writing instruction
Through LLM Scripting

- **Starting points**
- **Creating self-grading assignments**
- **Generating assignments with ChatGPT**
- **Organizing assignment results**
- **Checking grammatical accuracy**

Starting points

- **Think critically about AI (i.e., applied statistics)**
- **Large Language Models are revolutionary**
  - **human languages**
  - **programming languages**
- **Educational practice is often**
  - **text manipulation**
- **Now everyone can manipulate text easily**

Starting points

- **Language learning & Computer programming:**
  - **both involve text manipulation**
  - **both recently widely accessible**
- **As a result, educators should:**
  - **make their own programs (i.e., python scripts)**
  - **streamline their workload**
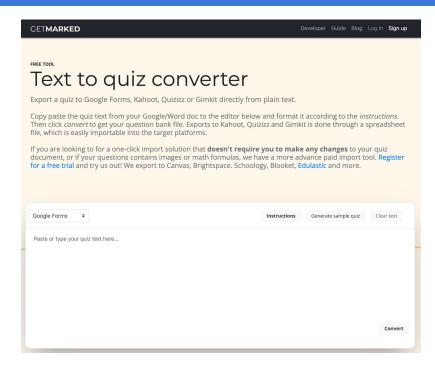 - **focus on direct interaction with students**

Starting points

- **Ipsative assessment:**
  - **assessment based on improvement**
  - **rather than criteria or peer comparison**
- **Recommendations:**
  - **extensive assistance from LLMs**
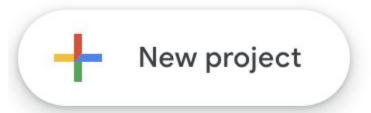 - **careful integration with achievement criteria**

Starting points

- **problems with third-party GenAI services:**
  - **costly**
  - **closed source / proprietary**
  - **non-retrievable (no stable citation reference)**
  - **difficult to assess reliability & validity**
  - **difficult to replicate precisely**

Creating
self-grading assignments

- **Why Google Forms?**
    - can insert questions from PDFs or ChatGPT
    - self-grading for certain data types
    - variety of possible data types
        - text, multiple-choice, audio, video
    - data output to spreadsheets
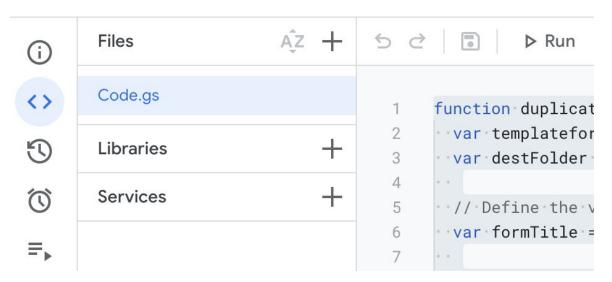   - data output in real-time

Creating
self-grading assignments

- **Please follow the instructions in this link to create a Google form using GetMarked:**
https://forms.gle/Sb7TcJDp1tkJ7qqc9

Creating
self-grading assignments

Creating
self-grading assignments

Apps Script

New project

Creating
self-grading assignments

🔶 Apps Script   getmarked

| Files | A͎Z | + |

Code.gs

Libraries   +

Services   +

```
1  function duplicat
2    var templatefo
3    var destFolder
4
5    // Define the v
6    var formTitle =
7
```

▷ Run

Creating
self-grading assignments

Total points: 6

Send

Creating
self-grading assignments

Send form

Collect email addresses | Do not collect ▾

Send via | ✉ | 🔗 | <> | f | 🐦

Link

https://forms.gle/wsfDFgp68oChwqeR8

☑ Shorten URL

Press ⌘+C to copy

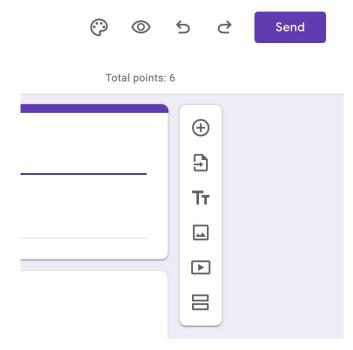Cancel | Copy

Creating
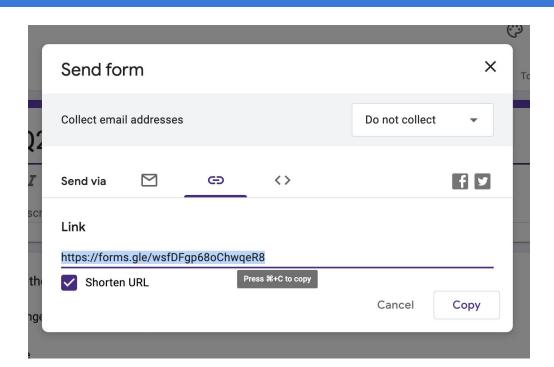# self-grading assignments

- **Please follow the instructions in this link to create a Google form using GetMarked:**
  https://forms.gle/Sb7TcJDp1tkJ7qqc9

Generating assignments with ChatGPT

- **Why ChatGPT?**
  - **can follow GetMarked formatting**
  - **can create sophisticated assignments**
    - **unfamiliar academic fields**
    - **large numbers of questions**
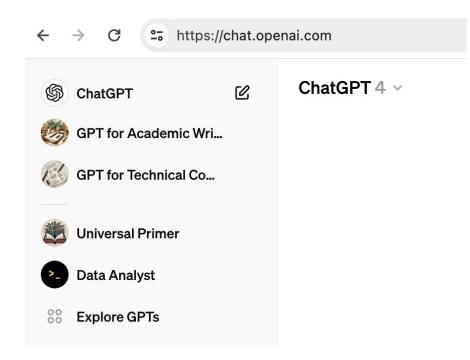   - **rapid execution time**
  - **example: here**

Generating assignments with ChatGPT

- **Please follow the instructions in this link to create an assignment with ChatGPT:**
  https://forms.gle/hXGKMimYHbgK8CJ7A

Generating assignments with ChatGPT

Generating assignments with ChatGPT

Give me ideas
about how to plan my New Years resolutions

Dive into history
choose a historical figure

Make up a story
about Sharky, a tooth-brushing shark superhero

Create a charter
to start a film club

I want you to make a quiz with the following format: each question should start with a number followed by a period but no space, and each question should start with a letter followed by period but no space, except for the correct answer which should have a star (*) preceding the letter, and each set of questions and answers should be followed by a linebreak. There should be no other text or characters, and all text should be selectable (including the numbers before each question). The quiz should be about [INSERT TOPIC]

ChatGPT can make mistakes. Consider checking important information.

Generating assignments with ChatGPT

- **Please follow the instructions in this link to create an assignment with ChatGPT:**
  https://forms.gle/hXGKMimYHbgK8CJ7A

Organizing assignment results

- **Why Google Sheets?**
  - **receive data in real-time**
  - **sophisticated data processing**
    - **attendance, assignments, grades**
    - **plagiarism detection, content analysis**
  - **easy output to third-party resources**
  - **easy input from third-party resources**

Organizing assignment results

- **First columns:**
  - **each student's name, ID number, e-mail address, & class section**
- **Later columns**
  - **attendance, assignments, scores, text of assignments, text of ChatGPT feedback**
  - **participation grades, statistics (e.g. average number of grammar errors)**

Organizing
assignment results

- **Later sheets:**
  - **Google forms output for each assignment**
  - **datasets for ChatGPT (& third-party resources)**
- **Third party resources:**
  - **TSV output (File>Download>Tab Separated Values)**
  - **run python script**
  - **paste input in appropriate place**
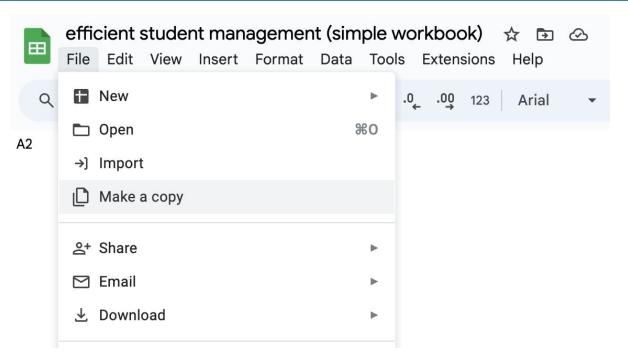
Organizing assignment results

- **Running python scripts (in Terminal/Powershell):**
  - **install python 3.11 (as admin, set env/path variables)**
  - **install dependencies ('pip install package_name')**
  - **Place TSV files in input-files folder**
  - **Type 'python3 scriptname.py argument'**
  - **ask ChatGPT for help if you get an error**
- **Python output:**
  - **Check output-files folder**
  - **Copy into Google Sheet**

Organizing assignment results

- **Please follow the instructions in this link to create a Google Sheet:**

  https://forms.gle/z5pwfzABdT5X7sns9

Organizing assignment results

efficient student management (simple workbook)

File   Edit   View   Insert   Format   Data   Tools   Extensions   Help

New   ▶

Open   ⌘O

Import

Make a copy

Share   ▶

Email   ▶

Download   ▶

A2

Organizing assignment results

Organizing assignment results

Questions **Responses** Settings

Total points: 6

0 responses

Link to Sheets

Sends responses to a spreadsheet

Accepting responses

Waiting for responses

Organizing assignment results

Select destination for responses   ✕

⦿ Create a new spreadsheet   XNQ2AOFBO0HM9Q1T (Resp...   Learn More

◯ Select existing spreadsheet

                                              Cancel   Create

Organizing assignment results

Organizing
assignment results

Organizing assignment results

- **Please follow the instructions in this link to create a Google Sheet:**

  https://forms.gle/z5pwfzABdT5X7sns9
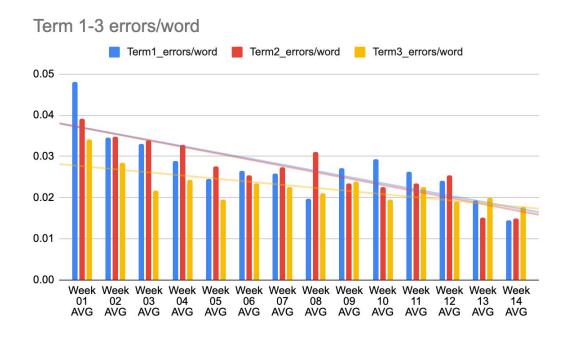
Checking
grammatical accuracy
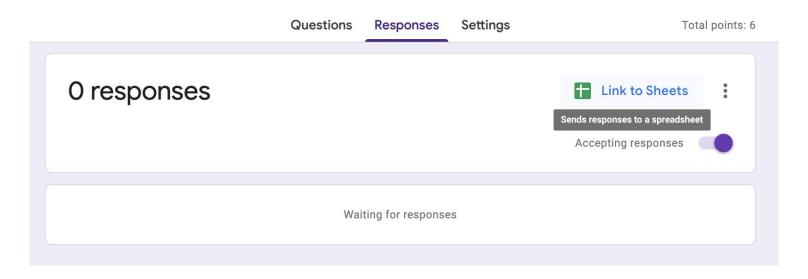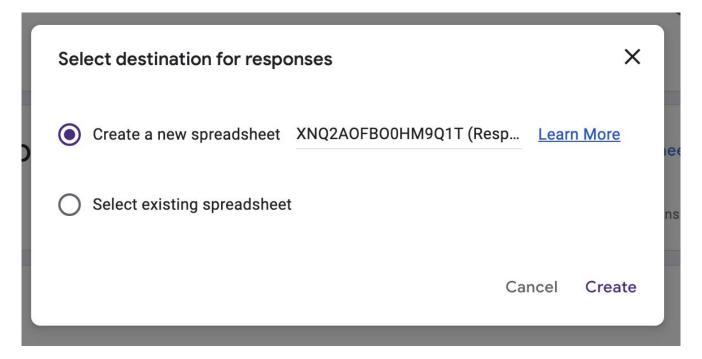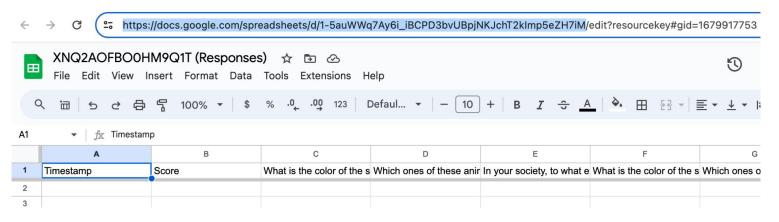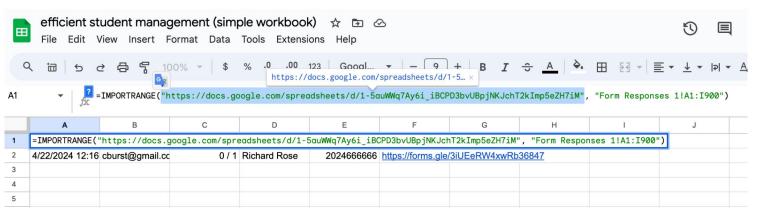
- **Please observe the procedure for checking text for grammatical accuracy**
- **Download and use scripts shared HERE**
  - **Python (install version 3.11)**
  - **OpenAI API Key (place in env variable)**
  - **GPT-CLI & dependencies**
- **Follow along at your own pace**

Checking
grammatical accuracy

- **go to gpt-cli folder in Terminal/PowerShell (admin)**
- **pip commands**
  - **pip install gpt-cli**
  - **pip install -r requirements.txt**
  - **pip install google-generativeai**
  - **pip install -U openai**
  - **pip install cohere**
  - **pip install colorama**
- **get OpenAI API Key and place as PATH variable**
- **(https://platform.openai.com/api-keys)**

Checking
grammatical accuracy

- **put speeches-gen-prompts.tsv into input-files folder**
- **go back to root folder**
- **type: python GPT.py speeches-gen-**
- **monitor script, use ChatGPT for errors**
- **copy processed output in output-files**
- **into speeches-gen-GPTresults B39**

Checking
grammatical accuracy

Term 1-3 errors/word

■ Term1_errors/word ■ Term2_errors/word ■ Term3_errors/word

Improving writing instruction
Through LLM Scripting

- **Thanks for your time and attention**
- **Let me know if you have any questions**
- **richard.rose@yonsei.ac.kr**

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Rose, R. (2024). Improving syntactic complexity in engineering students' writing through digital portfolios and visual analytics. Manuscript in preparation.