

Introducing Python & Poetry

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HIST 3340

Professor Linker

Fall 2025

<https://bit.ly/fa25-linker-python-poetry>

Example Poem

- What do you think is going on?
- Do you have any guesses on how the author did this?

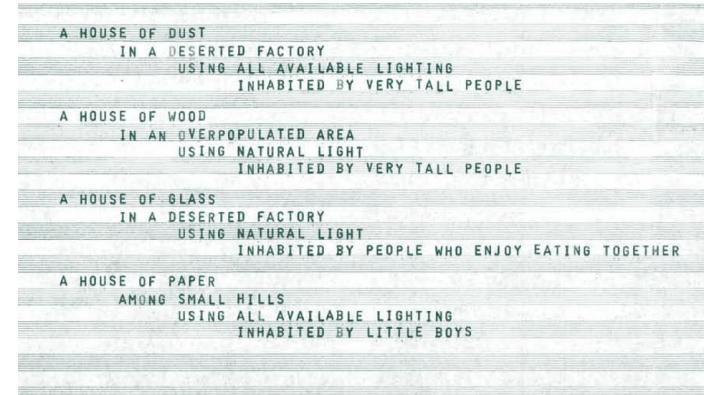
The House of Dust (1967)
based on a work by [Alison Knowles](#) & [James Tenney](#)
code by [Nick Montfort](#), also in [Python 2/3](#)
from [Memory Slam 2.0](#): Batch-Era Text Generators

```
A house of glass
  On an island
    Using natural light
      Inhabited by friends and enemies

A house of steel
  Inside a mountain
    Using electricity
      Inhabited by people who love to read
```

Computational Poetry

- [House of Dust](#) by Alison Knowles and James Tenney (1967)
 - Code reimplemented in Python by Nick Montfort and updated as example: [FA25 Linker HouseOfDustExample Advanced.ipynb](#)
- [“A Travesty Generator for Micros”](#) by Hugh Kenner and Joseph O’Rourke (1984)
- [Travesty Generator](#) by Lillian-Yvonne Bertram (2019)



Printout of “The House of Dust,” Gebr König Verlag, Cologne, 1967. Found in [Art by Translation](#).

Mad Libs

- The code behind House of Dust, and the computational poems we will learn to write, works a kind of like Mad Libs – words are selected to fill in blanks for in the poem.
- Work with a partner to fill in the words on the first sheet, then fill in blanks on the second Mad Libs sheet.
- Would anyone like to share their Mad Libs?

Agenda

- Today
 - House of Dust example
 - Mad Libs exercise
 - Introduction to Python fundamentals
- Next class
 - Finish introduction to Python fundamentals
 - Mad Libs exercise with dice
 - Writing our own computational poems

Teaching Materials

Slides, Python notebooks, class activities, and the shared questions document can be found in the shared Google Drive folder

[FA25-PythonPoetry-StudentAccess](#) at:

<http://bit.ly/fa25-linker-python-poetry>

To run the Python notebooks in Google Colab you will need to sign into Google Drive. To save changes, save a copy to your Google Drive.

Python & Google Colaboratory

Python Summary

The Python code in this workshop covers the below topics. Just based on their names, do you have any guesses on what these might do in a computer program?

- [Variables](#)
- [Print](#) function
- Import [random module](#)
- Data types
 - [Strings](#) (Text)
 - [Lists](#)
 - [Dictionaries](#)
- Selecting text from [lists](#) and [dictionaries](#)

Python Google Colab Notebooks

[FA25 Linker Colab&IntroToPythonPoetry.ipynb](#): This notebook introduces the fundamentals of Python and provides example code for creating computational poetry. The notebook can be accessed by:

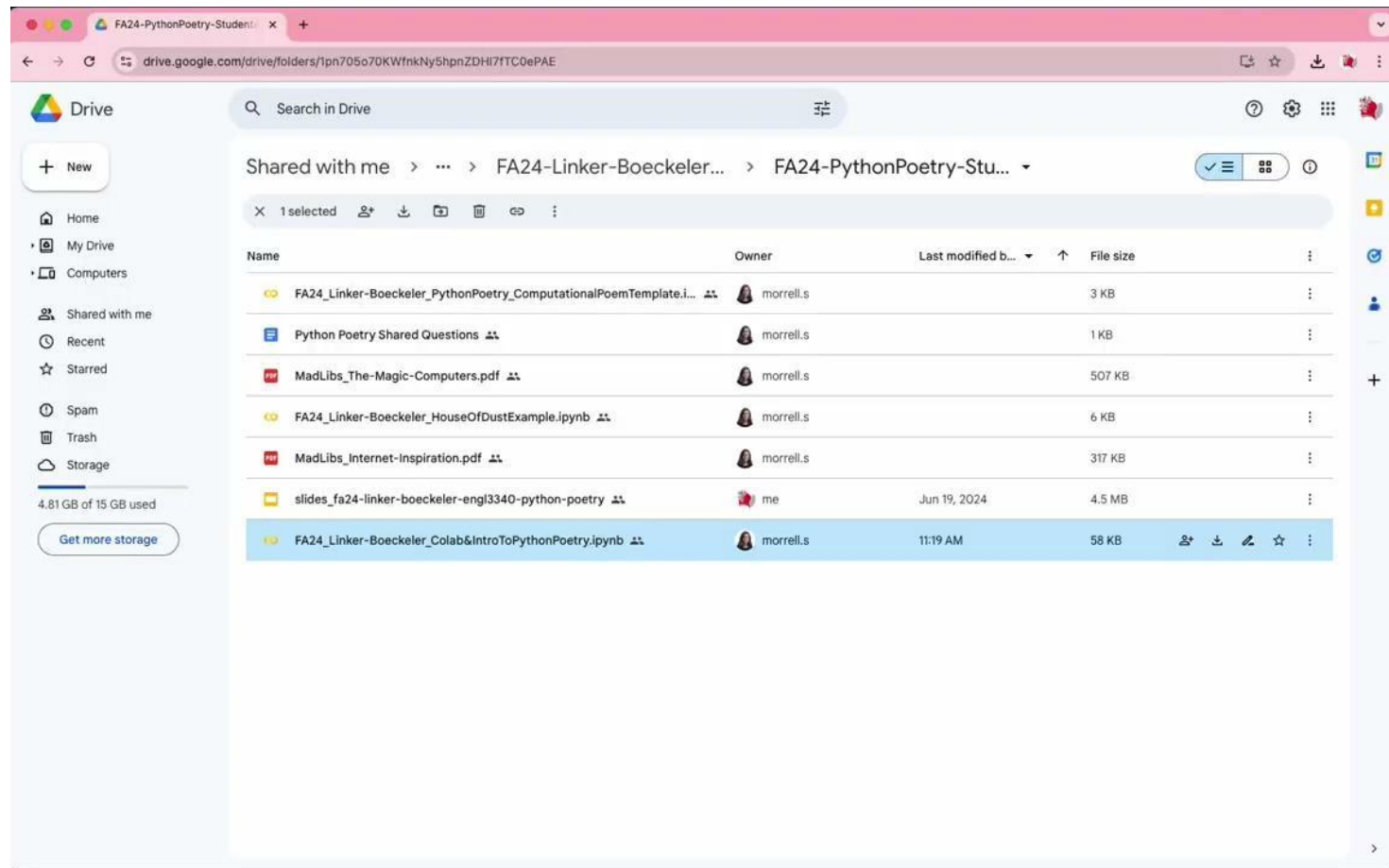
- Signing in to your personal or Northeastern Google account
- Clicking the above link or opening the notebook in the shared Google Drive folder at: <http://bit.ly/fa25-linker-python-poetry>
- Copying the notebook to your Google Drive by selecting 'Save a copy in Drive' under the 'File' menu in the upper left corner of the notebook

Please feel free to ask questions at any time or add them to the [Fall 2025](#)

[Python Poetry Shared Questions](#) document



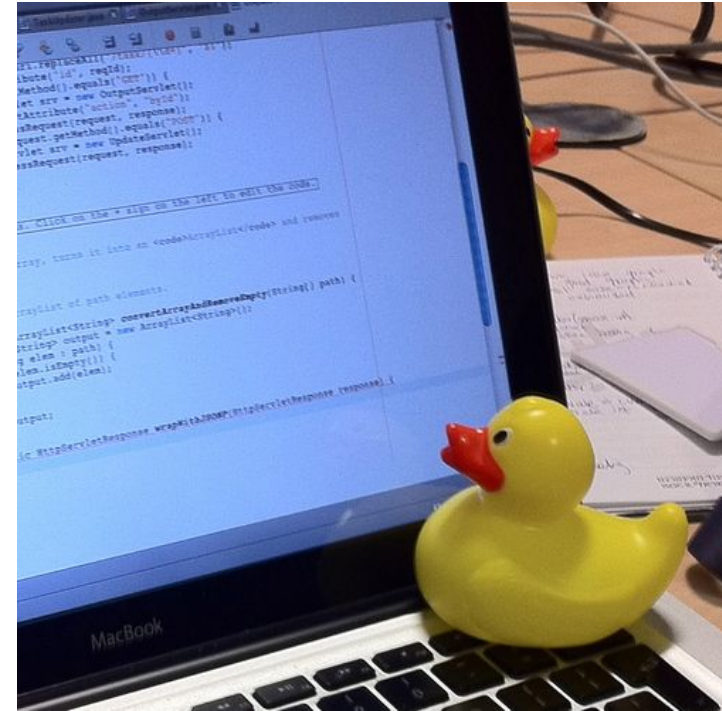
Install Google Colab



Ducks!

- Rubber duck debugging is when a programmer explains the specific steps in their code using everyday plain language, sometimes to a rubber duck
- If you get stuck during or after class try explaining your code step by step to your duck

Image: Tom Morris, [Rubber duck assisting with debugging](#), Wikimedia Commons



Day 1 Review

- House of Dust example
- Mad Libs exercise
- Introduction to Python fundamentals
 - Strings, Lists, Dictionaries
 - Variables
 - Conditional statements
 - Functions, Libraries, and Modules
- Any questions?

Day 2: Python Review, Mad Libs, and Writing Computational Poems

Python Review (1/3)

- See the [handout](#) for a summary of the Python fundamentals we discussed
- Strings: `"This is a string."`
- Lists: `['duck', 'turtle', 'cat']`
- Dictionaries: `{'duck': 'a bird that lives by water and has webbed feet, a short neck, and a large beak', 'turtle': 'a reptile that lives in the ocean and has a thick shell covering its body into which it can move its head and legs for protection'}` (definitions quoted from Cambridge Dictionary)

Python Review (2/3)

- Variables: `color = 'pink'`

- Conditional statements:

```
if color == 'pink':
```

```
    print("That's my favorite color!")
```

```
else:
```

```
    print("That's not my favorite color.")
```

Python Review (3/3)

- Functions: `print()`
- Libraries and modules:

```
import random
```

```
random_word = random.choice(word_list)
```


Python Google Colab Notebooks Review

[FA25 Linker Colab&IntroToPythonPoetry.ipynb](#): This notebook introduces the fundamentals of Python and provides example code for creating computational poetry. The notebook can be accessed by:

- Signing in to your personal or Northeastern Google account
- Clicking the above link or opening the notebook in the shared Google Drive folder at: <http://bit.ly/fa25-linker-python-poetry>
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Please feel free to ask questions at any time or add them to the [Fall 2025 Python Poetry Shared Questions](#) document

Randomized Mad Libs

- Fill out the table with words on the first sheet
- Then roll the dice (<https://www.calculator.net/dice-roller.html>) to randomly select words to use in each of the blanks on the second Mad Libs sheet.
- This is similar to how you will write your computational poem in Python.

Your Turn: Computational Poetry

[FA25 Linker PythonPoetry ComputationalPoemTemplate.ipynb](#): This notebook is a template with some starter code to help you create your own computational poem.

Once you have the first draft of your poem:

- Try adding some conditional statements and changing content based on user input (use the examples from [FA25 Linker Colab&IntroToPythonPoetry.ipynb](#)).
- Try adding in some attributes from the [FA25 Linker HouseOfDustExample Advanced.ipynb](#) or even [obfuscating](#) your code.

Post-exploration group discussion

- Do you have any reflections on using Python for constructing poetry?
- How does the writing process differ from traditional poetry?
- How might the code impact the reader's perception of the poem?
- How might you use this in the future?

Explore More: Generative AI

Algorithms

- “[a] set of instructions that is designed to accomplish a task” ([National Library of Medicine](#)).
- A recipe for baking cookies, code to tell whether a picture is of a cat or a dog, and code to write a poem about a cat are examples of algorithms

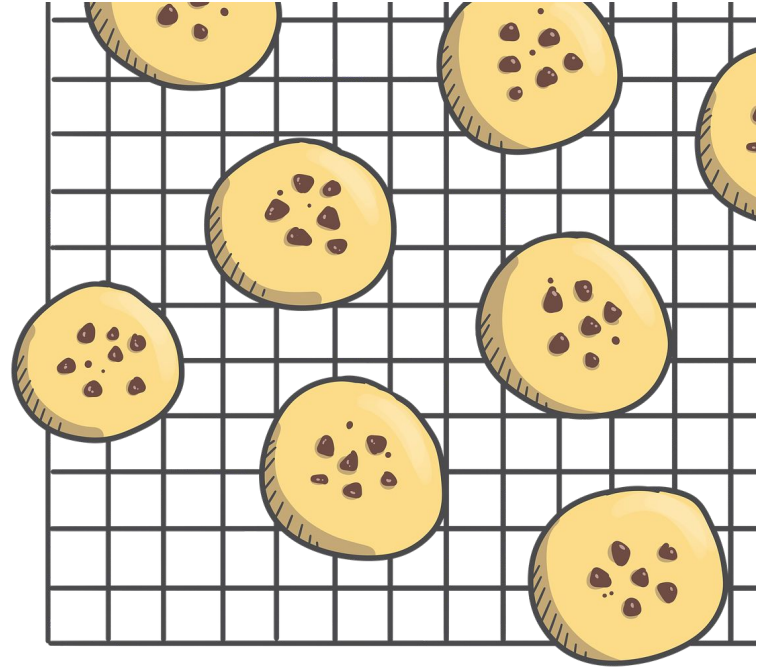


Image by wixin_56k, [Pixabay](#)

Important AI Vocabulary (1/2)

- Artificial Intelligence (AI): A “technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy.”
- Supervised machine learning: “[A] machine learning technique that uses labeled data sets to train artificial intelligence (AI) models to identify the underlying patterns and relationships.”
- Unsupervised machine learning: A machine learning technique that uses “algorithms to analyze and cluster unlabeled data sets.”

Important AI Vocabulary (2/2)

- Generative AI: “AI technologies that can create new content, ideas, or data that are coherent and plausible, often resembling human-generated outputs.”
- Markov Chains: “[A] stochastic process describing a sequence of possible events in which the probability of each event depends only on the state attained in the previous event.”
- Text Embedding: A numerical representation of the meaning of a word.

Generative AI Summary

- Uses unsupervised machine learning and other computational methods, such as Markov chains and embeddings, to learn how to generate content
- The type of dataset used to develop the generative AI determines what it can do



Image by DALL-E 3 found in
“[Text Embeddings:
Comprehensive Guide](#)” by
Mariya Mansurova

Example: AI Rhyming Clock

- Claude's [AI Rhyming Clock](#)
 - Uses generative AI to write a poem integrating the current time
- Try going to the link above and clicking customize to adjust the prompt generating the poems



Explore More: AI Ethics

Ethics: “Originality”

- Some argue that all AI-generated output constitutes plagiarism and copyright infringement, since it is remixing training data that was scraped from the internet without permission from the original creators.
- Many AI companies are [facing lawsuits](#) from people whose content was used as training data without their consent.
- Some publication venues, like the *Science* journals, have made it an [official policy](#) that AI does not meet the standard for authorship and require authors to disclose use of AI.

Ethics: Training

- AI training data is sometimes supplemented by labels (annotations) added by people (Amironesei and Díaz, 2024). These labels can worsen bias in training datasets.
- People from middle and low income countries often labor in poor working conditions to annotate data for clients in high income countries. Fieldwork by Muldoon et al (2023) revealed that workers faced traumatizing content, in addition to experiencing discrimination in the workplace and receiving low wages.
- Public awareness can help pressure companies to adopt good practices. For more information on fair labor in AI, see the report [AI for Fair Work: From principles to practices](#) by [Fairwork](#)

Ethics: Bias

- AI outputs can be biased due to human biases that exist in the original training data or decisions around how the model was developed.
- For example, when AI was used to summarize medical notes, “Google’s AI tool Gemma described men’s health issues with terms like “disabled,” “unable,” and “complex” significantly more often than women’s, who were often framed as more independent despite similar needs, an alarming gender bias trend.” (Source: [crescendo.ai](https://www.crescendo.ai))

Ethics: Environment

- Training and using AI requires processing very large amounts of data, which is done in data centers
- These data centers can have a negative impact on the environment and communities
- Given their intensive energy and water demands, data centers can worsen local water scarcity and increase electricity prices
- To explore how the energy use of AI compares to other digital tasks, check out Jon Ippolito's "What Uses More" app

What You Can Do

- By using [smaller models](#), where possible, and running fewer prompts you may be able to reduce your contribution to AI's environmental impact.
- You can also integrate tools such as [CodeCarbon](#) into your code to track and minimize the carbon dioxide emitted from computers executing the code.
- To help counter the spread of [misinformation](#), or simply misleading content, it is important to evaluate AI output against other sources and carefully consider whether certain outputs might be biased.

AI Ethics Resources

- [The Institute for Experiential AI](#) at Northeastern
- United Nations Educational, Scientific and Cultural Organization (UNESCO) [Global Forum on the Ethics of AI 2024](#)

Image found in [Changing the Landscape of AI Governance](#), UNESCO



Thank you!

—Developed by Sara Morrell, Dipa Desai, Kasya O'Connor Grant, Avery Blankenship, Claire Lavarreda, and Shannon Peifer

- For more information on the DITI, please see:
<https://bit.ly/diti-about>
- Schedule an appointment with us! <https://bit.ly/diti-meeting>
- If you have any questions, contact us at: nulab.info@gmail.com
- We'd love your feedback! Please fill out a short survey here:
<https://bit.ly/diti-feedback>