

# Tutor Notes

## Part 1) Getting text from a file

- read in from file
- OPTIONAL: write to file

## Part 2) reading in several files

- Making a list with the file names you want to use
- Putting a loop around the read-in code. Save all read-in texts in a list.
- Put the training part in a loop that goes through all of the texts.

## Part 3) Bigram + Trigram

- In the training part:

Inside the inner loop want to store:

```
current_pair = text[num] + " " + text[num+1]
```

```
current_word = text[num+1]
```

```
next_word = text[num + 1]
```

(change the loop to stop at (num\_words-2))

Repeat the if-else code that is written for the current\_word the same way for the current\_pair.

- In the generating part:

Inside the inner loop we want to first check if current\_pair in cups, otherwise check if current\_word in cups.

Get the next\_word\_options accordingly.

Now, if next\_word\_options is not empty (or None) choose a random next word, print it, and update current\_pair and current\_word (in this order!)

# Part 1: Reading Texts!

Reading in from files:

```
import random

# Reading a file:
with open("intermediate_winnie_the_pooh.txt", "r") as input_file:
    source_text = input_file.read()

# Training:
cups = {}
split_text = source_text.split()
num_words = len(split_text)

for i in range(num_words-1):
    current_word = split_text[i]
    next_word = split_text[i+1]
    if current_word not in cups:
        cups[current_word] = [next_word]
    else:
        cups[current_word].append(next_word)

# Start the program
print("I am a markov chain generator.")
current_word = input("What word do you want to start with? ")

# Generating:
print(current_word, end=" ")
for i in range(100):
    if current_word in cups:
        next_word_options = cups[current_word]
        next_word = random.choice(next_word_options)
        print(next_word, end=" ")
        current_word = next_word

# OPTIONAL: writing to output file
```

## Part 2: Longer Texts!

Reading in from files:

Same code but adding the line:

```
split_text = split_text.replace("?", "")
split_text = split_text.replace(".", "")
split_text = split_text.lower()
...
```

And other punctuation symbols they like to replace.

## Part 3: One file is not enough

Reading in several text files: (Note: bold lines are new or edited lines)

```
import random

files = ["intermediate_beatles.txt", "long_disney.txt"]

# Training:
cups = {}
for file in files:
    source_text = ""
    with open("intermediate_winnie_the_pooh.txt", "r") as input_file:
        source_text = input_file.read()

    split_text = source_text.split()
    num_words = len(split_text)

    for i in range(num_words-1):
        current_word = split_text[i]
        next_word = split_text[i+1]
        if current_word not in cups:
            cups[current_word] = [next_word]
        else:
            cups[current_word].append(next_word)

# The rest stays the same as before
```

## Part 4: A Smarter Generator

### Note: Trigrams Only

This version stores the `current_pair` as the key of the dictionary. (Note: bold lines are new or edited lines)

```
import random

# Reading a file: (or more files if previous part is done)
with open("intermediate_winnie_the_pooh.txt", "r") as input_file:
    source_text = input_file.read()

# Training:
cups = {}
split_text = source_text.split()
num_words = len(split_text)

for num in range(num_words-2):
    current_pair = split_text[num] + " " + split_text[num+1]
    next_word = split_text[num + 2]

    if current_pair not in cups:
        cups[current_pair] = [next_word]
    else:
        cups[current_pair].append(next_word)

# Start the program
print("I am a markov chain generator.")
current_pair = input("What word_pair do you want to start with? ")

# Generating:
print(current_pair, end=" ")

for i in range(100):
    next_word_options = None
    if current_pair in cups:
        next_word_options = cups[current_pair]
    if next_word_options: #students can also check for empty
        next_word = random.choice(next_word_options)
        print(next_word, end=" ")
        current_pair = current_pair.split()[1] + " " + next_word
```

## Part 4.3:

### Note: Trigrams and Bigrams

This version stores the `current_word` **and** `current_pair` as the keys of the dictionary.  
(Note: bold lines are new or edited lines)

```
import random

# Reading a file: (or more files if previous part is done)
with open("intermediate_winnie_the_pooh.txt", "r") as input_file:
    source_text = input_file.read()

# Training:
cups = {}
split_text = source_text.split()
num_words = len(split_text)

for num in range(num_words-2):
    current_pair = split_text[num] + " " + split_text[num+1]
    current_word = split_text[num+1]
    next_word = split_text[num + 2]

    if current_pair not in cups:
        cups[current_pair] = [next_word]
    else:
        cups[current_pair].append(next_word)

    if current_word not in cups:
        cups[current_word] = [next_word]
    else:
        cups[current_word].append(next_word)

# Start the program
print("I am a markov chain generator.")
current_word = input("What word do you want to start with? ")

# Generating:
print(current_word, end=" ")
current_pair = current_word
for i in range(100):
    next_word_options = None
    if current_pair in cups:
        next_word_options = cups[current_pair]
    elif current_word in cups:
        next_word_options = cups[current_word]
```

```
if next_word_options: #students can also check for empty
    next_word = random.choice(next_word_options)
    print(next_word, end=" ")
    current_pair = current_word + " " + next_word
    current_word = next_word
```