UNIVERSITY OF
GLOUCESTERSHIRE

CT4031
Maths for Data Science

Week 8 – Practical

Using markov chains

Markov chains for text generation.

Part 1

```python
sentences = open('speeches.txt', encoding='utf8').read()
words = sentences.split()


pairs = make_pairs(words)
```

Part 1

```python
def make_pairs(words):
    for i in range(len(words) - 1):
        yield (words[i], words[i + 1])
```

Part 2

```python
word_dict = {}
for word_1, word_2 in pairs:
    if word_1 in word_dict.keys():
        word_dict[word_1].append(word_2)
    else:
        word_dict[word_1] = [word_2]
```

Part 3

```python
#Randomly pick the first word
first_word = np.random.choice(words)


chain = [first_word]


#Initialize the number of stimulated words
n_words = 9


for i in range(n_words):
    chain.append(np.random.choice(word_dict[chain[-1]]))


print(' '.join(chain))
```

References

Lateef, Z., 2021. *A Brief Introduction To Markov Chains | Markov Chains In Python | Edureka*. [online] Edureka. Available at: <https://www.edureka.co/blog/introduction-to-markov-chains/#Markov%20Chain%20In%20Python> [Accessed 9 September 2021].