

Rodriguez_Felipe_DSC540_Week1&2_Asisgnments

June 18, 2023

Week 1 and 2 Assignments

Create a Jupyter notebook where you create a list

```
[108]: list_1 = [x for x in range (0, 26)]
```

Iterate over the list and sort your results

```
[109]: for i in list_1:
        list_1.sort(reverse=True)
        i = i * 2
        print(i)
```

0
48
46
44
42
40
38
36
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0

Generate random numbers

```
[1]: import random
```

```
[97]: list_2 = [random.randint (0,100) for x in range (0,26)]  
list_2
```

```
[97]: [40,  
      85,  
      54,  
      36,  
      71,  
      43,  
      15,  
      12,  
      81,  
      36,  
      90,  
      40,  
      87,  
      37,  
      8,  
      28,  
      47,  
      47,  
      15,  
      77,  
      63,  
      8,  
      45,  
      81,  
      85,  
      11]
```

Add to the list and then print your results

```
[98]: list_3 = list_1 + list_2  
print(list_3)
```

```
[25, 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5,  
4, 3, 2, 1, 0, 40, 85, 54, 36, 71, 43, 15, 12, 81, 36, 90, 40, 87, 37, 8, 28,  
47, 47, 15, 77, 63, 8, 45, 81, 85, 11]
```

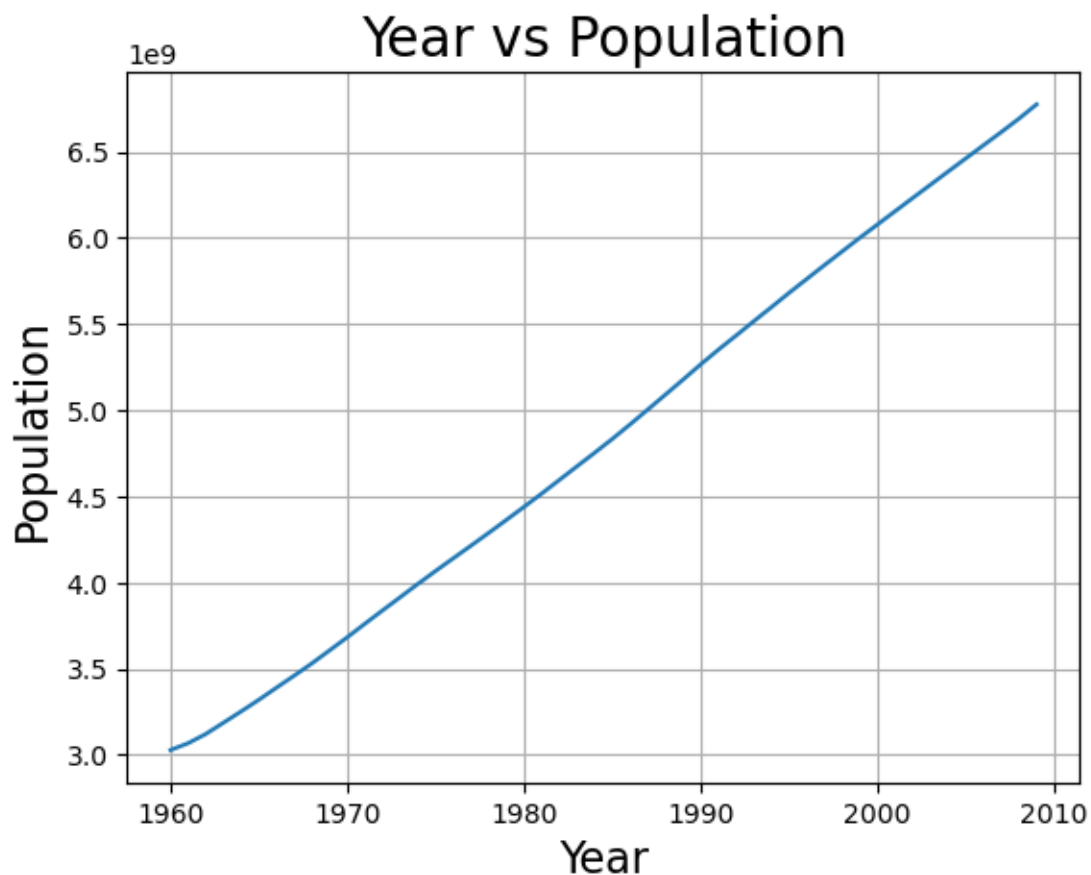
Create a line chart with Matplotlib and the following data file Data file: world-population.xlsm

```
[110]: import pandas as pd
```

```
[136]: data_file = pd.read_excel('world-population.xlsm')
```

```
[125]: import matplotlib.pyplot as plt
```

```
[135]: plt.plot(data_file.Year, data_file.Population)
plt.title("Year vs Population", fontsize=20)
plt.xlabel("Year", fontsize=16)
plt.ylabel("Population", fontsize=16)
plt.grid(True)
```



Data Wrangling with Python: Activity 1 page 17

```
[189]: # Create a list of 100 numbers
list_random = [random.randint(0, 100) for x in range(0, 100)]
```

```
[201]: # Create list of numbers divisible by 3 from random list
list_div3 = [x for x in list_random if x % 3 == 0]
```

```
[191]: # Creates random list
amt_random_list = len(list_random)
amt_random_list
```

[191]: 100

```
[200]: # Creates Divisible by 3 list
amt_div3_list = len(list_div3)
amt_div3_list
```

[200]: 32

```
[193]: # Store the difference in a new variable
diff = amt_random_list - amt_div3_list
diff
```

[193]: 70

```
[202]: # Establishes amount of times it will repeat
iterations = 3
# Creates list of differences
diff_list = []
# Loop completing steps above
while iterations > 0:
    list_random = [random.randint(0, 100) for x in range(0,100)]
    list_div3 = [x for x in list_random if x % 3 ==0]
    amt_random_list = len(list_random)
    amt_div3_list = len(list_div3)
    diff = amt_random_list - amt_div3_list
    # Adding differences to list
    diff_list.append(diff)
    # count down of iterations
    iterations -=1
# Shows difference list
diff_list
```

[202]: [58, 67, 64]

```
[204]: # Calculates arithmetic mean
arth_mean = sum(diff_list) / len(diff_list)
arth_mean
```

[204]: 63.0

Data Wrangling with Python: Activity 2 page 31

Create a **multiline_text** variable by copying the text from the first chapter of the *Pride and Prejudice*.

```
[1]: multiline_text = """It is a truth universally acknowledged, that a single man_
    ↪in possession of a good fortune, must be in want of a wife.
```

However little known the feelings or views of such a man may be on his first,
→entering a neighbourhood, this truth is so well fixed in the minds of the,
→surrounding families that he is considered as the rightful property of some,
→one or other of their daughters.

"My dear Mr. Bennet," said his lady to him one day, "have you heard that,
→Netherfield Park is let at last?"

Mr. Bennet replied that he had not.

"But it is," returned she; "for Mrs. Long has just been here, and she told me,
→all about it."

Mr. Bennet made no answer.

"Do not you want to know who has taken it?" cried his wife impatiently.

"You want to tell me, and I have no objection to hearing it."

This was invitation enough.

"Why, my dear, you must know, Mrs. Long says that Netherfield is taken by a,
→young man of large fortune from the north of England; that he came down on,
→Monday in a chaise and four to see the place, and was so much delighted with,
→it, that he agreed with Mr. Morris immediately; that he is to take,
→possession before Michaelmas, and some of his servants are to be in the,
→house by the end of next week."

"What is his name?"

"Bingley."

"Is he married or single?"

"Oh! single, my dear, to be sure! A single man of large fortune; four or five,
→thousand a year. What a fine thing for our girls!"

"How so? how can it affect them?"

"My dear Mr. Bennet," replied his wife, "how can you be so tiresome! You must,
→know that I am thinking of his marrying one of them."

"Is that his design in settling here?"

"Design! nonsense, how can you talk so! But it is very likely that he may fall,
↳in love with one of them, and therefore you must visit him as soon as he
↳comes."

"I see no occasion for that. You and the girls may go, or you may send them by,
↳themselves, which perhaps will be still better, for as you are as handsome,
↳as any of them, Mr. Bingley might like you the best of the party."

"My dear, you flatter me. I certainly have had my share of beauty, but I do not,
↳pretend to be any thing extraordinary now. When a woman has five grown-up,
↳daughters she ought to give over thinking of her own beauty."

"In such cases a woman has not often much beauty to think of."

"But, my dear, you must indeed go and see Mr. Bingley when he comes into the,
↳neighbourhood."

"It is more than I engage for, I assure you."

"But consider your daughters. Only think what an establishment it would be for,
↳one of them. Sir William and Lady Lucas are determined to go, merely on that,
↳account, for in general, you know, they visit no new-comers. Indeed you must,
↳go, for it will be impossible for us to visit him if you do not."

"You are over-scrupulous surely. I dare say Mr. Bingley will be very glad to,
↳see you; and I will send a few lines by you to assure him of my hearty,
↳consent to his marrying whichever he chuses of the girls: though I must,
↳throw in a good word for my little Lizzy."

"I desire you will do no such thing. Lizzy is not a bit better than the others;
↳and I am sure she is not half so handsome as Jane, nor half so good-humoured,
↳as Lydia. But you are always giving her the preference."

"They have none of them much to recommend them," replied he; "they are all,
↳silly and ignorant, like other girls; but Lizzy has something more of,
↳quickness than her sisters."

"Mr. Bennet, how can you abuse your own children in such a way! You take,
↳delight in vexing me. You have no compassion on my poor nerves."

"You mistake me, my dear. I have a high respect for your nerves. They are my,
↳old friends. I have heard you mention them with consideration these twenty,
↳years at least."

"Ah! you do not know what I suffer."

```
"But I hope you will get over it, and live to see many young men of four_
↳thousand a year come into the neighbourhood."
```

```
"It will be no use to us if twenty such should come, since you will not visit_
↳them."
```

```
"Depend upon it, my dear, that when there are twenty, I will visit them all."
```

```
Mr. Bennet was so odd a mixture of quick parts, sarcastic humour, reserve, and_
↳caprice, that the experience of three-and-twenty years had been insufficient_
↳to make his wife understand his character. Her mind was less difficult to_
↳develope. She was a woman of mean understanding, little information, and_
↳uncertain temper. When she was discontented she fancied herself nervous. The_
↳business of her life was to get her daughters married; its solace was_
↳visiting and news.""
```

Find the type and length of the `multiline_text` string using commands `type` and `len`

```
[2]: type(multiline_text)
```

```
[2]: str
```

```
[3]: len(multiline_text)
```

```
[3]: 4470
```

Replace all new lines and symbols using the `replace` function

```
[19]: # Removes All the new lines
multiline_text = multiline_text.replace('\n', "")
multiline_text
```

```
[19]: 'It is a truth universally acknowledged, that a single man in possession of a
good fortune, must be in want of a wife.However little known the feelings or
views of such a man may be on his first entering a neighbourhood, this truth is
so well fixed in the minds of the surrounding families that he is considered as
the rightful property of some one or other of their daughters."My dear Mr.
Bennet," said his lady to him one day, "have you heard that Netherfield Park is
let at last?"Mr. Bennet replied that he had not."But it is," returned she; "for
Mrs. Long has just been here, and she told me all about it."Mr. Bennet made no
answer."Do not you want to know who has taken it?" cried his wife
impatiently."You want to tell me, and I have no objection to hearing it."This
was invitation enough."Why, my dear, you must know, Mrs. Long says that
Netherfield is taken by a young man of large fortune from the north of England;
that he came down on Monday in a chaise and four to see the place, and was so
much delighted with it, that he agreed with Mr. Morris immediately; that he is
to take possession before Michaelmas, and some of his servants are to be in the
```

house by the end of next week." "What is his name?" "Bingley." "Is he married or single?" "Oh! single, my dear, to be sure! A single man of large fortune; four or five thousand a year. What a fine thing for our girls!" "How so? how can it affect them?" "My dear Mr. Bennet," replied his wife, "how can you be so tiresome! You must know that I am thinking of his marrying one of them." "Is that his design in settling here?" "Design! nonsense, how can you talk so! But it is very likely that he may fall in love with one of them, and therefore you must visit him as soon as he comes." "I see no occasion for that. You and the girls may go, or you may send them by themselves, which perhaps will be still better, for as you are as handsome as any of them, Mr. Bingley might like you the best of the party." "My dear, you flatter me. I certainly have had my share of beauty, but I do not pretend to be any thing extraordinary now. When a woman has five grown-up daughters she ought to give over thinking of her own beauty." "In such cases a woman has not often much beauty to think of." "But, my dear, you must indeed go and see Mr. Bingley when he comes into the neighbourhood." "It is more than I engage for, I assure you." "But consider your daughters. Only think what an establishment it would be for one of them. Sir William and Lady Lucas are determined to go, merely on that account, for in general, you know, they visit no new-comers. Indeed you must go, for it will be impossible for us to visit him if you do not." "You are over-scrupulous surely. I dare say Mr. Bingley will be very glad to see you; and I will send a few lines by you to assure him of my hearty consent to his marrying whichever he chuses of the girls: though I must throw in a good word for my little Lizzy." "I desire you will do no such thing. Lizzy is not a bit better than the others; and I am sure she is not half so handsome as Jane, nor half so good-humoured as Lydia. But you are always giving her the preference." "They have none of them much to recommend them," replied he; "they are all silly and ignorant, like other girls; but Lizzy has something more of quickness than her sisters." "Mr. Bennet, how can you abuse your own children in such a way! You take delight in vexing me. You have no compassion on my poor nerves." "You mistake me, my dear. I have a high respect for your nerves. They are my old friends. I have heard you mention them with consideration these twenty years at least." "Ah! you do not know what I suffer." "But I hope you will get over it, and live to see many young men of four thousand a year come into the neighbourhood." "It will be no use to us if twenty such should come, since you will not visit them." "Depend upon it, my dear, that when there are twenty, I will visit them all." Mr. Bennet was so odd a mixture of quick parts, sarcastic humour, reserve, and caprice, that the experience of three-and-twenty years had been insufficient to make his wife understand his character. Her mind was less difficult to develope. She was a woman of mean understanding, little information, and uncertain temper. When she was discontented she fancied herself nervous. The business of her life was to get her daughters married; its solace was visiting and news.'

```
[26]: # Remove Symbols
multiline_text_alphanum = ""
for char in multiline_text:
    if char == " ": # Passes Spaces
```



```

multiline_text_alphanum += char
elif char.isalnum(): # Only Selects alpha and numbers
    multiline_text_alphanum += char
else:
    multiline_text_alphanum += " " # Anything else is a blank (removed)

multiline_text_alphanum

```

[26]: 'It is a truth universally acknowledged that a single man in possession of a good fortune must be in want of a wife However little known the feelings or views of such a man may be on his first entering a neighbourhood this truth is so well fixed in the minds of the surrounding families that he is considered as the rightful property of some one or other of their daughters My dear Mr Bennet said his lady to him one day have you heard that Netherfield Park is let at last Mr Bennet replied that he had not But it is returned she for Mrs Long has just been here and she told me all about it Mr Bennet made no answer Do not you want to know who has taken it cried his wife impatiently You want to tell me and I have no objection to hearing it This was invitation enough Why my dear you must know Mrs Long says that Netherfield is taken by a young man of large fortune from the north of England that he came down on Monday in a chaise and four to see the place and was so much delighted with it that he agreed with Mr Morris immediately that he is to take possession before Michaelmas and some of his servants are to be in the house by the end of next week What is his name Bingley Is he married or single Oh single my dear to be sure A single man of large fortune four or five thousand a year What a fine thing for our girls How so how can it affect them My dear Mr Bennet replied his wife how can you be so tiresome You must know that I am thinking of his marrying one of them Is that his design in settling here Design nonsense how can you talk so But it is very likely that he may fall in love with one of them and therefore you must visit him as soon as he comes I see no occasion for that You and the girls may go or you may send them by themselves which perhaps will be still better for as you are as handsome as any of them Mr Bingley might like you the best of the party My dear you flatter me I certainly have had my share of beauty but I do not pretend to be any thing extraordinary now When a woman has five grown up daughters she ought to give over thinking of her own beauty In such cases a woman has not often much beauty to think of But my dear you must indeed go and see Mr Bingley when he comes into the neighbourhood It is more than I engage for I assure you But consider your daughters Only think what an establishment it would be for one of them Sir William and Lady Lucas are determined to go merely on that account for in general you know they visit no new comers Indeed you must go for it will be impossible for us to visit him if you do not You are over scrupulous surely I dare say Mr Bingley will be very glad to see you and I will send a few lines by you to assure him of my hearty consent to his marrying whichever he chuses of the girls though I must throw in a good word for my little Lizzy I desire you will do no such thing Lizzy is not a bit better than the others and I am sure she is not half so handsome as Jane nor half so

good humoured as Lydia But you are always giving her the preference They have none of them much to recommend them replied he they are all silly and ignorant like other girls but Lizzy has something more of quickness than her sisters Mr Bennet how can you abuse your own children in such a way You take delight in vexing me You have no compassion on my poor nerves You mistake me my dear I have a high respect for your nerves They are my old friends I have heard you mention them with consideration these twenty years at least Ah you do not know what I suffer But I hope you will get over it and live to see many young men of four thousand a year come into the neighbourhood It will be no use to us if twenty such should come since you will not visit them Depend upon it my dear that when there are twenty I will visit them all Mr Bennet was so odd a mixture of quick parts sarcastic humour reserve and caprice that the experience of three and twenty years had been insufficient to make his wife understand his character Her mind was less difficult to develope She was a woman of mean understanding little information and uncertain temper When she was discontented she fancied herself nervous The business of her life was to get her daughters married its solace was visiting and news '

Find all the words in `multiline_text` using the `split` function

```
[20]: list_of_words = multiline_text_alphanum.split()
list_of_words
```

```
[20]: ['It',
      'is',
      'a',
      'truth',
      'universally',
      'acknowledged',
      'that',
      'a',
      'single',
      'man',
      'in',
      'possession',
      'of',
      'a',
      'good',
      'fortune',
      'must',
      'be',
      'in',
      'want',
      'of',
      'a',
      'wife',
```

'However',
'little',
'known',
'the',
'feelings',
'or',
'views',
'of',
'such',
'a',
'man',
'may',
'be',
'on',
'his',
'first',
'entering',
'a',
'neighbourhood',
'this',
'truth',
'is',
'so',
'well',
'fixed',
'in',
'the',
'minds',
'of',
'the',
'surrounding',
'families',
'that',
'he',
'is',
'considered',
'as',
'the',
'rightful',
'property',
'of',
'some',
'one',
'or',
'other',
'of',
'their',

'daughters',
'My',
'dear',
'Mr',
'Bennet',
'said',
'his',
'lady',
'to',
'him',
'one',
'day',
'have',
'you',
'heard',
'that',
'Netherfield',
'Park',
'is',
'let',
'at',
'last',
'Mr',
'Bennet',
'replied',
'that',
'he',
'had',
'not',
'But',
'it',
'is',
'returned',
'she',
'for',
'Mrs',
'Long',
'has',
'just',
'been',
'here',
'and',
'she',
'told',
'me',
'all',
'about',

'it',
'Mr',
'Bennet',
'made',
'no',
'answer',
'Do',
'not',
'you',
'want',
'to',
'know',
'who',
'has',
'taken',
'it',
'cried',
'his',
'wife',
'impatiently',
'You',
'want',
'to',
'tell',
'me',
'and',
'I',
'have',
'no',
'objection',
'to',
'hearing',
'it',
'This',
'was',
'invitation',
'enough',
'Why',
'my',
'dear',
'you',
'must',
'know',
'Mrs',
'Long',
'says',
'that',

'Netherfield',
'is',
'taken',
'by',
'a',
'young',
'man',
'of',
'large',
'fortune',
'from',
'the',
'north',
'of',
'England',
'that',
'he',
'came',
'down',
'on',
'Monday',
'in',
'a',
'chaise',
'and',
'four',
'to',
'see',
'the',
'place',
'and',
'was',
'so',
'much',
'delighted',
'with',
'it',
'that',
'he',
'agreed',
'with',
'Mr',
'Morris',
'immediately',
'that',
'he',
'is',

'to',
'take',
'possession',
'before',
'Michaelmas',
'and',
'some',
'of',
'his',
'servants',
'are',
'to',
'be',
'in',
'the',
'house',
'by',
'the',
'end',
'of',
'next',
'week',
'What',
'is',
'his',
'name',
'Bingley',
'Is',
'he',
'married',
'or',
'single',
'Oh',
'single',
'my',
'dear',
'to',
'be',
'sure',
'A',
'single',
'man',
'of',
'large',
'fortune',
'four',
'or',

'five',
'thousand',
'a',
'year',
'What',
'a',
'fine',
'thing',
'for',
'our',
'girls',
'How',
'so',
'how',
'can',
'it',
'affect',
'them',
'My',
'dear',
'Mr',
'Bennet',
'replied',
'his',
'wife',
'how',
'can',
'you',
'be',
'so',
'tiresome',
'You',
'must',
'know',
'that',
'I',
'am',
'thinking',
'of',
'his',
'marrying',
'one',
'of',
'them',
'Is',
'that',
'his',

'design',
'in',
'settling',
'here',
'Design',
'nonsense',
'how',
'can',
'you',
'talk',
'so',
'But',
'it',
'is',
'very',
'likely',
'that',
'he',
'may',
'fall',
'in',
'love',
'with',
'one',
'of',
'them',
'and',
'therefore',
'you',
'must',
'visit',
'him',
'as',
'soon',
'as',
'he',
'comes',
'I',
'see',
'no',
'occasion',
'for',
'that',
'You',
'and',
'the',
'girls',

'may',
'go',
'or',
'you',
'may',
'send',
'them',
'by',
'themselves',
'which',
'perhaps',
'will',
'be',
'still',
'better',
'for',
'as',
'you',
'are',
'as',
'handsome',
'as',
'any',
'of',
'them',
'Mr',
'Bingley',
'might',
'like',
'you',
'the',
'best',
'of',
'the',
'party',
'My',
'dear',
'you',
'flatter',
'me',
'I',
'certainly',
'have',
'had',
'my',
'share',
'of',

'beauty',
'but',
'I',
'do',
'not',
'pretend',
'to',
'be',
'any',
'thing',
'extraordinary',
'now',
'When',
'a',
'woman',
'has',
'five',
'grown',
'up',
'daughters',
'she',
'ought',
'to',
'give',
'over',
'thinking',
'of',
'her',
'own',
'beauty',
'In',
'such',
'cases',
'a',
'woman',
'has',
'not',
'often',
'much',
'beauty',
'to',
'think',
'of',
'But',
'my',
'dear',
'you',

'must',
'indeed',
'go',
'and',
'see',
'Mr',
'Bingley',
'when',
'he',
'comes',
'into',
'the',
'neighbourhood',
'It',
'is',
'more',
'than',
'I',
'engage',
'for',
'I',
'assure',
'you',
'But',
'consider',
'your',
'daughters',
'Only',
'think',
'what',
'an',
'establishment',
'it',
'would',
'be',
'for',
'one',
'of',
'them',
'Sir',
'William',
'and',
'Lady',
'Lucas',
'are',
'determined',
'to',

'go',
'merely',
'on',
'that',
'account',
'for',
'in',
'general',
'you',
'know',
'they',
'visit',
'no',
'new',
'comers',
'Indeed',
'you',
'must',
'go',
'for',
'it',
'will',
'be',
'impossible',
'for',
'us',
'to',
'visit',
'him',
'if',
'you',
'do',
'not',
'You',
'are',
'over',
'scrupulous',
'surely',
'I',
'dare',
'say',
'Mr',
'Bingley',
'will',
'be',
'very',
'glad',

'to',
'see',
'you',
'and',
'I',
'will',
'send',
'a',
'few',
'lines',
'by',
'you',
'to',
'assure',
'him',
'of',
'my',
'hearty',
'consent',
'to',
'his',
'marrying',
'whichever',
'he',
'chuses',
'of',
'the',
'girls',
'though',
'I',
'must',
'throw',
'in',
'a',
'good',
'word',
'for',
'my',
'little',
'Lizzy',
'I',
'desire',
'you',
'will',
'do',
'no',
'such',

'thing',
'Lizzy',
'is',
'not',
'a',
'bit',
'better',
'than',
'the',
'others',
'and',
'I',
'am',
'sure',
'she',
'is',
'not',
'half',
'so',
'handsome',
'as',
'Jane',
'nor',
'half',
'so',
'good',
'humoured',
'as',
'Lydia',
'But',
'you',
'are',
'always',
'giving',
'her',
'the',
'preference',
'They',
'have',
'none',
'of',
'them',
'much',
'to',
'recommend',
'them',
'replied',

'he',
'they',
'are',
'all',
'silly',
'and',
'ignorant',
'like',
'other',
'girls',
'but',
'Lizzy',
'has',
'something',
'more',
'of',
'quickness',
'than',
'her',
'sisters',
'Mr',
'Bennet',
'how',
'can',
'you',
'abuse',
'your',
'own',
'children',
'in',
'such',
'a',
'way',
'You',
'take',
'delight',
'in',
'vexing',
'me',
'You',
'have',
'no',
'compassion',
'on',
'my',
'poor',
'nerves',

'You',
'mistake',
'me',
'my',
'dear',
'I',
'have',
'a',
'high',
'respect',
'for',
'your',
'nerves',
'They',
'are',
'my',
'old',
'friends',
'I',
'have',
'heard',
'you',
'mention',
'them',
'with',
'consideration',
'these',
'twenty',
'years',
'at',
'least',
'Ah',
'you',
'do',
'not',
'know',
'what',
'I',
'suffer',
'But',
'I',
'hope',
'you',
'will',
'get',
'over',
'it',

'and',
'live',
'to',
'see',
'many',
'young',
'men',
'of',
'four',
'thousand',
'a',
'year',
'come',
'into',
'the',
'neighbourhood',
'It',
'will',
'be',
'no',
'use',
'to',
'us',
'if',
'twenty',
'such',
'should',
'come',
'since',
'you',
'will',
'not',
'visit',
'them',
'Depend',
'upon',
'it',
'my',
'dear',
'that',
'when',
'there',
'are',
'twenty',
'I',
'will',
'visit',

'them',
'all',
'Mr',
'Bennet',
'was',
'so',
'odd',
'a',
'mixture',
'of',
'quick',
'parts',
'sarcastic',
'humour',
'reserve',
'and',
'caprice',
'that',
'the',
'experience',
'of',
'three',
'and',
'twenty',
'years',
'had',
'been',
'insufficient',
'to',
'make',
'his',
'wife',
'understand',
'his',
'character',
'Her',
'mind',
'was',
'less',
'difficult',
'to',
'develope',
'She',
'was',
'a',
'woman',
'of',

```
'mean',
'understanding',
'little',
'information',
'and',
'uncertain',
'temper',
'When',
'she',
'was',
'discontented',
'she',
'fancied',
'herself',
'nervous',
'The',
'business',
'of',
'her',
'life',
'was',
'to',
'get',
'her',
'daughters',
'married',
'its',
'solace',
'was',
'visiting',
'and',
'news']
```

Create a list from this list that will contain only the unique words

```
[32]: unique_words = set(list_of_words)
unique_words
```

```
[32]: {'A',
'Ah',
'Bennet',
'Bingley',
'But',
'Depend',
'Design',
'Do',
'England',
```

'Her',
'How',
'However',
'I',
'In',
'Indeed',
'Is',
'It',
'Jane',
'Lady',
'Lizzy',
'Long',
'Lucas',
'Lydia',
'Michaelmas',
'Monday',
'Morris',
'Mr',
'Mrs',
'My',
'Netherfield',
'Oh',
'Only',
'Park',
'She',
'Sir',
'The',
'They',
'This',
'What',
'When',
'Why',
'William',
'You',
'a',
'about',
'abuse',
'account',
'acknowledged',
'affect',
'agreed',
'all',
'always',
'am',
'an',
'and',
'answer',

'any',
'are',
'as',
'assure',
'at',
'be',
'beauty',
'been',
'before',
'best',
'better',
'bit',
'business',
'but',
'by',
'came',
'can',
'caprice',
'cases',
'certainly',
'chaise',
'character',
'children',
'chuses',
'come',
'comers',
'comes',
'compassion',
'consent',
'consider',
'consideration',
'considered',
'cried',
'dare',
'daughters',
'day',
'dear',
'delight',
'delighted',
'design',
'desire',
'determined',
'develope',
'difficult',
'discontented',
'do',
'down',

'end',
'engage',
'enough',
'entering',
'establishment',
'experience',
'extraordinary',
'fall',
'families',
'fancied',
'feelings',
'few',
'fine',
'first',
'five',
'fixed',
'flatter',
'for',
'fortune',
'four',
'friends',
'from',
'general',
'get',
'girls',
'give',
'giving',
'glad',
'go',
'good',
'grown',
'had',
'half',
'handsome',
'has',
'have',
'he',
'heard',
'hearing',
'hearty',
'her',
'here',
'herself',
'high',
'him',
'his',
'hope',

'house',
'how',
'humour',
'humoured',
'if',
'ignorant',
'immediately',
'impatiently',
'impossible',
'in',
'indeed',
'information',
'insufficient',
'into',
'invitation',
'is',
'it',
'its',
'just',
'know',
'known',
'lady',
'large',
'last',
'least',
'less',
'let',
'life',
'like',
'likely',
'lines',
'little',
'live',
'love',
'made',
'make',
'man',
'many',
'married',
'marrying',
'may',
'me',
'mean',
'men',
'mention',
'merely',
'might',

'mind',
'minds',
'mistake',
'mixture',
'more',
'much',
'must',
'my',
'name',
'neighbourhood',
'nerves',
'nervous',
'new',
'news',
'next',
'no',
'none',
'nonsense',
'nor',
'north',
'not',
'now',
'objection',
'occasion',
'odd',
'of',
'often',
'old',
'on',
'one',
'or',
'other',
'others',
'ought',
'our',
'over',
'own',
'parts',
'party',
'perhaps',
'place',
'poor',
'possession',
'preference',
'pretend',
'property',
'quick',

'quickness',
'recommend',
'replied',
'reserve',
'respect',
'returned',
'rightful',
'said',
'sarcastic',
'say',
'says',
'scrupulous',
'see',
'send',
'servants',
'settling',
'share',
'she',
'should',
'silly',
'since',
'single',
'sisters',
'so',
'solace',
'some',
'something',
'soon',
'still',
'such',
'suffer',
'sure',
'surely',
'surrounding',
'take',
'taken',
'talk',
'tell',
'temper',
'than',
'that',
'the',
'their',
'them',
'themselves',
'there',
'therefore',

'these',
'they',
'thing',
'think',
'thinking',
'this',
'though',
'thousand',
'three',
'throw',
'tiresome',
'to',
'told',
'truth',
'twenty',
'uncertain',
'understand',
'understanding',
'universally',
'up',
'upon',
'us',
'use',
'very',
'vexing',
'views',
'visit',
'visiting',
'want',
'was',
'way',
'week',
'well',
'what',
'when',
'which',
'whichever',
'who',
'wife',
'will',
'with',
'woman',
'word',
'would',
'year',
'years',
'you',

```
'young',  
'your']}
```

Count the number of times the unique word has appeared in the list using the **key** and **value** in **dict**

```
[34]: # Creates Dictionary of the Unique Words  
unique_words_as_dict = dict.fromkeys(list_of_words)
```

```
[35]: # Count of words Function  
for word in list_of_words:  
    if unique_words_as_dict[word] is None:  
        unique_words_as_dict[word] = 1  
    else:  
        unique_words_as_dict[word] += 1  
unique_words_as_dict
```

```
[35]: {'It': 3,  
      'is': 12,  
      'a': 20,  
      'truth': 2,  
      'universally': 1,  
      'acknowledged': 1,  
      'that': 15,  
      'single': 4,  
      'man': 4,  
      'in': 11,  
      'possession': 2,  
      'of': 29,  
      'good': 3,  
      'fortune': 3,  
      'must': 7,  
      'be': 11,  
      'want': 3,  
      'wife': 4,  
      'However': 1,  
      'little': 3,  
      'known': 1,  
      'the': 17,  
      'feelings': 1,  
      'or': 5,  
      'views': 1,  
      'such': 5,  
      'may': 4,  
      'on': 4,  
      'his': 11,  
      'first': 1,
```

'entering': 1,
'neighbourhood': 3,
'this': 1,
'so': 8,
'well': 1,
'fixed': 1,
'minds': 1,
'surrounding': 1,
'families': 1,
'he': 11,
'considered': 1,
'as': 8,
'rightful': 1,
'property': 1,
'some': 2,
'one': 5,
'other': 2,
'their': 1,
'daughters': 4,
'My': 3,
'dear': 8,
'Mr': 10,
'Bennet': 6,
'said': 1,
'lady': 1,
'to': 22,
'him': 4,
'day': 1,
'have': 7,
'you': 24,
'heard': 2,
'Netherfield': 2,
'Park': 1,
'let': 1,
'at': 2,
'last': 1,
'replied': 3,
'had': 3,
'not': 9,
'But': 6,
'it': 11,
'returned': 1,
'she': 6,
'for': 11,
'Mrs': 2,
'Long': 2,
'has': 5,

'just': 1,
'been': 2,
'here': 2,
'and': 17,
'told': 1,
'me': 5,
'all': 3,
'about': 1,
'made': 1,
'no': 7,
'answer': 1,
'Do': 1,
'know': 5,
'who': 1,
'taken': 2,
'cried': 1,
'impatiently': 1,
'You': 7,
'tell': 1,
'I': 17,
'objection': 1,
'hearing': 1,
'This': 1,
'was': 8,
'invitation': 1,
'enough': 1,
'Why': 1,
'my': 10,
'says': 1,
'by': 4,
'young': 2,
'large': 2,
'from': 1,
'north': 1,
'England': 1,
'came': 1,
'down': 1,
'Monday': 1,
'chaise': 1,
'four': 3,
'see': 5,
'place': 1,
'much': 3,
'delighted': 1,
'with': 4,
'agreed': 1,
'Morris': 1,

'immediately': 1,
'take': 2,
'before': 1,
'Michaelmas': 1,
'servants': 1,
'are': 8,
'house': 1,
'end': 1,
'next': 1,
'week': 1,
'What': 2,
'name': 1,
'Bingley': 4,
'Is': 2,
'married': 2,
'Oh': 1,
'sure': 2,
'A': 1,
'five': 2,
'thousand': 2,
'year': 2,
'fine': 1,
'thing': 3,
'our': 1,
'girls': 4,
'How': 1,
'how': 4,
'can': 4,
'affect': 1,
'them': 11,
'tiresome': 1,
'am': 2,
'thinking': 2,
'marrying': 2,
'design': 1,
'settling': 1,
'Design': 1,
'nonsense': 1,
'talk': 1,
'very': 2,
'likely': 1,
'fall': 1,
'love': 1,
'therefore': 1,
'visit': 5,
'soon': 1,
'comes': 2,

'occasion': 1,
'go': 4,
'send': 2,
'themselves': 1,
'which': 1,
'perhaps': 1,
'will': 9,
'still': 1,
'better': 2,
'handsome': 2,
'any': 2,
'might': 1,
'like': 2,
'best': 1,
'party': 1,
'flatter': 1,
'certainly': 1,
'share': 1,
'beauty': 3,
'but': 2,
'do': 4,
'pretend': 1,
'extraordinary': 1,
'now': 1,
'When': 2,
'woman': 3,
'grown': 1,
'up': 1,
'ought': 1,
'give': 1,
'over': 3,
'her': 5,
'own': 2,
'In': 1,
'cases': 1,
'often': 1,
'think': 2,
'indeed': 1,
'when': 2,
'into': 2,
'more': 2,
'than': 3,
'engage': 1,
'assure': 2,
'consider': 1,
'your': 3,
'Only': 1,

'what': 2,
'an': 1,
'establishment': 1,
'would': 1,
'Sir': 1,
'William': 1,
'Lady': 1,
'Lucas': 1,
'determined': 1,
'merely': 1,
'account': 1,
'general': 1,
'they': 2,
'new': 1,
'comers': 1,
'Indeed': 1,
'impossible': 1,
'us': 2,
'if': 2,
'scrupulous': 1,
'surely': 1,
'dare': 1,
'say': 1,
'glad': 1,
'few': 1,
'lines': 1,
'hearty': 1,
'consent': 1,
'whichever': 1,
'chuses': 1,
'though': 1,
'throw': 1,
'word': 1,
'Lizzy': 3,
'desire': 1,
'bit': 1,
'others': 1,
'half': 2,
'Jane': 1,
'nor': 1,
'humoured': 1,
'Lydia': 1,
'always': 1,
'giving': 1,
'preference': 1,
'They': 2,
'none': 1,

'recommend': 1,
'silly': 1,
'ignorant': 1,
'something': 1,
'quickness': 1,
'sisters': 1,
'abuse': 1,
'children': 1,
'way': 1,
'delight': 1,
'vexing': 1,
'compassion': 1,
'poor': 1,
'nerves': 2,
'mistake': 1,
'high': 1,
'respect': 1,
'old': 1,
'friends': 1,
'mention': 1,
'consideration': 1,
'these': 1,
'twenty': 4,
'years': 2,
'least': 1,
'Ah': 1,
'suffer': 1,
'hope': 1,
'get': 2,
'live': 1,
'many': 1,
'men': 1,
'come': 2,
'use': 1,
'should': 1,
'since': 1,
'Depend': 1,
'upon': 1,
'there': 1,
'odd': 1,
'mixture': 1,
'quick': 1,
'parts': 1,
'sarcastic': 1,
'humour': 1,
'reserve': 1,
'caprice': 1,

```

'experience': 1,
'three': 1,
'insufficient': 1,
'make': 1,
'understand': 1,
'character': 1,
'Her': 1,
'mind': 1,
'less': 1,
'difficult': 1,
'develope': 1,
'She': 1,
'mean': 1,
'understanding': 1,
'information': 1,
'uncertain': 1,
'temper': 1,
'discontented': 1,
'fancied': 1,
'herself': 1,
'nervous': 1,
'The': 1,
'business': 1,
'life': 1,
'its': 1,
'solace': 1,
'visiting': 1,
'news': 1}

```

Find the top 25 words from the unique words that you have found using the **slice** function

```

[54]: # Sorts the words in reverse order to display highest first.
top_words = sorted(unique_words_as_dict.items(), key=lambda key_val_tuple: ↵
    ↪key_val_tuple[1], reverse=True)

```

```

[55]: # Display the Top 25 Words
top_words[:25]

```

```

[55]: [('of', 29),
      ('you', 24),
      ('to', 22),
      ('a', 20),
      ('the', 17),
      ('and', 17),
      ('I', 17),
      ('that', 15),
      ('is', 12),

```

```
( 'in', 11),
( 'be', 11),
( 'his', 11),
( 'he', 11),
( 'it', 11),
( 'for', 11),
( 'them', 11),
( 'Mr', 10),
( 'my', 10),
( 'not', 9),
( 'will', 9),
( 'so', 8),
( 'as', 8),
( 'dear', 8),
( 'was', 8),
( 'are', 8)]
```

Data Wrangling with Python: Activity 3 page 49

Look up the definition of **permutations** and **dropwhile** from **itertools**

```
[57]: # Import Libraries
      from itertools import permutations, dropwhile
```

```
[68]: permutations?
```

Definition

Init signature: `permutations(iterable, r=None)` Docstring:

Return successive r-length permutations of elements in the iterable.

`permutations(range(3), 2) -> (0,1), (0,2), (1,0), (1,2), (2,0), (2,1)` Type: type Subclasses:

```
[67]: dropwhile?
```

Definition

Init signature: `dropwhile(predicate, iterable, /)` Docstring:

Drop items from the iterable while `predicate(item)` is true.

Afterwards, return every element until the iterable is exhausted. Type: type Subclasses:

Write an expression to generate all the possible three-digit numbers using **0**, **1**, and **2**

```
[62]: # Create Permutations
      permutations(range(3))
```

```
[62]: <itertools.permutations at 0x7fe26a45b9a0>
```

Loop over the iterator expression you generated before. Print each element that is returned by the iterator. Use **assert** and **isinstance** to make sure that the elements are of the tuple type.

```
[66]: # Loop over each permutation and print
for numbers in permutations(range(3)):
    print(number)
    assert isinstance(numbers, tuple)
```

```
(0, 1, 2)
(0, 2, 1)
(1, 0, 2)
(1, 2, 0)
(2, 0, 1)
(2, 1, 0)
```

Write the loop again using **dropwhile** with lambda expression to drop any of the leading zeros from the tuples. As an example, (0,1,2) will become [0,2]. Also, cast the output of **dropwhile** to a list.

```
[88]: # Remove leading zeros from permutations
for numbers in permutations(range(3)):
    zeros_dropped = list(dropwhile(lambda x: x <= 0, numbers))
    print(zeros_dropped)
```

```
[1, 2]
[2, 1]
[1, 0, 2]
[1, 2, 0]
[2, 0, 1]
[2, 1, 0]
```

Check the actual type **dropwhile** returns

```
[89]: type(zeros_dropped)
```

```
[89]: list
```

Combine the preceding code into one block, and this time write a separate function where you will pass the list generated from **dropwhile**, and the function will return the whole number contained in the list. As an example if you pass [1,2] to the function, it will return 12. Make sure that the return type is indeed a number and not a string, Although this task can be achieved using other tricks, we require that you treat the incoming list as a stack in the function and generate the number by reading the individual digits from the stack.

```
[102]: # Converts tuples into numbers
import math
def convert_to_number(number_stack):
    final_number = 0
    for i in range(0, len(number_stack)):
        final_number += (number_stack.pop() * (math.pow(10, i)))
    return final_number
```

```
for numbers in permutations(range(3)):
    zeros_dropped = list(dropwhile(lambda x: x <= 0, numbers))
    print(convert_to_number(zeros_dropped))
```

```
12.0
21.0
102.0
120.0
201.0
210.0
```

Data Wrangling with Python: Activity 4 page 59

Import **zip_longest** from **itertools**. Create a function to zip **header**, **line** and **fillvalue=None**.

```
[4]: # Import Libraries
from itertools import zip_longest

[5]: # Creates a function to zip header, line
def return_dict_from_csv_line(header, line):
    # Zips
    zipped_line = zip_longest(header, line, fillvalue=None)
    # Creates final dictionary
    ret_dict = {kv[0]: kv[1] for kv in zipped_line}
    return ret_dict
```

Open the accompanying **sales_record.csv** file from the Github link by using **r** mode inside a **with** block and first check that it is opened

Read the first line and use string methods to generate a list of all the column names

Start reading the file. Read it line by line.

Read each line and pass that line to a function, along with the list of the headers. The word of the function is to construct a dict out of these two and fill up the **key:values**. Keep in mind that the missing value should result in **None**.

```
[10]: # Opens csv and reads line by line
with open("sales_record.csv", "r") as fd:
    first_line = fd.readline()
    header = first_line.replace("\n", "").split(",")
    for i, line in enumerate(fd):
        # Here we loop over the first 10 lines in order to not to make the
        ↪ output too big
        line = line.replace("\n", "").split(",")
        d = return_dict_from_csv_line(header, line)
        print(d)
        # Only displays two for lenght purposes
        if i > 2:
            break
```

```
{'Region': 'Central America and the Caribbean', 'Country': 'Antigua and Barbuda', 'Item Type': 'Baby Food', 'Sales Channel': 'Online', 'Order Priority': 'M', 'Order Date': '12/20/2013', 'Order ID': '957081544', 'Ship Date': '1/11/2014', 'Units Sold': '552', 'Unit Price': '255.28', 'Unit Cost': '159.42', 'Total Revenue': '140914.56', 'Total Cost': '87999.84', 'Total Profit': '52914.72'}
{'Region': 'Central America and the Caribbean', 'Country': 'Panama', 'Item Type': 'Snacks', 'Sales Channel': 'Offline', 'Order Priority': 'C', 'Order Date': '7/5/2010', 'Order ID': '301644504', 'Ship Date': '7/26/2010', 'Units Sold': '2167', 'Unit Price': '152.58', 'Unit Cost': '97.44', 'Total Revenue': '330640.86', 'Total Cost': '211152.48', 'Total Profit': '119488.38'}
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