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Read the Term Project Instructions in the Term Project link in the course menu

~~1. Create a list of 100 random numbers.~~

~~2. Create a new list from this random list, with numbers that are divisibleby 3.~~

~~3. Calculate the length of these two lists and store the difference in a new variable.~~

~~4. Using a loop, perform steps 1, 2, and 3, and find the difference variable 10 times.~~

~~5. Find the arithmetic mean of these 10 difference values.The output (will vary with each run) should look similar to this:66.3~~

~~Activity 1.02: Analyzing a Multiline String and Generating the Unique WordCountIn this activity, you will do the following:• Get multiline text and save it in a Python variable.• Get rid of all new lines in it using string methods.• Get all the unique words and their occurrences from the string.• Repeat the steps to find all unique words and occurrences, without consideringcase sensitivity.~~

~~NoteFor the sake of simplicity, the original text (which can be found athttps://www.gutenberg.org/files/1342/1342-h/1342-h.htm) has been pre-processed bit.~~

~~These are the steps to guide you through solving this activity:~~

1. ~~Create a mutliline\_text variable by copying the text from the first chapter of Pride and Prejudice. Hint: Remember to add triple quotation marks to enter a multiline text. This is the only way to enter a chunk of text in Python. Note Part of the first chapter of Pride and Prejudice by Jane Austen has been made available on this book's GitHub repository at <https://packt.live/2N6ZGP6>.~~

~~2. Find the type and length of the multiline\_text string using the type andlen commands.~~

~~3. Remove all new lines and symbols using the replace method.~~

~~4. Find all of the words in multiline\_text using the split method.~~

~~5. Create a list from this list that will contain only the unique words.~~

~~6. Count the number of times the unique word has appeared in the list using thekey and value in dict.~~

~~7. Find the top 25 words from the unique words that you have found using theslice method.~~

~~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 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 you not 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 may 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 anything 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 newcomers. 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 chooses 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 for 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 last 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 develop. 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."""~~

~~Activity 2.01: Permutation, Iterator, Lambda, and List~~

~~In this activity, we will be using permutations to generate all possible three-digitnumbers that can be generated using 0, 1, and 2. A permutation is a mathematicalway to represent all possible outcomes. Then, we'll loop over this iterator and alsouse isinstance and assert to make sure that the return types are tuples. Use asingle line of code involving dropwhile and lambda expressions to convert all thetuples to lists while dropping any leading zeros (for example, (0, 1, 2) becomes[1, 2]). Finally, we will write a function that takes a list like before and returns theactual number contained in it.~~

~~These steps will guide you as to how to solve this activity:~~

~~1. Look up the definition of permutations and dropwhile from itertools.~~

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

~~3. Loop over the iterator expression you generated before. Print each elementreturned by the iterator. Use assert and isinstance to make sure that theelements are of the tuple type.~~

~~4. Write the loop again, using dropwhile, with a lambda expression to drop anyleading zeros from the tuples. As an example, (0, 1, 2) will become [0, 2].Also, cast the output of dropwhile to a list.~~

~~5. Check the actual type that dropwhile returns.~~

~~6. Combine the preceding code into one block; 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, treat the incoming list as a stack in the function and generate the number by reading the individual digits from the stack.~~

~~Activity 2.02: Designing Your Own CSV Parser~~

~~A CSV file is something you will encounter a lot in your life as a data practitioner. A CSV file is a comma-separated file where data from a tabular format is generally stored and separated using commas, although other characters can also be used, such as tab or \*. Here's an example CSV file:~~

~~n this activity, we will be tasked with building our own CSV reader and parser. Although it is a big task if we try to cover all use cases and edge cases, along with escape characters, for the sake of this short activity, we will keep our requirements small. We will assume that there is no escape character—meaning that if you use a comma at any place in your row, you are starting a new column. We will also assume that the only function we are interested in is to be able to read a CSV file line by line, where each read will generate a new dictionary with the column names as keys and row names as values. Here is an example: Figure 2.13: Table with sample data We can convert the data in the preceding table into a Python dictionary, which would look as follows: {"Name": "Bob", "Age": "24", "Location": "California"}:~~

~~1. Import zip\_longest from itertools. Create a function to zip header, line, and fillvalue=None.Open the accompanying sales\_record.csv file from the GitHub link(https://packt.live/2Yb6iCh) by using r mode inside a with block and check that itis opened.~~

~~2. Read the first line and use string methods to generate a list of all the column names.~~

~~3. Start reading the file. Read it line by line.~~

~~4. Read each line and pass that line to a function, along with the list of the headers. The work of the function is to construct a dictionary out of these two and fill up the key: values variables. Keep in mind that a missing value should result in None.~~