Concatenate list python into string

This article describes how to concatenate strings in Python. Concatenate several strings: + operator, += Concatenate operator strings and numbers: + operator, += operator, str(), format() Concatenate a list of strings on a string: join() Concatenate a list of numbers in a string: join(), str() Concatenate multiple strings: + operator, += operator + operator You can use the operator + to connate literal strings ('...' or ...) and string variables. s = 'aaa' + 'bbb' + 'ccc' print(s) # aaabbbccc s1 = 'aaa' s2 = 'bbb' s3 = 'ccc' s = s1 + s2 + s3 print(s) # aaabbbccc s = s1 + s2 + s3 + 'ddd' print(s) # aaabbbcccddd += operator The operator at the site += can also be used. The string on the right is concatenated after the string variable on the left. s1 += s2 print(s1) # aaabbb If you want to add a string to the end of a string variable, use the += operator. s = 'aaa' s += 'xxx' print(s) # aaaxxx Concatenate writing string literals consecutively If you write literal letters consecutively, they are concatenated. s = 'aaa"bbb"ccc' print(s) # aaabbbccc If there are multiple spaces or new lines with backslash (considered as continuation lines) between strings, they are also concatenated. s = 'aaa' 'bbb' 'ccc' print(s) # aaabbbccc s = 'aaa'\ 'bbb'\ 'ccc' print(s) # aaabbbccc Using this, you can write long strings on multiple lines in the code. Related: Write a long sequence in multiple lines of code in Python You cannot do this for string variables. # s = s1 s2 s3 # Sintaxerror: invalid syntax Strings and concatenate numbers: + operator, += operator, str(), format() Different types of + operations raise an error. s1 = 'aaa' s2 = 'bbb' i = 100 f = 0.25 # s = s1 + i # TypeError: must be str, not int If you want to concatenate a number, such as an integer or a floating-point float, with a string, convert the number into a string with str() and then use the operator + or += operator. s = s1 + '_' + str(i) + '_' + s2 + '_' + str(f) print(s) # aaa_100_bbb_0.25 Use the format() function or string() method format if you want to convert the number format, such as zero padding or decimal places. string — Common string operations — Python 3.8.1 documentation s = s1 + '_' + format(i, '05') + '_' + s2 + '_' + format(f, '.5f') print(s) # aaa_00100_bbb_0.25000 s = '{}_{:05}_{}{{:.5f}}'.format(s1, i, s2, f print(s) # aaa_00100_bbb_0.25000 Concatena a list of strings in a string: join() The string method can be used to concatenate a string list into a single string. Embedded types - str - join() — Python 3.8.1 Documentation Write as follows: 'String to insert'.join([string list]) Call 'String to insert' and pass [String list]. If you use an empty sequence '', [String List] is simply concatenated, if you use a comma, it is a comma-delimited sequence. If a newline character is used, a one will be inserted for each string. l = ['aaa', 'bbb', 'ccc" = ''.join(l) print(s) # aaabbbccc s = ','.join(l) print(s) # aaa,bbb,ccc s = '-'.join(l) print (l) print(s) # aaa-bbb-ccc s = ''.join(l) print(s) # aaa # bbb # ccc Note that only one example of a list has been described here, but other itetable objects such as tuples may be equally specified as adarer arguments(). Use split() to split a separate string by a specific delimiter and get it as a list. See the following article for details. Related: Strings divided into Python (delimiter, line break, regex, etc.) Concatenate a list of numbers into a sequence: join(), str() If you define a non-sequence list to participate(), an error occurs. l = [0, 1, 2] # s = '-'.join(l) # TypeError: sequence item 0: instance str expected, int found If you want to concatenate a list of numbers in a single sequence, apply the str() function to each element in the understanding of the list to convert numbers into strings, then concatenate them with join(). s = '-'.join([str(n) for n in l]) print(s) # 0-1-2 Can be written as a generator expression, which is a generating version of list understandings. Generator expressions are closed in parentheses (), but you can omit () if the generator expression is the only argument of a function or method. s = '-'.join((str(n) for n in l)) print(s) # 0-1-2 s = '-'.join(str(n) for n in l) print(s) # 0-1-2 In general, generator expressions have an advantage that memory usage is reduced compared to understanding the list. However, because join() internally converts a generator into a list, there is no advantage to using generating expressions. See the following article for details on list understandings and generator expressions. Related: Understanding the list in Python There are few guarantees in life: death, taxes and programmers who need to deal with ropes. Strings can come in many forms. They can be unstructured text, user names, product descriptions, database column names, or anything else we describe using language. With the almost ubiquity of string data, it's important to master the tools of commerce when it comes to strings. Fortunately, python makes string manipulation very simple, especially when compared to other languages and even older versions of Python. In this article, you'll learn some of the most fundamental string operations: division, concatenation, and adhering. You will not only learn how to use these tools, but you will also walk away with a deeper understanding of how they work under the hood. Take the quiz: Test your knowledge with our interactive Split, Concatenate and Join Python Strings test. Upon completion, you will receive a score so that you can your learning progress over time:Take the Quiz » In Python, the strings are represented as str objects, which are immutable: this means that the object represented in memory cannot be Changed. These two facts can help you learn (and then remember) how to use .split(). Have you ever guessed how these two string features relate to split functionality in Python? If you guess that .split() is an instance method because strings are a special type, you would be correct! In some other languages (such as Perl), the original sequence serves as an input to a standalone .split() function rather than a method called in the string itself. Note: Ways of calling sequence methods String methods such as .split() are shown primarily here as instance methods that are called in strings. They can also be called static methods, but this is not ideal because it is more wordy. For the sake of completeness, here's an example: # Avoid this: str.split ('a,b,c', '') That's bulky and clumsy when you compared it to preferred usage: # Do this instead: 'a,b,c'.split('') For more on the class, class, and static methods in Python, check out our in-depth tutorial. What about the immutability of the strings? This should remind you that string methods are not operations in place, but they return a new object to memory. Note: On-premises operations are operations that directly change the object on which they are called. A common example is the .append() method used in lists: when you call .appendix() in a list, this list changes directly by adding the entry to .appendix() to the same list. Before going deeper, let's look at a simple example: >>>>> 'this is my string'.split() ['this', 'is', 'my', 'string'] This is really a special case of a .split(), which I chose for its simplicity. Without any specified separator, .split() will count any white space as the separator. Another feature of the naked call to .split() is that it automatically cuts the leading white space and drag as well as the consecutive white space. Compare the .split() call in the following sequence without a separator parameter and with having ' as the separator parameter: >>>>>> s = ' this is my string ' >>> s.split() ['this', 'is', 'my', 'string'] >>>s.split(' '', '', 'this', '','my', 'string', ''] The first thing to note is that this shows the immutability of strings in Python: subsequent calls to .split() work on the original string, not in the result of the list of the first call to split(). The second — and the main thing — thing you should see is that the naked .split() call extracts the words in the sentence and discards any white space. .split(' '), on the other hand, is much more literal. When there are main or drag evens, you will have an empty sequence, which you can see in the first and last elements of the resulting list. Where there are several separators (as between this and is and between is and mine), the first will be used as separator, and subsequent ones will find their way into their list as empty strings. Note: Tabs on Calls to .split() While the above example uses a single-space character as a separator entry for .split(), you are not limited to the character types or string length that you use as separators. The only requirement is that your separator be a rope. You could use anything from... even separator. .split() has another optional parameter called maxsplit. By default, .split() will make all divisions possible when called. When you give a value to maxsplit, however, only the given number of splits will be made. Using our previous example sequence, we can see maxsplit in action: >>>>>>>>> s = this is my string >>> s.split (maxsplit=1) ['this', 'it's my string'] As you see above, if you set maxsplit to 1, the first whitespace region is used as separator, and the rest is ignored. Let's do some exercises to test everything we've learned so far. What happens when you give a negative number as the maxsplit parameter? .split() will split its sequence into all available splitters, which is also the default behavior when maxsplit is not set. Recently, a cipgula-separated value file (CSV) was delivered that was horribly formatted. Your job is to extract each row into a list, with each element of that list representing the columns in that file. What makes you poorly formatted? The address field includes multiple círios, but needs to be represented in the list as a single element! Suppose your file has been loaded into memory as the following multiline sequence: Name, phone number, Address Mike Smith,15554218841,123 Nice St, Roy, NM, USA Anita Hernandez,15557789941,425 Sunny St, New York, NY, USA Guido van Rossum,315558730,Science Park 123, 1098 XG Amsterdam, NL Your exit should be a list of lists: [['Mike Smith', '15554218841', '123 Nice St, Roy, NM, USA'], ['Anita Hernandez', '15557789941', '425 Sunny St, New York, NY, USA'], ['Guido van Rossum', '315558730', 'Science Park 123, 1098 XG Amsterdam, NL']] Each internal list represents the CSV lines we are interested in, while the external list holds everything together. Here's my solution. There are a few ways to attack this. The important thing is that you used .split() with all its optional parameters and obtained the expected output: input_string = Name,Phone, Address Mike Smith,15554218841.123 Nice St, Roy, NM, USA Anita Hernandez,15557789941,425 Sunny St, New York, NY USA Guido van Rossum,315558730,Science Park 123, 1098 XG Amsterdam, NL def string_split_ex(unplit): results = [] # Bonus points for using split lines() here instead , # that will be more readable to line in unplit.split('')[1:]: results.append(line.split(',', maxsplit=2)) print return results (string_split_ex(input_string)) We call .split() twice here. The first use may seem intimidating, but don't worry! We're going to go through this, and you're going to be comfortable with expressions like like Let's take another look at the first call .split(): unplit.split('')[1:]. The first element is unilluminated, which is just the variable that points to its input sequence. Then we have our call .split(): .split(''). Here, we are dividing into a special character called the newline character. What's the case? As the name implies, it says what is reading the string that each character should then be shown on the next line. In a multiline sequence like our input_string, there is a hidden at the end of each line. The final part can be new: [1:]. The statement so far gives us a new list in memory, and [1:] looks like a list index notation, and it is - more or less! This extended index notation gives us a list slice. In this case, we take the element in index 1 and everything after it, discarding the element at index 0. In all, we iterate through a list of strings, where each element represents each line in the multiline input sequence, except for the first line. In each sequence, we call it .split() again using , as the split character, but this time we are using maxsplit to split only in the first two círias, leaving the address intact. We then attach the result of this call to the appropriately named result matrix and return it to the caller. The other operation of fundamental strings is the opposite of split strings: string concatenation. If you haven't seen that word, don't worry. It's just a fancy way of saying sticking together. There are a few ways to do this, depending on what you are trying to achieve. The simplest and most common method is to use the action symbol (+) to add multiple strings. Just put a + between as many strings as you want to join: >>>>> 'a' + 'b' + 'c' 'abc' According to the mathematical theme, you can also multiply a string to repeat it: Remember, the strings are immutable! If you concatenate or repeat a string stored in a variable, you will have to assign the new sequence to another variable to maintain it. >>>>>> orig_string = 'Hello' >>> orig_string + ', world' 'Hello, world' >>> orig_string 'Hello' >>> full_sentence = orig_string + ', world' >>> full_sentence 'Hello, world' If we didn't have immutable strings, full_sentence would instead produce 'Hello, world, world'. Another note is that python does not do implicit string conversion. If you try to concatenate a string with a non-string type, Python will raise a TypeError: >>>>>>> 'Hello' + 2 Traceback (last recent call): File <stdin>, line 1, no <module>TypeError: must be str, not int This is because you can only concatenate strings with other strings, which may be a new behavior for you if you are coming from a language like JavaScript , which tries to make kind of There's another more powerful way to join strings. You can go from a list to a String in Python with the join() method. The common use case here is when</module> </stdin> </stdin> you have an itemable — like a list — composed of strings, and you want to combine those strings into a single sequence. Such as .split(), .join() is a string instance method. If all your strings are in an itemable, which one do you call .join() on? That's a rather difficult question. Remember that when you use .split(), you call the string or character you want to split. The opposite operation is .join(), so you call in the string or character you want to use to join your itemable string: >>>>> strings = ['do', 're', 'mi'] >>> ''.join(strings) 'do,re,mi' Here, we join each element of the string list with an angle (,) and call .join()instead of the string list. How can you make output text more readable? One thing you can do is add spacing: >>>>>>>> strings = ['do', 're', 'mi'] >>> ','.join(strings) 'do, re, mi' Doing nothing more than adding a space to our join string, we greatly improve the readability of our output. This is something you should always keep in mind when joining strings for human readability. .join() is smart in how to insert your joiner between the strings in the itemable you want to participate in, rather than just adding your joiner at the end of each string in the itemable. This means that if you go through an itemable size 1, you won't see your joiner: >>>> 'b'.join(['a']) 'a' Using our web scraping tutorial, you've built a great weather scraper. However, it loads string information in a list of lists, each holding a unique row of information you want to write out to a CSV file: [['Boston', 'MA', '76F', '65% Precip', '0.15 in'], ['San Francisco', 'CA', '62F', '20% Precip', '0.00 in'], ['Washington', 'DC', '82F', '80% Precip', '0.19 in'], ['Miami', 'FL', '79F', '50% Precip', '0.70 in']] Your output should be a single string that looks like this: Boston,MA,76F,65% Precip,0.15in San Francisco,CA,62F,20% Precip,0.00 in Washington,DC,82F,80% Precip,0.19 in Miami,FL,7 9F,5 0% Precip,0.70 in For this solution, I used a list comprehension, which is a powerful feature of Python that allows you to rapidly build lists. If you want to know more about them, check out this great article covering all the understandings available in Python. Below is my solution, starting with a list of lists and ending with a single string: input_list = [['Boston', 'MA', '76F', '65% Precip', '0.15 in'], ['San Francisco', 'CA', '62F', '20% Precip', '0.00 in'], ['Washington', 'DC', '82F', '80% Precip', '0.19 in'], ['Miami', 'FL', '79F', '50% Precip', '0.70 in'] # We started joining each inner list into a single string joined =[','.join(line) to line in input_list] # Now we turn the string list into a single sequence output = ''join.joined) print(joined) Here .join() not once, but twice. First, we use in understanding the list, which does the job of combining all the strings in internal list in a single sequence. Then we join each of these strings with the newline character we saw earlier. Finally, we simply print the result so that we can check if it is as we expected. While this concludes this overview of the most basic string operations in Python (split, concatenate, and join), there is still a whole universe of string methods that can make your experiences with manipulative strings much easier. After mastering these basic rope operations, you may want to learn more. Fortunately, we have a number of great tutorials to help you complete your mastery of Python features that enable intelligent string manipulation: Take the Quiz: Test your knowledge with our Interactive Split, Concatenate, and Join Strings test in Python. Upon completion, you will receive a score to track your learning progress over time:Take the Quiz »

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