

# CodeHelp


Individual Support for Student Learning  
Using Large Language Models

Mark Liffiton and Brad Sheese {mliffito,bsheese}@iwu.edu  
Illinois Wesleyan University

Illinois CS Summer Teaching Workshop, June 2023

# Motivation

**Me** How can I write a while loop in Python that starts at the last character in the string and works its way backwards to the first character in the string, printing each letter on a separate line?

 To write a while loop in Python that starts at the last character in a string and works its way backwards to the first character, you can use the following approach:

python

```
def print_string_backward(string):  
    index = len(string) - 1 # Get the index of the last character  
  
    while index >= 0: # Loop while the index is greater than or equal to 0  
        print(string[index]) # Print the character at the current index  
        index -= 1 # Move to the previous character
```

 Copy code

This code defines a function `print_string_backward` that takes a string as an argument. It initializes the `index` variable to the last character's index in the string (which is the length of the string minus 1).

The while loop runs as long as the index is greater than or equal to 0. Within the loop, it prints the character at the current index using `print(string[index])`, and then decrements the index by 1 with `index -= 1`, moving to the previous character in the string.

But this part  
could be useful!

# Motivation

- Use LLMs to provide additional support to students, whenever, wherever, and for whatever they need
- Help *without* providing solutions [code]

# CodeHelp, a Web Application

<https://codehelp.app/demo/ILCSWorkshop>



# CodeHelp (for Students)



**Language:**

Python



**Code:**

Copy just the *most relevant* part of your code here. Responses will be more helpful when you include only code relevant to your issue.

**Error Message:**

If your issue relates to an error message, copy the message here. Be sure to include the message itself and the quoted line on which it says the error occurred.

**Your Question:**

Clearly describe your issue or question. Include as relevant: what you are trying to do, what you expect the code to do, what the code actually does, and what you need help understanding.

Write a while loop that starts at the last character in the string and works its way backwards to the first character in the string, printing each letter on a separate line, except backwards.

Submit Request



**Issue / Question:** Write a while loop that starts at the last character in the string and works its way backwards to the first character in the string, printing each letter on a separate line, except backwards.

## Response *Remember: It will not always be correct!*

You can use a `while` loop to iterate over the characters in the string in reverse order. To do this, you can use the `len()` function to get the length of the string, and use the `range()` function to generate a sequence of numbers from the length of the string down to 0. Then you can use the `str[index]` syntax to access each character in the string.

To help you understand how this works, think about the following example:

Say you have a string `my_str = "Hello World"`. You can use the `len()` function to get the length of the string, which is 11. Then you can use the `range()` function to generate a sequence of numbers from 11 down to 0. This sequence of numbers will represent the indices of the characters in the string. Finally, you can use the `str[index]` syntax to access each character in the string.

Using this approach, you can iterate over the characters in the string in reverse order. This will print out each character in the string on a separate line, except backwards.



**Code:**

```
# enter and test your code here.  
def character_remover(word, character):  
    word = word.remove(character)  
    return word
```

**Error Message:**

Attribute Error

**Issue / Question:**

I want this function to print the word, excluding the character.

The error message you are seeing is an Attribute Error, which means that the object you are trying to access does not have the attribute or method you are trying to use. In this case, the object is the string `word` and the attribute you are trying to use is `remove()`. The `remove()` method is not a valid method for strings, so you are getting this error.

You can use the `replace()` method instead. This method takes two parameters: the substring you want to replace and the substring you want to replace it with. In this case, you want to replace the character with an empty string. To do this, you can pass an empty string as the second parameter to the `replace()` method. This will remove the character from the string.

For example, if you have a string `word = 'Hello'` and a character `character = 'l'`, you can remove the character from the string by calling `word.replace(character, '')`. This will return a new string with the character removed, `'Heo'`.



- Set class context

**Default Language:**

Python



**Keywords to Avoid:**

Any keywords you want the system to avoid or not use in responses for this class.

Write one per line.

Be careful! Writing "sum" will avoid discussing summation at all, while "sum()" will avoid just the sum function.

```
sum()  
join()  
+=  
zfill()
```

Submit





- Instructor view of users/queries

## Users

id	username	#queries	1wk
55	Sylvester	603	123
23	Emma	177	11
49	Bong	156	0
36	Winnie	115	7
25	James	111	12
21	Lynnette	104	2
19	Murray	103	11
15	Kayleigh	95	14
12	Mitchell	89	0
26	Kerrie	74	5

1 to 10 of 57  per page < 1 2 3 4 5 6 >

## Queries

id	user	time	lang	code	error	issue	response (len)	helpful
2459	Murray	2023-04-14 1:32pm	python	<code>df.loc[:, 'Survived_Recode ...</code>		The 0 and 1 values used to enc ...	main (1213)	✓
2458	Sylvester	2023-04-14 1:31pm	python	<code>m_mask = df['Sex'] == ...</code>		using pandas dataframes, how t ...	main (1264)	
2457	Kayleigh	2023-04-14 1:28pm	python	<code>df.loc[:, 'Pclass'].rep ...</code>	TypeError: list indices must b ...	Im using pandas. How do I use ...	insufficient (647) main (875)	
2456	Kayleigh	2023-04-14 1:27pm	python	<code>df.loc[:, 'Pclass'].rep ...</code>	TypeError: list indices must b ...	Im using pandas. How do I use ...	main (675)	
2455	James	2023-04-14 1:22pm	python	<code>df_big_3 = df.isin({'Name&amp; ...</code>		i want to the data frame ' ...	insufficient (792) main (1034)	
2454	Sylvester	2023-04-14 1:17pm	python	<code>df_sur = df.loc[(df.loc[:, ...</code>		using pandas dataframes, how t ...	main (996)	
2453	Lynnette	2023-04-14 1:17pm	python	<code>df_view_gross = df.set_columns ...</code>		How do I create a view of the ...	main (907)	
2452	James	2023-04-14 1:17pm	python			what is the syntax and documen ...	main (705)	
2451	James	2023-04-14 1:16pm	python	<code>big_musical = ['The Lion K ...</code>	TypeError: isin() takes 2 posi ...	im in pandas. im looking for t ...	main (769)	✗
2450	Murray	2023-04-14 1:14pm	python	<code>import urllib.request as reque ...</code>		Use .loc[] to replace the 1, 2 ...	main (825)	

161 to 170 of 2569  per page < 1 ... 15 16 17 18 19 ... 257 >



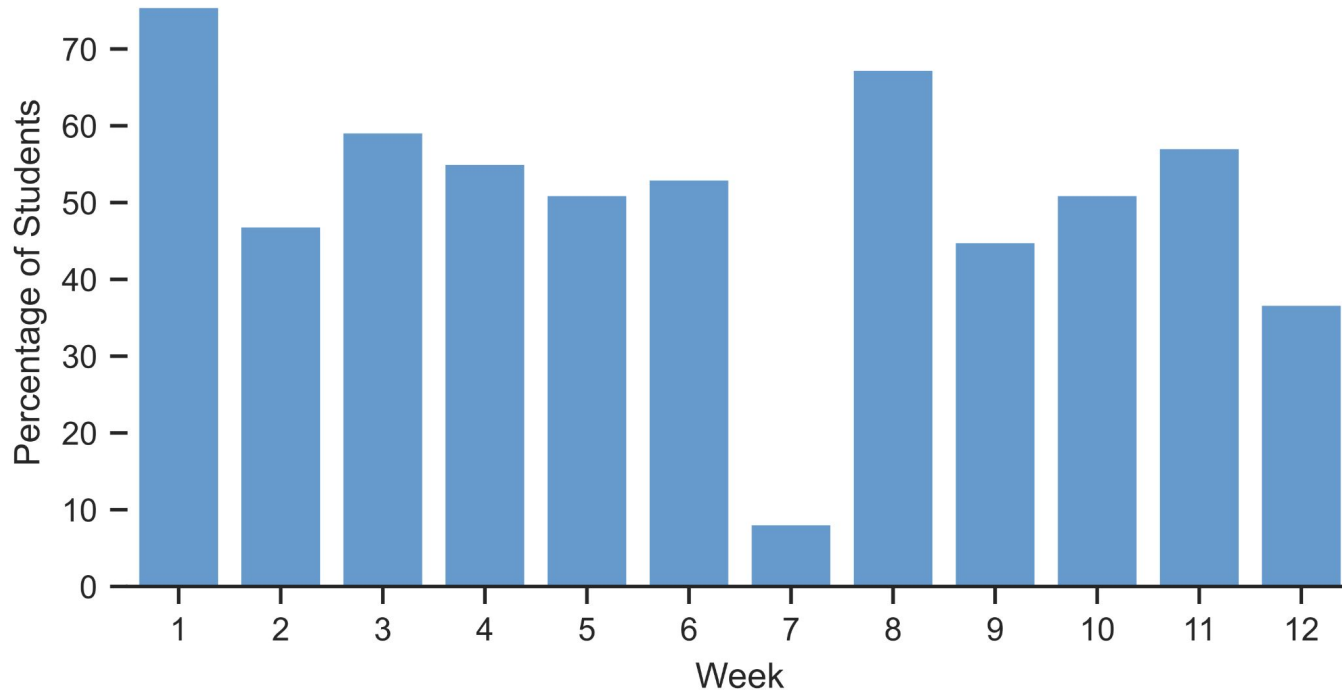
# Pilot and Results

53 students, intro-level CS/Data Science, using Python.



53 students, intro-level CS/Data Science, using Python.

Portion of the class using CodeHelp in each week:

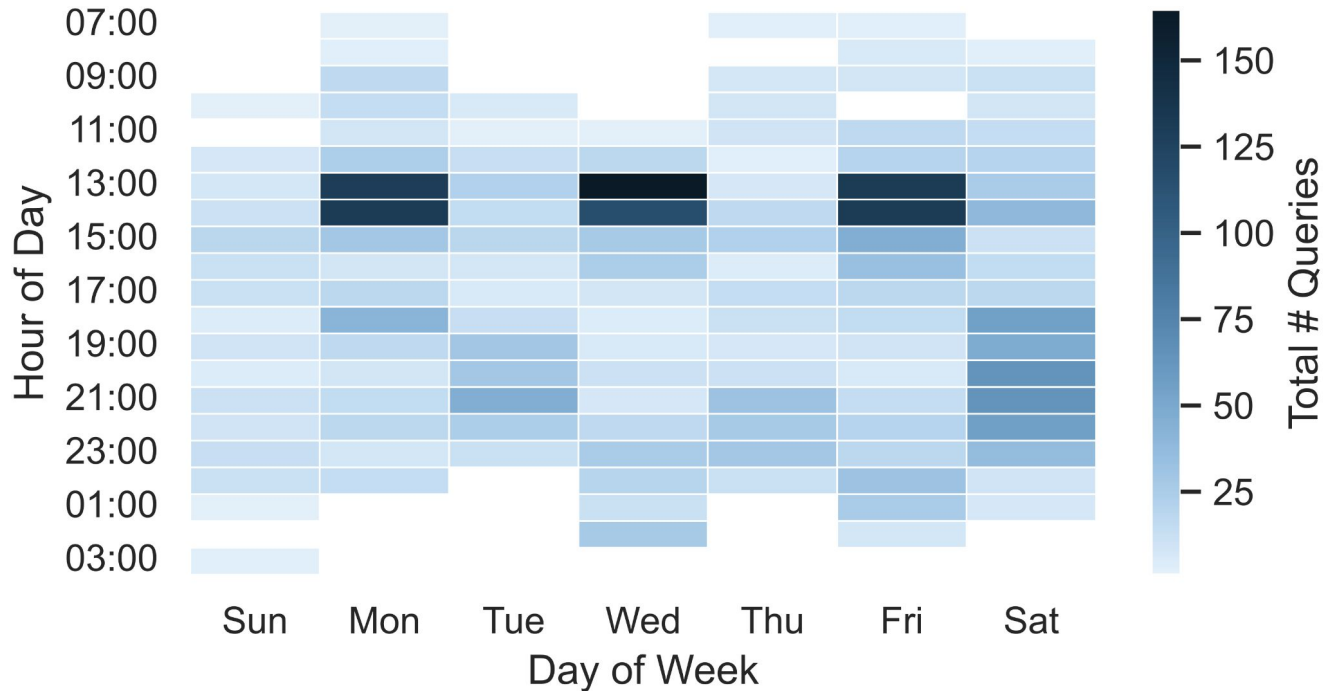


# Pilot and Results



53 students, intro-level CS/Data Science, using Python.

Usage by day/hour:

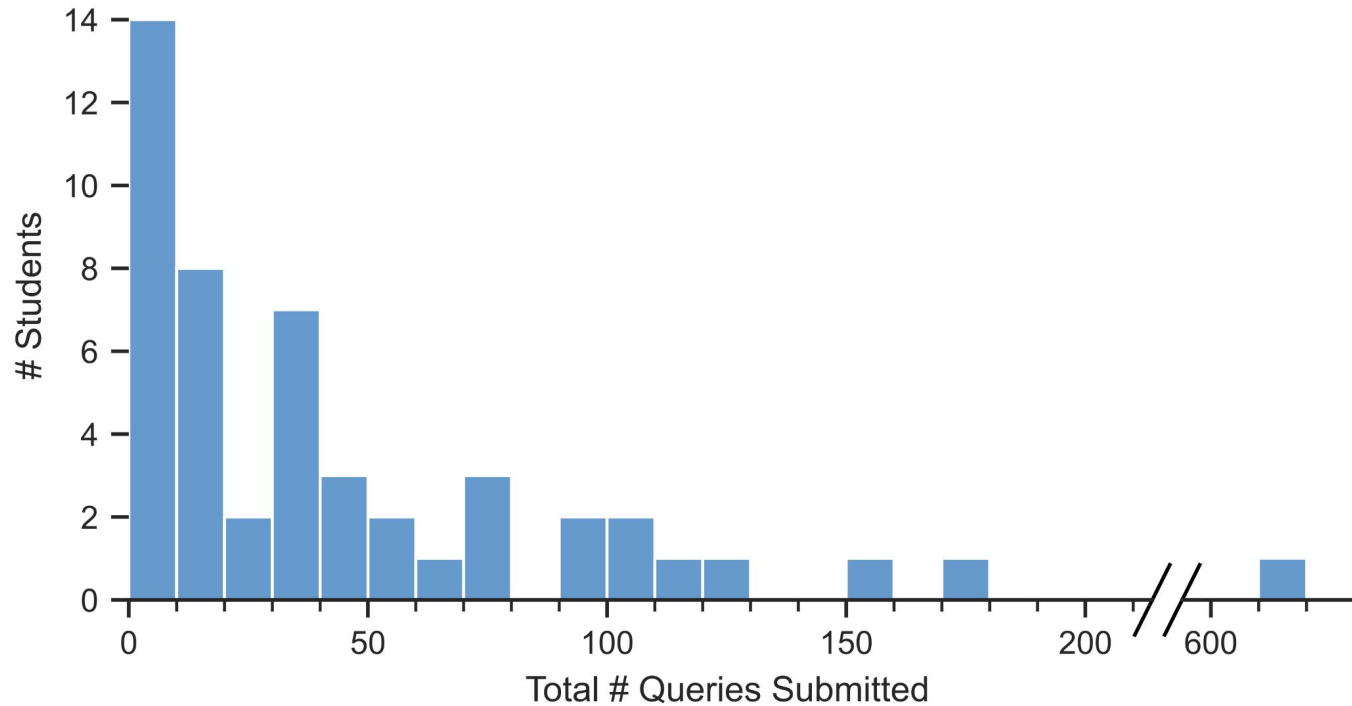


# Pilot and Results



53 students, intro-level CS/Data Science, using Python.

Total queries submitted by each student:





# Pilot and Results

53 students, intro-level CS/Data Science, using Python.

Student Survey ( $n = 49$ )	Strongly Agree	Agree	Disagree	Strongly Disagree
CodeHelp helped me complete my work successfully.	9%	70%	18%	2%
CodeHelp helped me learn the course material.	7%	55%	34%	5%
If I took more Computer Science courses, I would like to be able to use CodeHelp in those classes.	32%	64%	5%	0%



# Conclusions

- CodeHelp is a valuable complement to instructor/TA support.
  - Always available to all students
  - Lowers barriers to requesting help (especially for some students)
  - Low-friction, low-cost\*, and well-received by students
    - \*53 students, 1 semester, 2600+ queries: ~\$10 in OpenAI API usage
- Future plans:
  - Continuing/expanding our use & supporting use at other institutions
  - Want to use it in your class? Contact: [mliffito@iwu.edu](mailto:mliffito@iwu.edu)

Thanks!