



CL07 – Practice Writing Recursive Functions

Reminders

No class on Monday – Memorial Day!

- No Office Hours or Tutoring offered on Sunday or Monday

Next exercise (EX) assignment will be released over the weekend

Let's play a guessing game!



Let's write this function together, step by step!



Step 1: strings of different lengths?



word:

XXXXXXXXXX

`len(word)`

secret:

XXXXX

`len(secret)`

`!=`

If the strings are different lengths, we automatically know they aren't the same string!

Step 2: determine if word's and secret's characters at a given index are different



word:

secret:

bark

`word[idx]`

`!=`

punk

`secret[idx]`

If these characters are NOT equal, we automatically know `word`'s and `secret`'s values are different! No need to test the rest of the characters; just return `False`

Step 2: determine if word's and secret's characters at a given index are different



word:

secret:

punt

`word[idx]`

`==`

punk

`punk[idx]`

If these characters ARE the same (equal), we want to check if the characters at the next index (if there is another index to check) are equal!

Step 2: determine if word's and secret's characters at a given index are different



word:

secret:

punt

`word[idx]`

`==`

punk

`secret[idx]`

If these characters ARE the same (equal), we want to check if the characters at the next index (if there is another index to check) are equal!

Let's brainstorm how to write that in code...

Step 3: if we compared the characters at every index of **word** and **secret**, and they were always the same, we can return **True**



word:

secret:

punk

`word[idx]`

`==`

punk

`punk[idx]`

We guessed the secret word correctly!

```
SECRET: str = "punk"
```

```
def guess_secret(word: str, secret: str, idx: int = 0) -> bool:
    # TODO 1

    if len(word) != len(secret): # Different lengths? Not the same word!
        print("Words are different lengths.")
        return False

    # TODO 2

    if idx < len(word): # As long as there are more characters to check...
        if word[idx] != secret[idx]: # Characters at index aren't equal
            print(f"{word[idx]} isn't the secret word's next letter.")
            return False

        else: # If the characters at that index WERE equal...
            print(
                f"{word[idx]} is at index {idx} for both words! Checking next letters..."
            )

            return guess_secret(word=word, secret=secret, idx=idx + 1)

    # TODO 3

    print("They are the same word!")
    return True


print(guess_secret(word=input("What is your word? "), secret=SECRET))
```