



Longest Common Prefix

Write a function to find the longest common prefix string amongst an array of strings.

If there is no common prefix, return an empty string `""`.

Example 1:

Input: `strs = ["flower","flow","flight"]`

Output: `"fl"`

Example 2:

Input: `strs = ["dog","racecar","car"]`

Output: `""`

Explanation: There is no common prefix among the input strings.

First we will initialise the lowest common prefix as a variable which will be the index 0 of the string passed `lcp=strs[0]`.

we will then create a for loop that loops through each index of the word after the first character, define a min length which will be the minimum length of the lcp variable and word, we also need to define an index to find loop through the minlen in a while loop and a string called to capture the output i called this res.

```

for word in strs[1:]:
    minlen=min(len(lcp),len(word)) # get the minimum length of the strings
    i=0 # index to iterate through the characters of the strings
    res="" # result string to store the common prefix

```

Next we will make our while loop to use the index to loop through the minlen variable in this while loop if the lcp index is equal to the word index we match result with the index of lcp `res+=lcp[i]` and increment i by one `i+=1` else we will exit the loop once we have exited the loop we will set res to be the lcp and return the lcp in our function.

```

if lcp[i]==word[i]:
    res+=lcp[i]
    i+=1
else:
    break
lcp=res
return lcp

```

Complete solution

```

def longestCommonPrefix(self, strs):
    lcp=strs[0]
    for word in strs[1:]:
        minlen=min(len(lcp),len(word)) # get the minimum length of the strings
        i=0 # index to iterate through the characters of the strings
        res="" # result string to store the common prefix
        while(i<minlen):
            if lcp[i]==word[i]:
                res+=lcp[i]

```

```
        i+=1
    else:
        break
    lcp=res
return lcp
```

Feel free to play around with the values in the main and get a feel for how this solution works

```
if __name__ == '__main__':
    s = Solution()

    x = ["flower","flow","flight"]
    y = ["dog","racecar","car"]

    print(s.longestCommonPrefix(x))
    print(s.longestCommonPrefix(y))
```