Practical-12

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0.1 Practical 12 :-

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0.1.1 Problem Statement 1:-

Given a string and a list of words representing a list, find the longest word in the dictionary that can be formed by deleting some characters of the given string.

Input:
s = “abpcplea”
list = [“ale”, “apple”, “monkey”, “plea”]

Output:
Longest word in list: apple

[2]:
```
s = input("Enter string: ")
size = int(input("Enter size of list: "))
word_list = []
print()
for i in range(size):
    w = input(f"Enter word {i+1}: ")
    word_list.append(w)

longest = ""

for word in word_list:
    word = word.strip()  # remove extra spaces
    i = 0  # pointer for word
    j = 0  # pointer for s
    while i < len(word) and j < len(s):
        if word[i] == s[j]:
            i += 1
        j += 1
    if i == len(word):  # word is subsequence of s
        if len(word) > len(longest) or (len(word) == len(longest) and word <␣
 ↪longest):
            longest = word
```

```
print("\nLongest word in list:", longest)
```

```
Enter string:  abpcplea
Enter size of list:  4


Enter word 1:  ale
Enter word 2:  apple
Enter word 3:  monkey
Enter word 4:  plea


Longest word in list: apple
```

0.1.2 Problem Statement 2:-

You're tasked with writing a function to determine whether a given sentence is a palindrome, considering only alphanumeric characters and ignoring case sensitivity and other things.

Input:
sentence1 = "A man, a plan, a canal, Panama!"
sentence2 = "race a car"

Output:
Is 'A man, a plan, a canal, Panama!' a palindrome? True
Is 'race a car' a palindrome? False

[1]:
```
def check_palindrome(s):
    sentence = ""
    for char in s:
        if char.isalnum():
            sentence += char.lower()

    return sentence == sentence[::-1]

s = input("Enter sentence: ")
print(f"Is '{s}' a palindrome? {check_palindrome(s)}")
```

```
Enter sentence:  A man, a plan, a canal, Panama!

Is 'A man, a plan, a canal, Panama!' a palindrome? True
```

0.1.3 Problem Statement 3:-

You're tasked with counting the frequency of words in a given paragraph while excluding certain stop words (common words such as "the", "and", "is", etc.).

Input:
paragraph = "Python is a powerful programming language. Python is used for web development, data science, and artificial intelligence."
stop_words = ["is", "a", "for", "and"]

Output:
Word frequency (excluding stop words): {'python': 2, 'powerful': 1, 'programming': 1, 'language.': 1, 'used': 1, 'web': 1, 'development,': 1, 'data': 1, 'science,': 1, 'artificial': 1, 'intelligence.': 1}

[4]:
```
paragraph = input("Enter paragraph: ")
size = int(input("\nEnter size for stop words: "))
stop_word = []
for i in range(size):
    w = input(f"Enter stop_word {i+1}: ")
    stop_word.append(w)

words = paragraph.lower().split()

freq = {}
for word in words:
    if word not in stop_word:
        if word in freq:
            freq[word] += 1
        else:
            freq[word] = 1

print("\nWord frequency (excluding stop words): ", freq)
```

```
Enter paragraph:  Python is a powerful programming language. Python is used for
web development, data science, and artificial intelligence.

Enter size for stop words:  4
Enter stop_word 1:  is
Enter stop_word 2:  a
Enter stop_word 3:  for
Enter stop_word 4:  end


Word frequency (excluding stop words):  {'python': 2, 'powerful': 1,
'programming': 1, 'language.': 1, 'used': 1, 'web': 1, 'development,': 1,
'data': 1, 'science,': 1, 'and': 1, 'artificial': 1, 'intelligence.': 1}
```

0.1.4 Problem Statement 4:-

You're given a list of strings, and you need to find and return a list of characters that appear in every string in the list.

Input:
strings = ["apple", "banana", "orange"]

Output:
Common characters: ['a']

[7]:
```
size = int(input("Enter size of list: "))
print()

strings = []
for i in range(size):
    word = input(f"Enter string {i+1}: ")
    strings.append(word)

common = []
for char in strings[0]:
    if all(char in word for word in strings[1:]):
        if char not in common:
            common.append(char)

print("\nCommon characters:", common)
```

```
Enter size of list:  3


Enter string 1:  apple
Enter string 2:  banana
Enter string 3:  orange

Common characters: ['a']
```

[ ]:
```

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