2.8 FINDING SUBSTRINGS IN A LIST OF WORDS

Question:

Given an array of string words, return all strings in words that is a substring of another word. You can return the answer in any order. A substring is a contiguous sequence of characters within a string.

AIM

To return all strings from a given list that are substrings of another string in the same list.

ALGORITHM

1. Start
2. Read the array of strings words.
3. Initialize an empty list result.
4. For each string w1 in words:
5. For each string w2 in words:
6. If w1 ≠ w2 and w1 is a substring of w2:
7. Append w1 to result.
8. Break inner loop.
9. Return result.
10. End

PROGRAM

```
def string_matching(words):
    result = []
    for i in range(len(words)):
        for j in range(len(words)):
            if i != j and words[i] in words[j]:
                result.append(words[i])
                break
    return result

def run_string_matching():
    words = input("Enter words separated by space: ").split()
    print("Substrings found:", string_matching(words))

run_string_matching()
```

Input:

["mass", "as", "hero", "superhero"]

Output:

```
Enter words separated by space: mass as hero superhero
Substrings found: ['as', 'hero']
>>>
```

RESULT:

Thus the program is successfully executed and the output is verified.

PERFORMANCE ANALYSIS:

· Time Complexity: $O(n^2 \cdot k^2)$

· Space Complexity: O(n)