④ → Longest common prefix –

1. Question

Longest common prefix string amongst an array of strings

If there is no common prefix, return an empty string ("")

2. Examples –

strs = [flower, flow, flight]

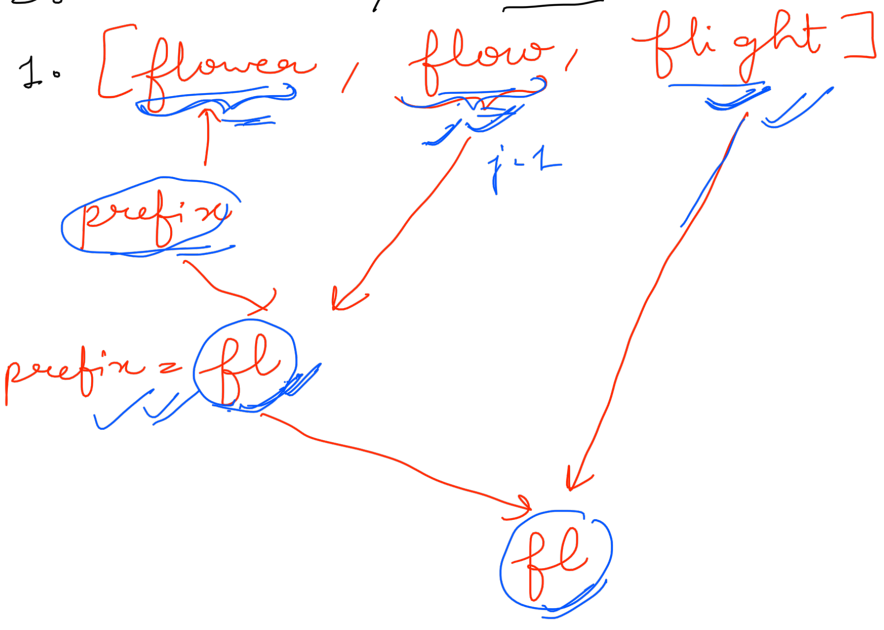
⇒ fl

strs = [dog, racecar, car]

→ ""

3. Intuition / Concept / solutions –

1. [flower, flow, flight]

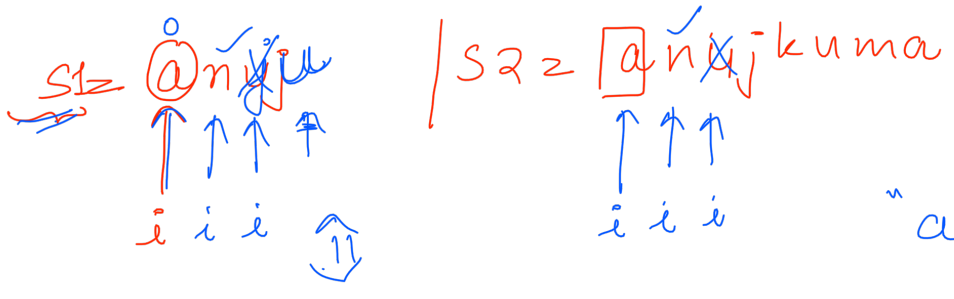


getCommonPrefix <s1, s2>

s1 = anuj kuma | s2 = anju

– make s1 as smaller of two — Horizontally

– s1 = anju s2 = anujkuma

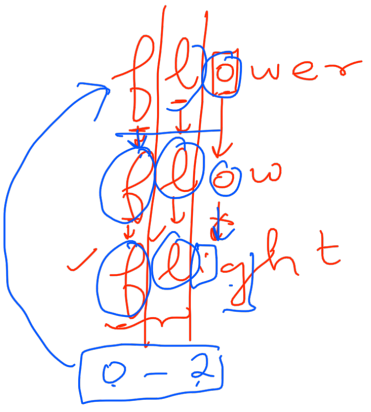


s1. substring(0, i) // i=0; return ""

return s1

Vertically

2. [flower, flow, flight]



s1. substring(0, i)

(5) → Time complexity-

Time = O(sum of all characters in all strings) prefix

Space = O(sum of all characters in all string) O(N)

⇒ N

O((N/2 - 1)) ~ N

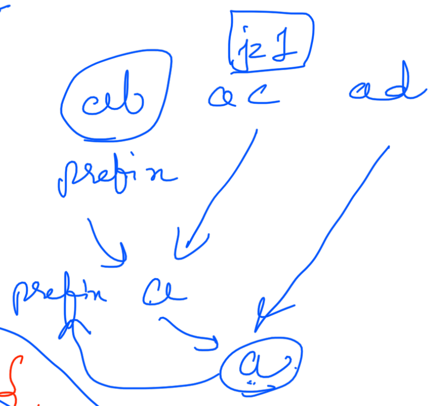
x = ----- N/2

y = ----- N/2

prefix ⇒ N/2

⑥ → Code walkthrough -

```
string lCP( [ ]strs) {
    if (strs == null) {
        return "";
    }
    if (strs.length == 0) {
        return "";
    }
    String prefix = strs[0];
    for (i = 1; i < strs.length; i += 1) {
        prefix = gCP(prefix, strs[i]);
    }
    return prefix;
}
```




```
string gCP( s1 , s2 ) {
    if (s2.length() < s1.length()) {
        return gCP(s2, s1);
    }
    if (s1.length() == 0 || s2.length() == 0) {
        return "";
    }
    int i = 0;
    while (i < s1.length()) {
        if (s1.charAt(i) != s2.charAt(i)) {
            return s1.substring(0, i);
        }
        i += 1;
}
```

0 1 2 3
apple   appium
i = 3

return s1;

}

s1 and s2

"apple".ss(0,3)

"app"