Permutation in string

s1 = 'ab'   s2 = "eidbaooo"

does ab or ba exist?

① Store the frequency of characters in s1

int freq[26] = {0}

a b c d . . . _ _ _ _ y z
0 1 2 3   24 25   ⟹ freq.

$s1[i] - 'a' = 0$

97   97 = 0

$freq[s1[i] - 'a']++$

↓

index milega aise

② search s1 permutation is s2

sliding window based approach

Psuedo Code

```
int Freq [26] = {0};
for (i=0; i<n1; i++){
    freq[s1[i] - 'a']++;
}

int wind Size = n1

for (i=0; i<n2; i++){
    int windIdx =0, idx =i;
    int windFreq[26] = {0};
    while (windIdx < wind Size &&
                        idx < n2){
        windFreq[s2[idx]-'a']++;
        windIdx++; idx++;
    }
    is ( isFreqSame (freq, windFreq))
            return true;
}
return false

isFreqSame (int freq1[], int freq2[]){
    for (i=0; i<26; i++){
        if (freq[i] != freq2[i]){
            return false;
        }
    }
    return true;
}
```
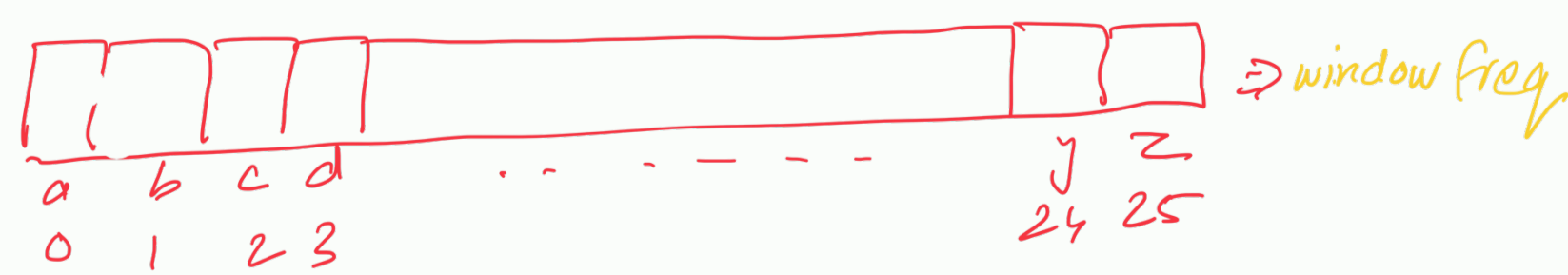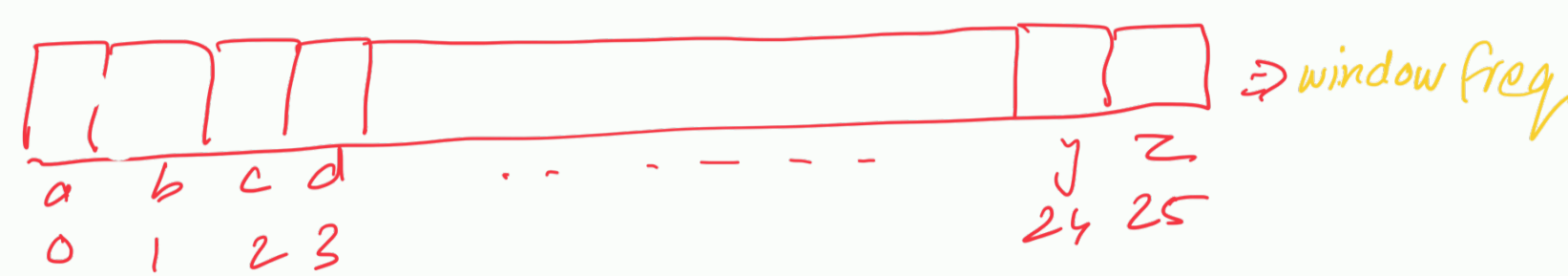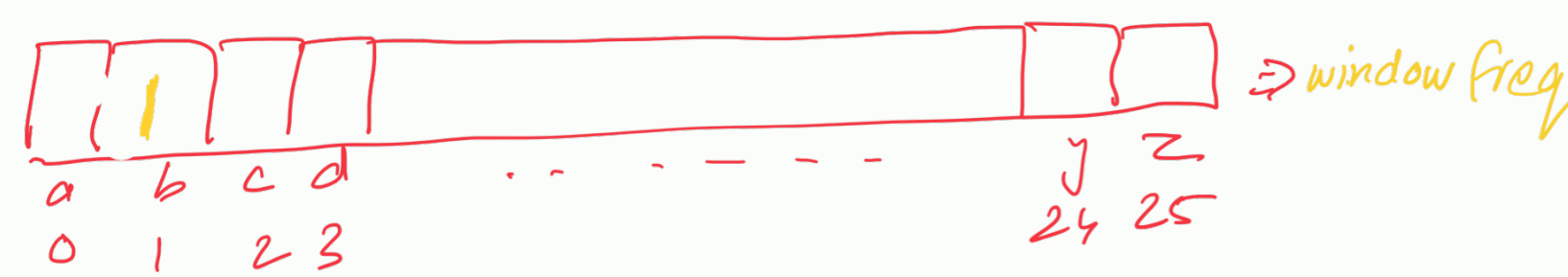
Dry run

e i d b a o o o

a b c d . . .   y z   ⟹ window freq
0 1 2 3   24 25

e i d b a o o o

a b c d . . .   y z   ⟹ window freq
0 1 2 3   24 25

e i d b a o o o

a b c d . . .   y z   ⟹ window freq
0 1 2 3   24 25

e i d b a o o o

a b c d . . .   y z   ⟹ window freq
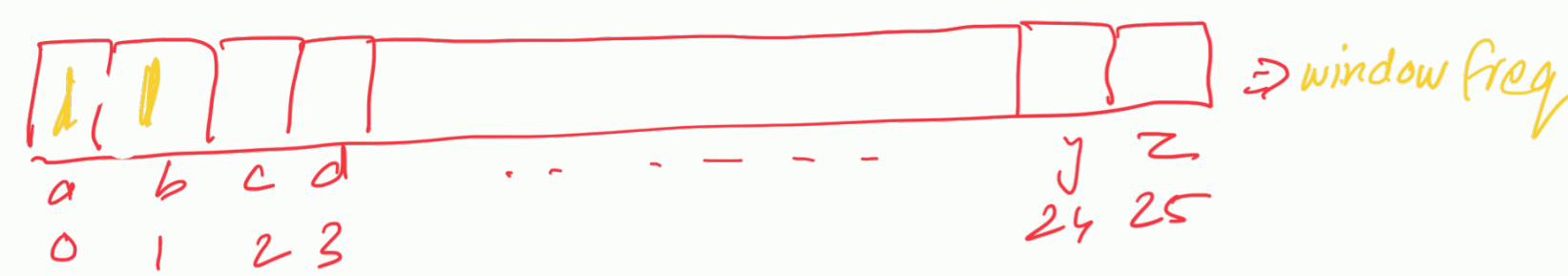0 1 2 3   24 25

window freq matches with freq
return