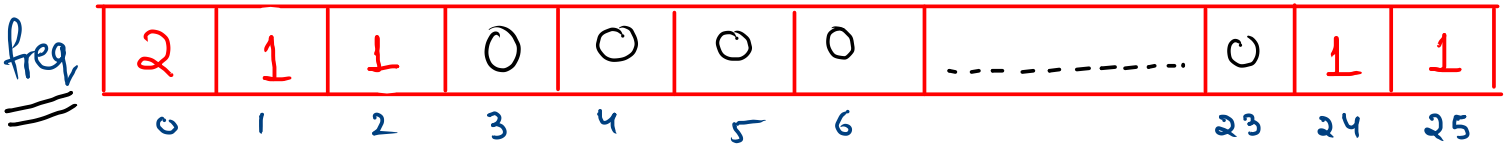
Print Freq of Alphabet in String

str = "bcaaazy" n = 6



1) ch = 'b'
   idx = 'b' - 'a' = 1

2) ch = 'c'
   idx = 'c' - 'a' = 2

3) ch = 'a'
   idx = 'a' - 'a' = 0

4) ch = 'a'
   idx = 'a' - 'a' = 0

5) ch = 'z'
   idx = 'z' - 'a' = 25

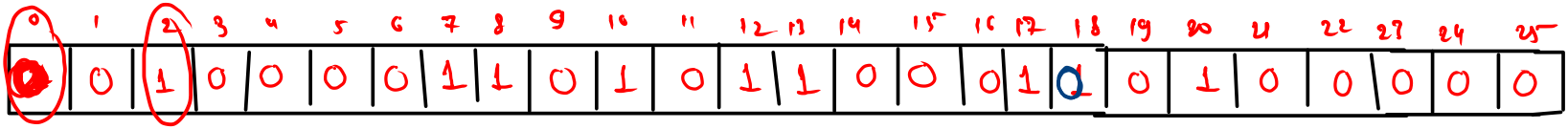
6) ch = 'y'
   idx = 'y' - 'a' = 24

psudo code

- create an array of 26 size
  - traverse the string for each char
    - get the char (ch)
    - get index using ch - 'a'
    - increment freq by freq[idx]++;

0 → a
1 → b
2 → c
3 → d
.
.
.
25 → z

str = "sachinkumar"




```java
public static void printFreq(String str) {
    int n = str.length();
    int[] freq = new int[26];
    for (int i = 0; i < n; i++) {
        char ch = str.charAt(i);
        int idx = ch - 'a';
        freq[idx] = freq[idx] + 1;
    }

    for (int i = 0; i < n; i++) {
        char ch = str.charAt(i);
        int idx = ch - 'a';
        int f = freq[idx];
        if ( f != 0 ) {
            System.out.println( ch + "-" + f );
            freq[idx] = 0;
        }
    }
}
```

i=0, ch='s', idx = 's'-'a' = 18
i=1, ch='a', idx = 'a'-'a' = 0
i=2, ch='c', idx = 'c'-'a' = 2
i=3, ch='h', idx = 'h'-'a' = 7
i=4, ch='i', idx = 'i'-'a' = 8
i=5, ch='n', idx = 'n'-'a' = 13
i=6, ch='k', idx = 'k'-'a' = 10
i=7, ch='u', idx = 'u'-'a' = 20
i=8, ch='m', idx = 'm'-'a' = 12
i=9, ch='a', idx = 'a'-'a' = 0
i=10, ch='r', idx = 'r'-'a' = 17

s-1
a-2
c-1
h-1

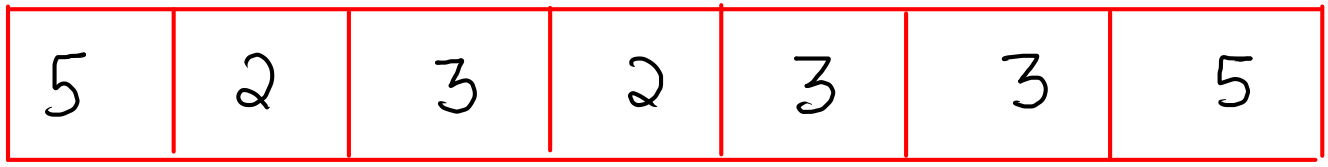
i-1
n-1
k-1
u-1

m-1
r-1

Int with Maximum Freq

$n = 8$

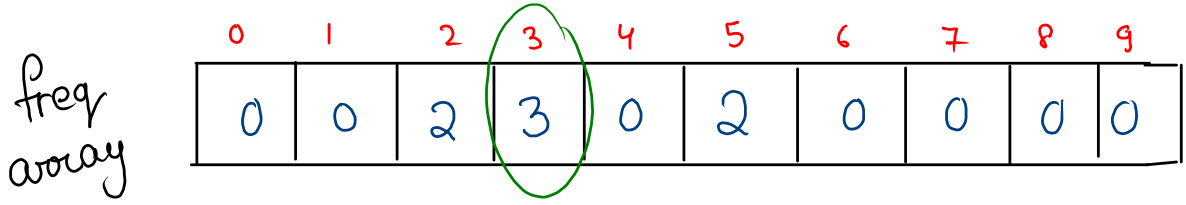
arr

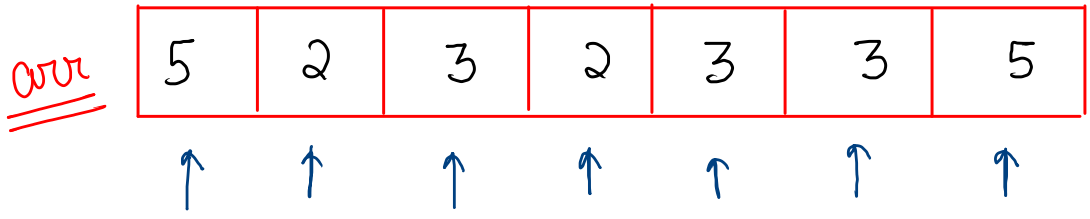


hashmap

(digit) Integer → (freq) Integer

5 → 2
2 → 2
3 → 3





psudo code

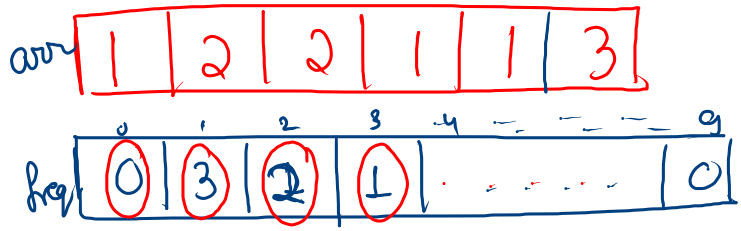
- create freq array of size 10
- iterate through arr
  - increment the freq at arr[i] by 1
- find max. freq index

CId = 0 – 9

```java
public static int intWithMaxFreq(int[] arr, int n) {
    int[] freq = new int[10];
    for (int i = 0; i < n; i++) {
        int num = arr[i];
        freq[num]++;
    }
    int f = 0;
    int ans = -1;
    for (int i = 0; i < 10; i++) {
        if ( freq[i] > f ) {
            f = freq[i];
            ans = i;
        }
    }
    return ans;
}
```

T.C = O(N)

S.C = O(1)



i = 0, num = 1

i = 1, num = 2

i = 2, num = 2

i = 3, num = 1

i = 4, num = 1

i = 5, num = 3

f = 0 3

ans = 1

Maximum Freq Character

```
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    String str = scn.next();
    System.out.println(printFreq(str));
}

public static char printFreq(String str) {
    int[] freq = new int[26];
    for (int i = 0; i < str.length(); i++) {
        char ch = str.charAt(i);
        int idx = ch - 'a';
        freq[idx]++;
    }

    int max = -1;
    char ch = 'A';
    for (int i = 0; i < 26; i++) {
        if ( freq[i] > max ) {
            max = freq[i];
            ch = (char)(i + 'a');
        }
    }
    return ch;
}
```

T.C = O(N)

S.C = O(1)

Good String Checker

Str = " abbcdcad "

psudo code

ch = 'a'

freq = 2

```java
public static boolean goodString(String str) {
    int[] freq = new int[26];
    for (int i = 0; i < str.length(); i++) {
        char ch = str.charAt(i);
        int idx = ch - 'a';
        freq[idx]++;
    }

    char c = str.charAt(0);
    int f = freq[c - 'a'];
    for (int i = 0; i < str.length(); i++) {
        char ch = str.charAt(i);
        int idx = ch - 'a';
        if ( freq[idx] != f ) {
            return false;
        }
    }
    return true;
}
```

str = "aabbcdd";

0	1	2	3	4	5	
2	2	1	2	0	0	..

freq

i=0, ch='a', idx = 0
i=1, ch='a', idx = 0
i=2, ch='b', idx = 1
i=3, ch='b', idx = 1
i=4, ch='c', idx = 2
i=5, ch='d', idx = 3
i=6, ch='d', idx = 3

c = 'a'
f = 2

$\Rightarrow c - 'a'$

a → 97
b → 98
c → 99
⋮
y → 121
z → 122

ch = 'b'

'b' − 'a' = 1

'z' − 'a' = 25

'y' − 'a' = 24

a → 0
b → 1
c → 2
d → 3
⋮
y → 24
z → 25