

$i=3 \rightarrow 0$
 $[4 \rightarrow 1]$
 $i-k=$

2 3 5
3 5 7
5 7 1
7 1 8
1 8 4
8 4 3
4 3 2

$[2, 3, 5, 7, 1, 8, 4, 3, 2]$
0 1 2 3 4 5 6 7 8

$K=3$

ans = 15.16

K Size Sum maximum

1. Step-1 1st window

2. Step-2

① window grow
② shrink
③ ans update

$10+7=17-2$
 $=15+1-3$
 $=13+8-5$
 $=16+4-7$
 $=13+3-1$
 $=15+2-8$
 $=9$

$1+2+3+1+2+2$
 $1+2+3+1+2+2$

$Si=12$ $ei=19$

$[1, 2, 3, 4, 2, 4]$
 $[1, 2, 3]$

①
②

$K=10$
int p=1
loop (ei < n) {
 // grow
 p = p * arr[ei];
 // shrink
 while (p >= k) {
 p = p / arr[Si];
 Si++;
 }
 // answer update
 ans = ans + (ei - Si + 1);
 ei++;
}

$(3 \times 4)^2$
 9×8
 69
 $ei - Si + 1$
ans = ans + window size

```
public static int Product_Less_Than_K(int[] arr, int k) {
    int si = 0, ei = 0, p = 1, ans = 0;
    while (ei < arr.length) {
        // window grow
        p = p * arr[ei];
        // Maximum Sum
        while (p >= k) {
            p = p / arr[si];
            si++;
        }
        // answer update
        ans = ans + (ei - si + 1);
        ei++;
    }
    return ans;
}
```

$[1, 2, 3]$ $K=0$ Si ei

$p = p / 1 = 1$
 $p = 1 / 2 = 0$
 $p = 0 / 3 = 0$

Kartik Bhaiya And Strings

Kartik Bhaiya has a string consisting of only 'a' and 'b' as the characters. Kartik Bhaiya describes perfectness of a string as the maximum length substring of equal characters. Kartik Bhaiya is given a number k which denotes the maximum number of characters he can change. Find the maximum perfectness he can generate by changing no more than k characters.

$Si=0, ei=0$

while (ei < n) {
 // grow
 // shrink
 // answer update
 ei++
}

$aaabaaabbaa$ $K=2$

$bbba bbaa ba$

1 2 3 4 5 6 7 8 11

$ch='b'$

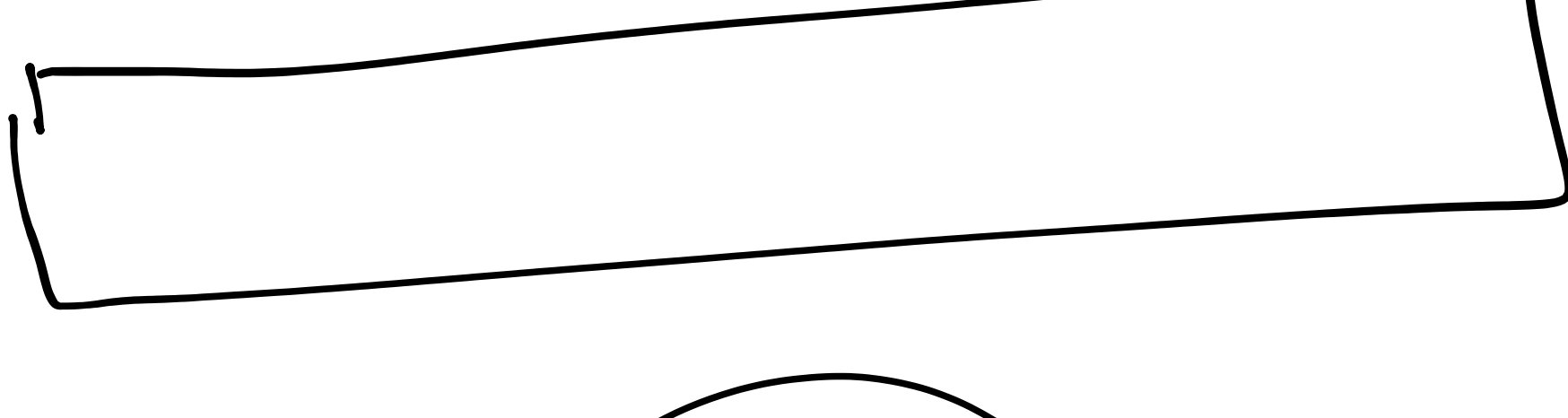
$flip=2$

$aaabaaabbaa$

Si $aaabaaabbaa$

$ans=0, Si=0, ei=0, flip=0$

while (ei < n) {
 if (s.charAt(ei) == ch) {
 flip++;
 }
 while (flip > k) {
 if (s.charAt(Si) == ch) {
 flip--;
 }
 Si++;
 }
 ans = max(ans, ei - Si + 1);
 ei++;
}



mango

apple

apple \rightarrow ch='a' 1 (ch-g) 'b-a'

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

a b c d e f g h i j k l m n o p q r s t u v w x y z

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

arr[ch] $(han ('a' + 15))$