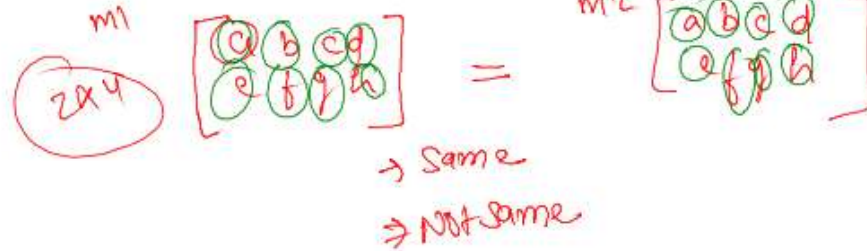


Question

2D Array



```
if(n1!=n2 || m1!=m2){
    System.out.print("Not Same");
}else{
    boolean isSame = isSameArray(arr1,arr2);
    if(isSame){
        System.out.println("Same");
    }else{
        System.out.println("Not Same");
    }
}
/* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class */

public static boolean isSameArray(int[][] arr1 , int[][] arr2){
    for(int i=0;i<arr1.length;i++){
        for(int j=0;j<arr1[0].length;j++){
            if(arr1[i][j] != arr2[i][j]){
                return false;
            }
        }
    }
    return true;
}
```

Ques

Sum of 2D array

$$\begin{matrix} 2 \times 3 \\ \left[\begin{array}{ccc} a & b & c \\ d & e & f \\ g & h & i \end{array} \right] \end{matrix} + \begin{matrix} 3 \times 3 \\ \left[\begin{array}{ccc} j & k & l \\ m & n & o \\ p & q & r \end{array} \right] \end{matrix}$$

⇓

ans \Rightarrow $\left[\begin{array}{ccc} a+j & b+k & c+l \\ d+m & e+n & f+o \\ g+p & h+q & i+r \end{array} \right]$

```
Scanner scn = new Scanner(System.in);
int n1= scn.nextInt();
int m1 = scn.nextInt();
int[][] arr1 = new int[n1][m1];
for(int i=0;i<n1;i++){
    for(int j=0;j<m1;j++){
        arr1[i][j]= scn.nextInt();
    }
}
int n2= scn.nextInt();
int m2 = scn.nextInt();
int[][] arr2 = new int[n2][m2];
for(int i=0;i<n2;i++){
    for(int j=0;j<m2;j++){
        arr2[i][j]= scn.nextInt();
    }
}
if(n1!=n2 || m1!=m2){
    System.out.print("-1");
}else{
    for(int i =0;i<n1;i++){
        for(int j=0;j<m1;j++){
            System.out.print(arr1[i][j]+arr2[i][j]+" ");
        }
        System.out.println();
    }
}
/* Enter your code here. Read input from STDIN. Print output to STDOUT. Your
```

Q

Multiplication of 2D Arrays.

arr1

$$\begin{bmatrix} 1 & 2 & 3 \\ 1 & 2 & 3 \\ 1 & 2 & 3 \end{bmatrix} \times \begin{bmatrix} 3 & 4 & 5 \\ 3 & 4 & 5 \\ 3 & 4 & 5 \end{bmatrix}$$

arr2

$$1 \times 3 + 2 \times 3 + 3 \times 3$$

$$\begin{bmatrix} 18 & 0 & 0 \\ 0 & 24 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$1 \times 4 + 2 \times 4 + 3 \times 4$$

$$4 + 8 + 12$$

$$24$$

2x2

$$\begin{bmatrix} a & b \\ c & d \end{bmatrix} \times \begin{bmatrix} e & f \\ g & h \end{bmatrix}$$

2x2

$$(n_1 \times m_1) \text{ mul } (n_2 \times m_2)$$

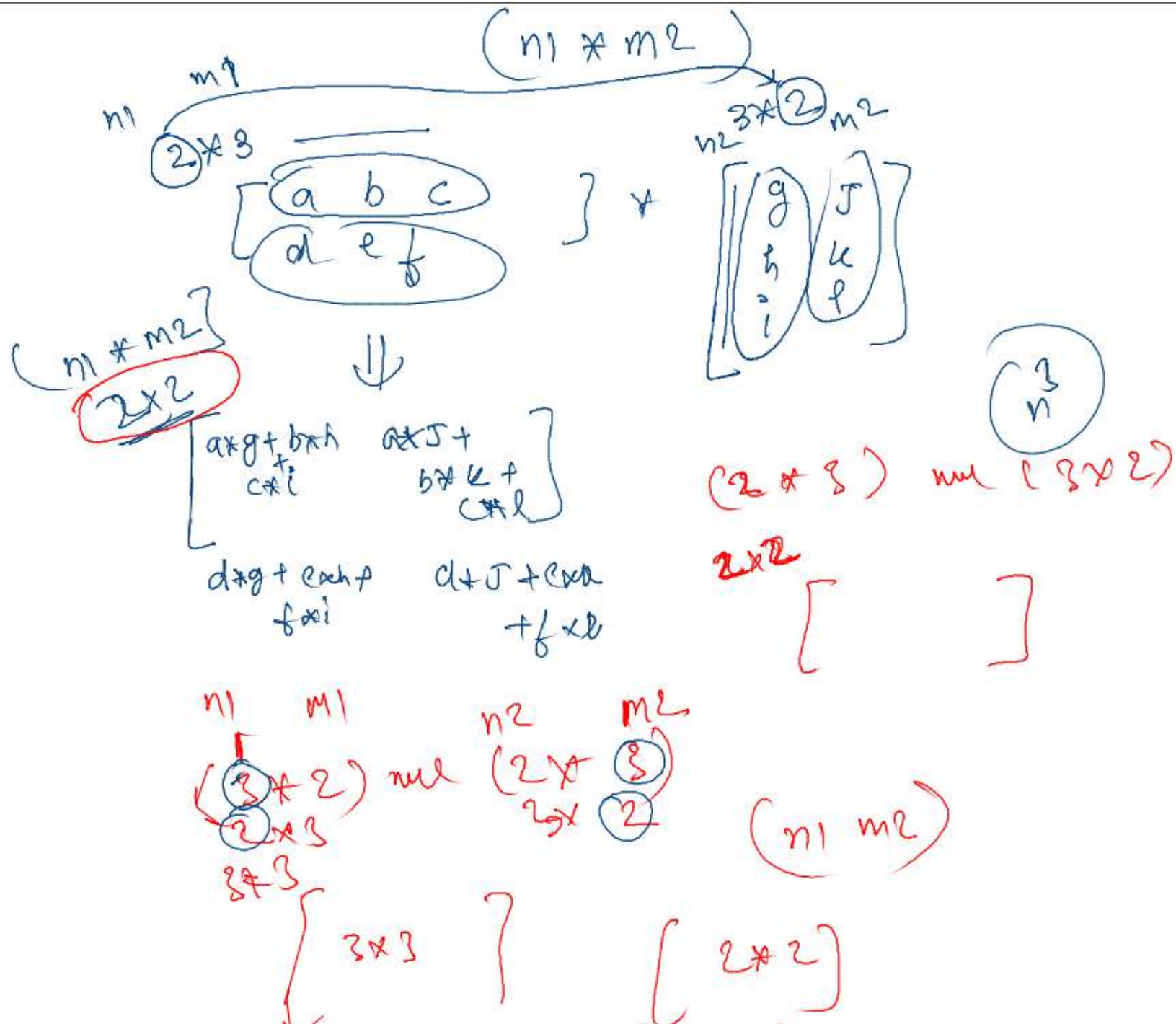
$$1^{st} \text{ condition} = (m_1 == n_2)$$

2nd \rightarrow size of resultant 2D array

$$\begin{bmatrix} a \times e + b \times g & a \times f + b \times h \\ c \times e + d \times g & c \times f + d \times h \end{bmatrix} = \text{2D Array mul}$$

$$(n_1 \times m_1) \text{ mul } (n_2 \times m_2)$$

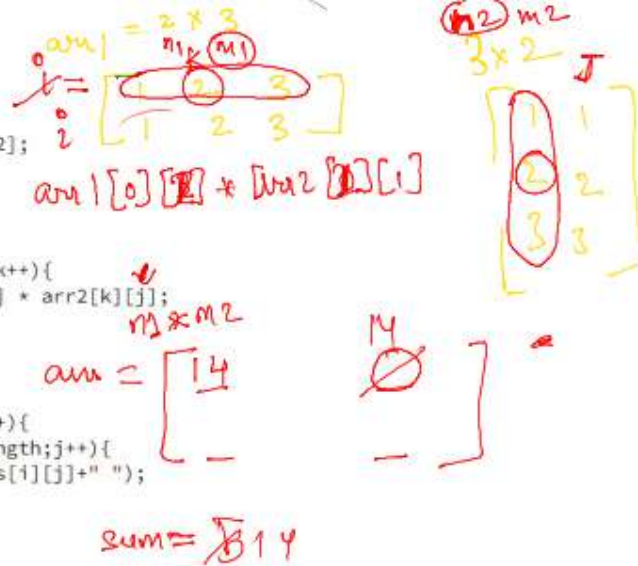
\downarrow ans 2D arr



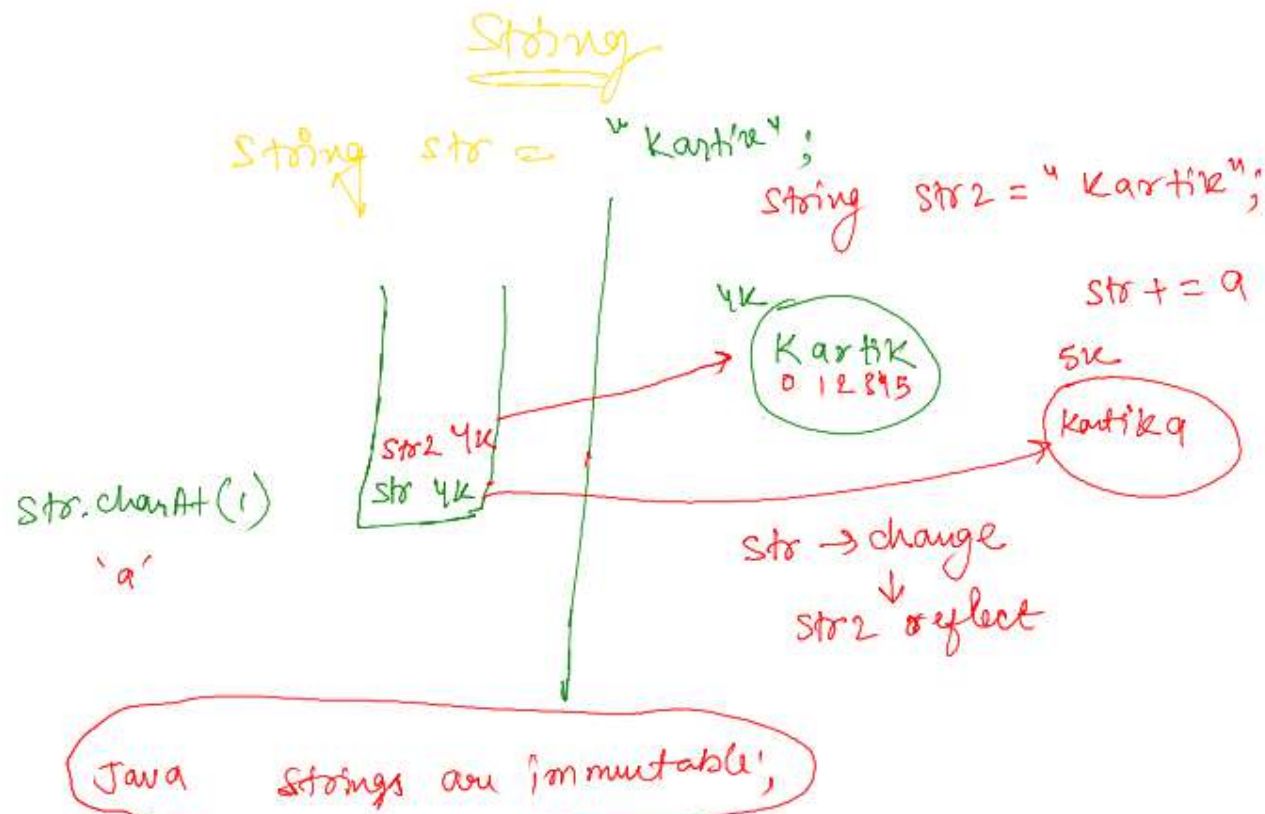
```

if(m1!=n2){
    System.out.print("-1");
}else{
    int[][] ans = new int[n1][m2];
    for(int i=0;i<n1;i++){
        for(int j=0;j<m2;j++){
            int sum=0;
            for(int k=0;k<m1;k++){
                sum+=arr1[i][k]*arr2[k][j];
            }
            ans[i][j]=sum;
        }
    }
    for(int i=0;i<ans.length;i++){
        for(int j=0;j<ans[0].length;j++){
            System.out.print(ans[i][j]+" ");
        }
    }
    System.out.println();
}
}

```



/* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class



String s1 = "hello"

String s2 = "hello"

String s3 = new String("hello");

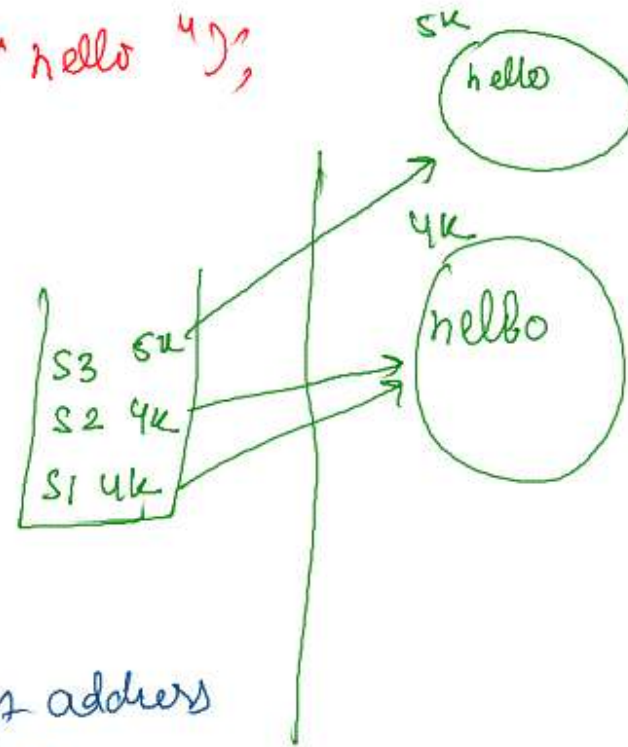
(s1 == s2)

true

(s1 == s3)

false

== compare only addresses



s1.equals(s3) → first address

True

True

content True

check

```
public static void main(String[] args) {  
    Scanner scn = new Scanner(System.in);  
    String str = scn.nextLine();  
    for(int i=0; i<str.length(); i++){  
        System.out.println(str.charAt(i));  
    }  
    /* Enter your code here. Read input from STDIN. Print output to STDOUT */  
}
```