

Journey  
No.2

# JavaScript

# Assignments & Answers

Version No.1



**START**  
Programming

By :- Safaa El-Shafe'y

# Social Media



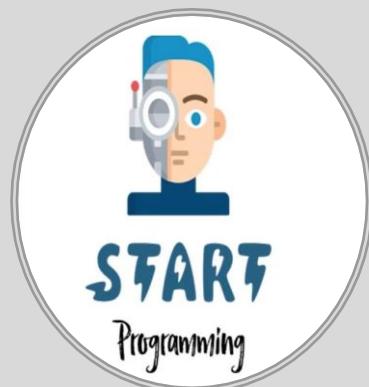
**Telegram** Group



**Facebook** Page



**LinkedIn** Company  
Page



**Telegram** Channel



**Facebook** Group



**LinkedIn** Personal  
Account



**YouTube** Channel



# تبیه قام جدا

محتوی کله مرتبط ببعضه لازمه  
تذاکر بنفس ترتیب الدروس





# تبیه قام جدرا

يجب حل جميع المواجهات  
ومشاهدة جميع فيديوهات حل  
المواجه





## الفهرس

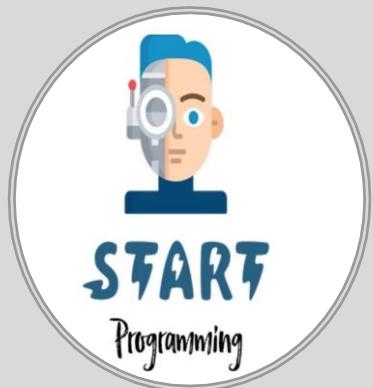
- 1) [Link JavaScript With HTML](#)
  - 2) [Variable Number](#)
    - A. [Question](#)
    - B. [Answers](#)
  - 3) [Data Type – String](#)
    - A. [Quiz](#)
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  - 4) [IF Condition](#)
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# Lesson No.1

# JavaScript

## Link JavaScript With HTML

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# شاهد حلقات مسلسل كرتون :صدق رسول الله



# Lesson No.2

# JavaScript

## Variable Number

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# الواجب - Homework



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الواجب

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# Problem No.1

Write a program That calculate **average** of two numbers and should print result in console :

5

2

Result

3.5



## Problem No.2

Write a program That calculate **multiply** of two numbers and should print result in console :

5

2

Result

10



## Problem No.3

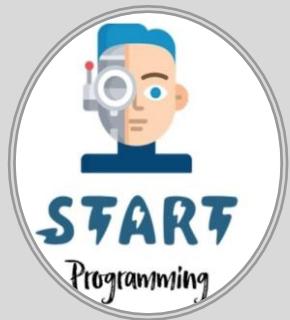
Write a program That calculate **average** of two numbers and should print result in console :

5

2

Result

3.5



## Problem No.4

Write a program That calculate **perimeter** of square and should print result in console :

5

Result

20



## Problem No.5

Write a program That calculate **Area** of **square** and should print result in console :

5

Result

25



## Problem No.6

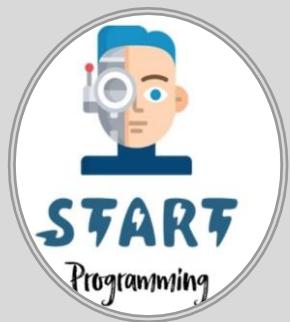
Write a program That calculate **perimeter** of rectangle and should print result in console :

5

2

Result

14



## Problem No.7

Write a program That calculate **Area** of rectangle and should print result in console :

5

2

Result

10



## Problem No.8

Write a program That calculate **volume** of **cubic** and should print result in console :

5

Result

125



## Problem No.9

Write a program That calculate **squared** number and should print result in console :

4

Result

16



## Problem No.10

Write a program That calculate **cube** number and should print result in console :

4

Result

64



## Problem No.11

Write a program That **convert** seconds to minutes and should print result in console :

360

Result

6



## Problem No.12

Write a program That **convert** seconds to hours and should print result in console :

360

Result

0.1



## Problem No.13

Write a program That **convert** meter to **cm** and should print result in console :

3

Result

300



## Problem No.14

Write a program That **swap** two numbers and should print result in console :

5

6

6

5

Result



## Problem No.15

Write a program That **increment** number by 1 using two methods and should print result in console :

5

Result

6

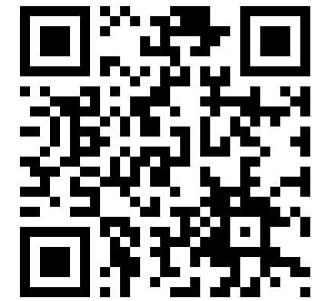




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Part 2



Part 1



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LEVEL  
2



Are you ready ?  
**Let's GO**

# Problem No.01

Write a program That calculate sum of two numbers without using + operator and should print result in console :

5

2

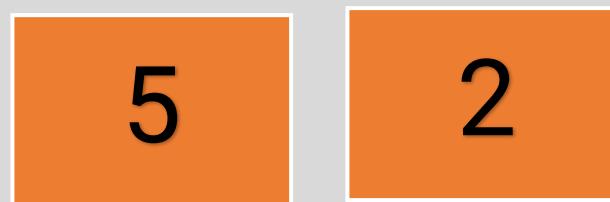
Result

7



## Problem No.02

Write a program That swap two numbers without using third variable and should print result in console :



Result



# Lesson No.3

# JavaScript

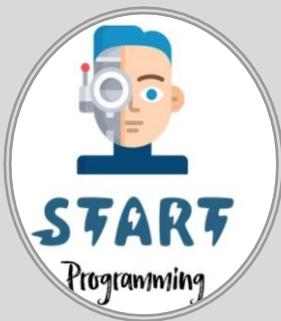
## Data Type String

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**Quiz**

||| **String**

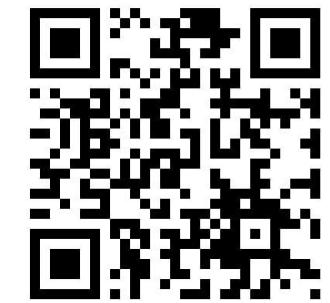




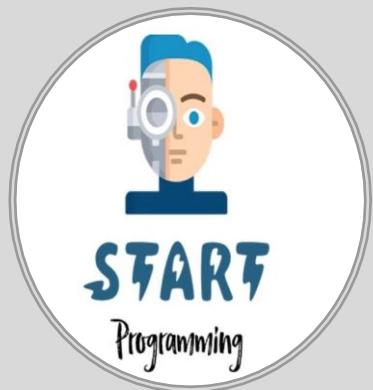
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# Lesson No.4

# JavaScript

## IF Condition



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# الواجب - Homework



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الواجب

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# Problem No.1

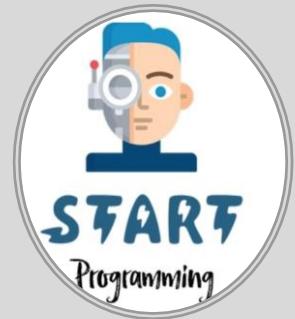
Write a program That Find the greatest number within given 2 numbers

5

-2

Result

5



## Problem No.2

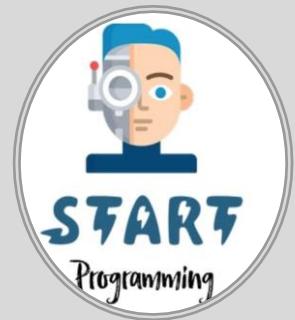
Write a program That Find the smallest number within given 2 numbers :

5

-2

Result

-2



# Problem No.3

Write a program That determine number is negative or positive

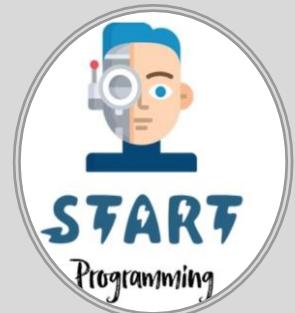
5

-2

Result

positive

negative



# Problem No.4

Write a program That determine student is pass or fail

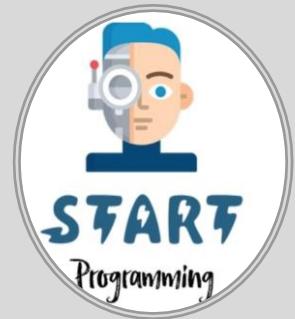
70

45

Result

pass

fail



# Problem No.5

Write a program That Assign the sum of x and y to z and increment the value of x by 1 after the calculation

x

5

y

-2

z

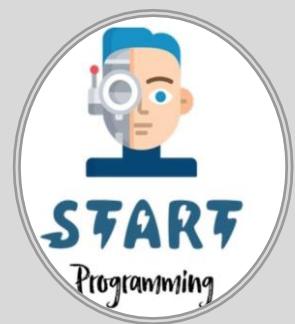
-

Result

6

-2

3



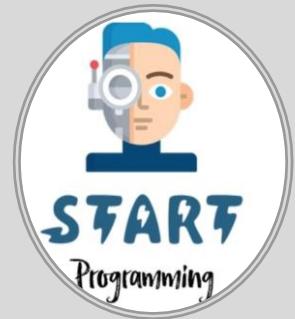
# Problem No.6

Write a program That determine student is pass or fail

5

Result

4



# Problem No.7

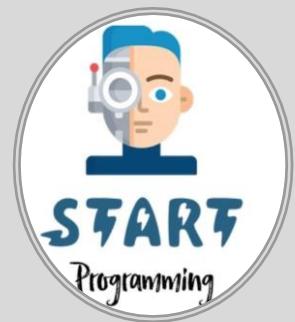
Write a program That Calculate the remainder after q is divided by p  
and assign the result to q

q      p

5      3

Result

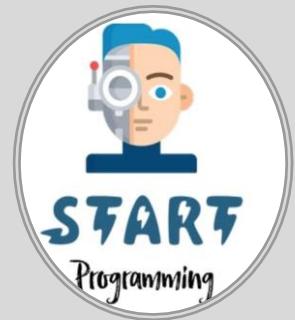
2



## Problem No.7

For the following arithmetic expressions, sort its arithmetic operations :

- a)  $A * B + A * (B * D + C * E)$
- b)  $A - B + (D + C / (H * K))$
- c)  $A * [B + C * (D + E)] / F * (G + H)$



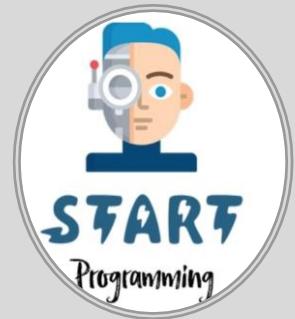
# Problem No.9

Write a program That Calculate the inverse number (  $1/x$  ) .

5

Result

1/5

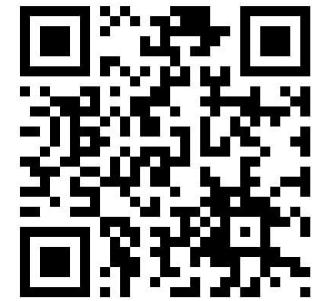




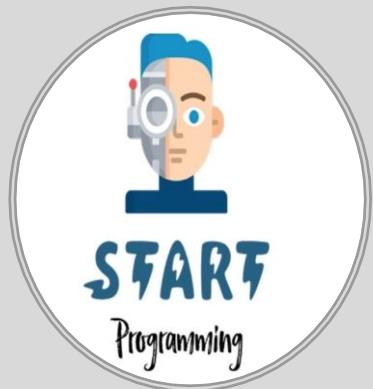
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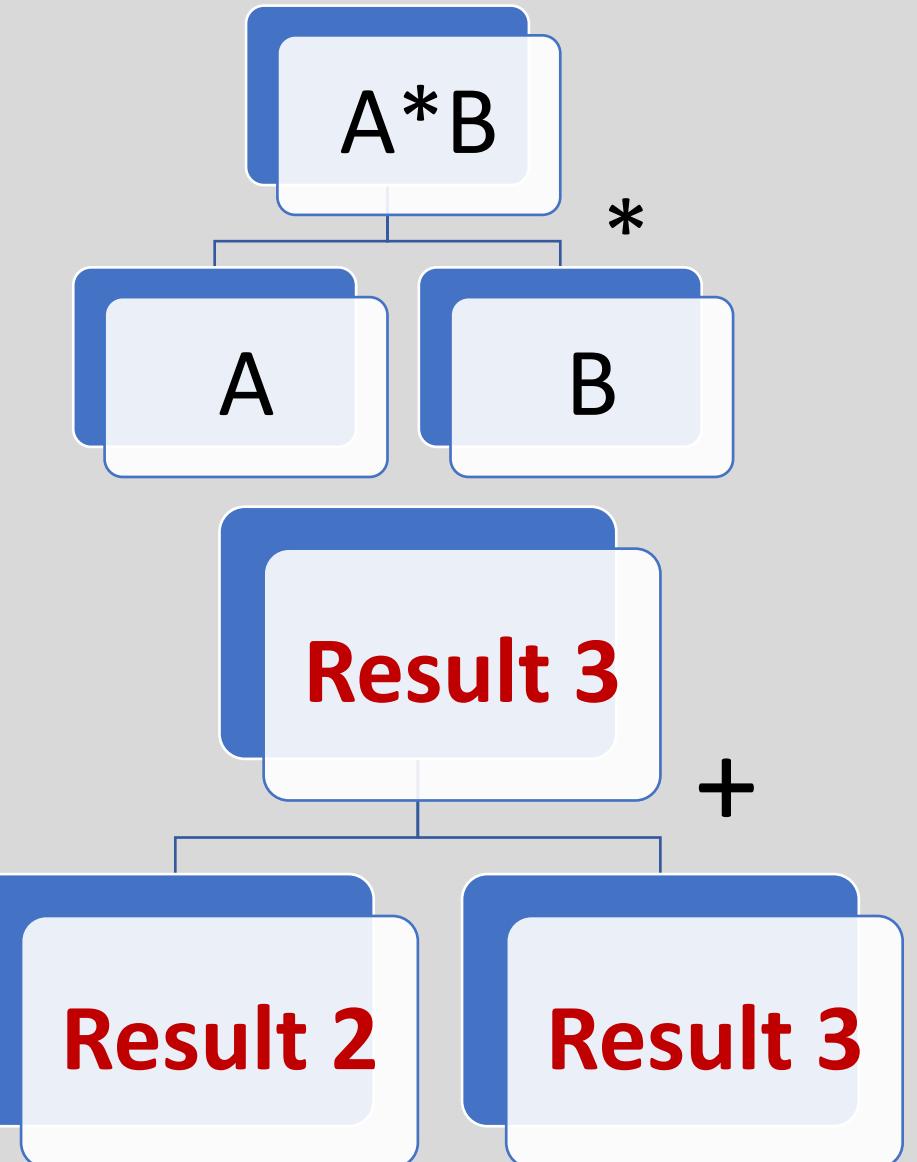
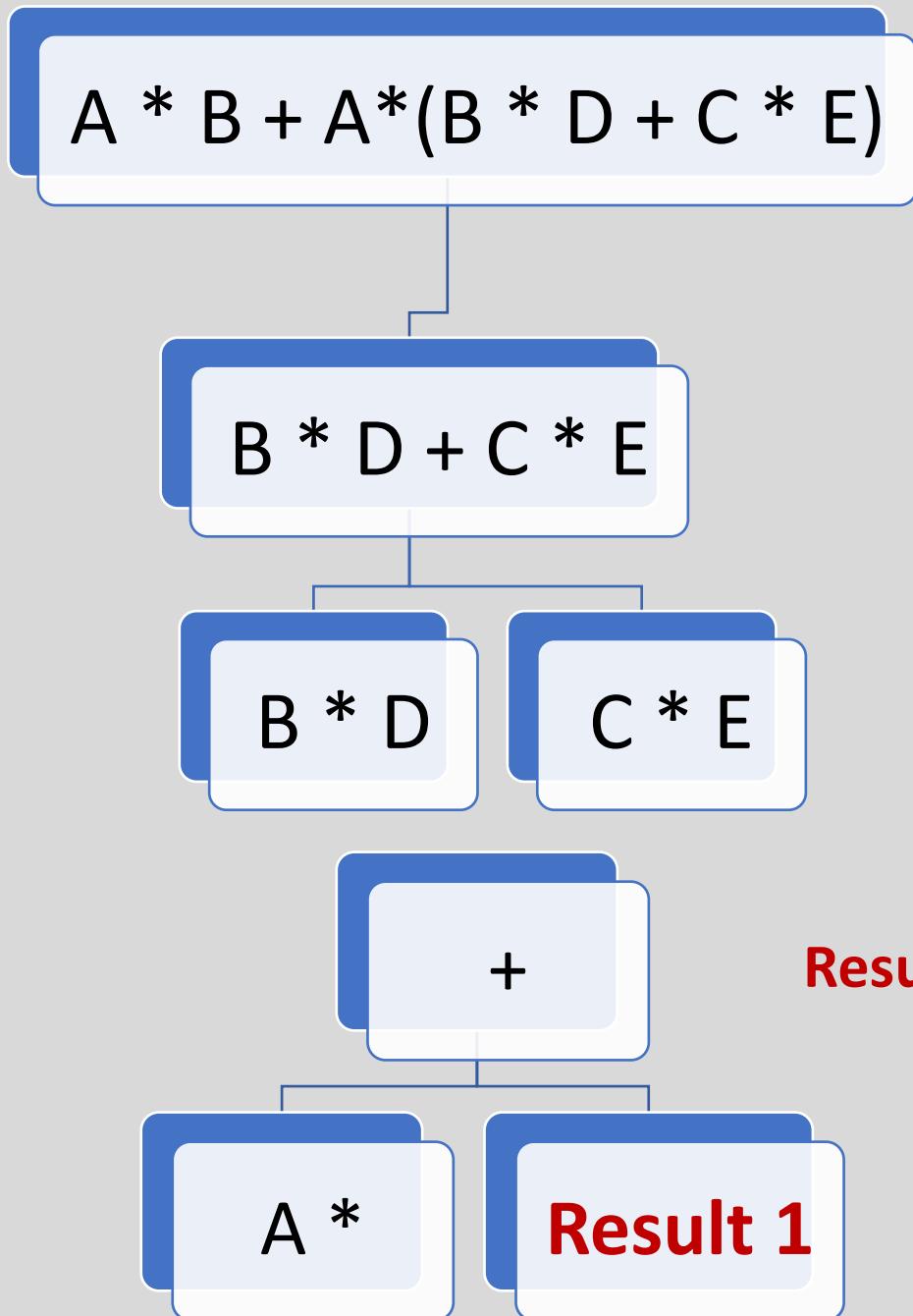
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$$A - B + (D + C / (H * K))$$

$$D + C / (H * K)$$

$$C /$$

$$H * K$$

**Result 1**

$$D +$$

**Result 1**

**Result2**

A-B

A

B

**Result 3**

**Result 2**

**Result 3**

$A * [B + C * (D + E)] / F * (G + H)$

A \*

[B + C \* (D + E)]

/ F \*

( G+ H )

C \*

( D + E )

**Result 1**

B +

**Result 1**





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علي  
الجزء 3





**Nested  
IF**

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# Problem No.1

Write a program That Find the greatest number within given 3 numbers :

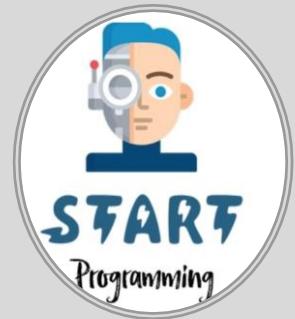
5

-2

2

Result

5



## Problem No.2

Write a program That Find the smallest number within given 3 numbers :

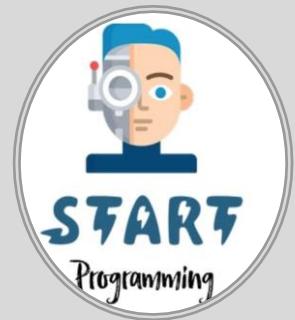
5

-2

2

Result

-2



# Problem No.3

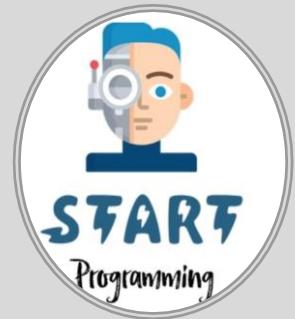
Divide two numbers given by user and if the second number is 0, print the result is unknown

5

0

Result

unkown



# Problem No.4

Identify if the water is in ice form, or in liquid form or gaseous form based on a given temperatures from the user

-5

110

50

Result

ice

gaseous

liquid



# Problem No.5

Check if number is divisible by 5 or not

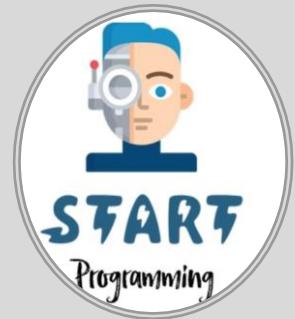
25

31

Result

yes

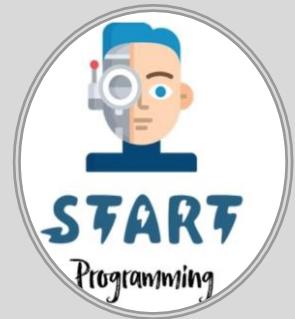
no



# Problem No.6

Write grades of Student

100-85	A ( Excellent )
85-75	B ( Very Good)
75-65	C ( Good)
65-50	D ( Accept)
50 – 0	F ( Fail )



# Problem No.7

```
switch (x) {  
    case 1:  
    case 3:  
    default:  
        console.log("no");  
        break;  
    case 4:  
    case 5:  
        console.log("yes");  
        break;  
}
```

What's the output ?

X=1

X=3

X=5

X=15

X=4



# Problem No.8

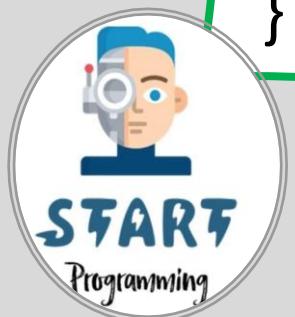
```
switch (x) {  
    case 6:  
        console.log("yes");  
        break;  
    case 0:  
        console.log("no");  
        break;  
    default:  
        console.log("maybe");  
}
```

What's the output ?

X = 1

X = 0

X = 6



# Problem No.9

What is the output of the following program fragment?

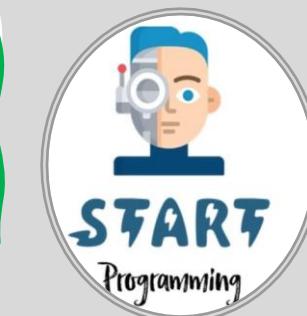
```
Var length = 25;
```

```
Var width = 60;
```

```
if (length == 50) height = 4;
```

```
else height = 8;
```

```
console.log(length, width, height);
```

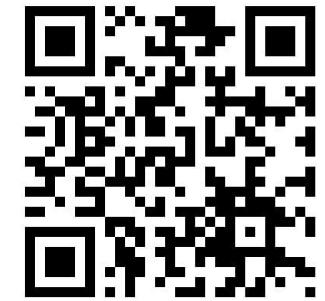




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# Lesson No.5

# JavaScript

## Function



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# الواجب - Homework



✓ مطلوب تحويل كل مسائل  
الدروس السابقة الي  
function

# Lesson No.5

# JavaScript

## Events



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# الواجب - Homework



- ✓ لا يوجد مسائل
- ✓ المطلوب عمل موقع الوطن العربي
- ✓ كما تم شرحه في كتاب الشرح فقط

# الواجب - Homework



عمل موقع يتغير المحتوى  
بداخله بالكامل علي حسب  
العلم



# Lesson No.6

# JavaScript

## Loop



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# الواجب - Homework



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# Problem No.1

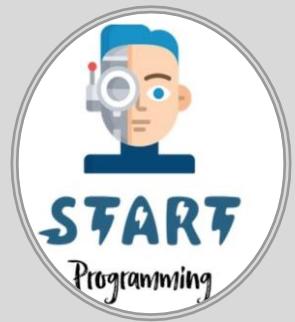
Write a program which Print sequences

- a) 1,2,3,4,... ,100
- b) 5,10,15,20,25,...100
- c) 1,4,7,10,...
- d) 20,19,18,...,1
- e) 100,97,94,91,...
- f) 20,14,8,2,-4,-10



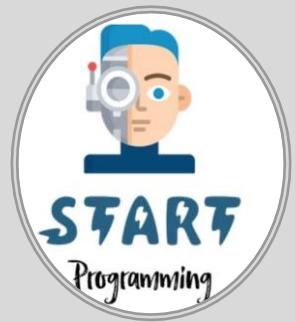
## Problem No.2

Write a program which Print even numbers from 1 to 100



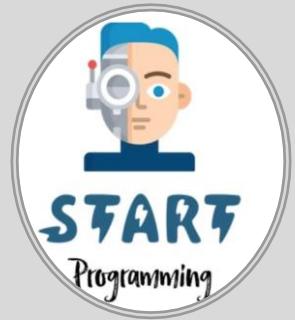
## Problem No.3

Write a program which Print odd numbers from 1 to 100



# Problem No.4

Write a program which Print sum of numbers from 1 to 5  
and average

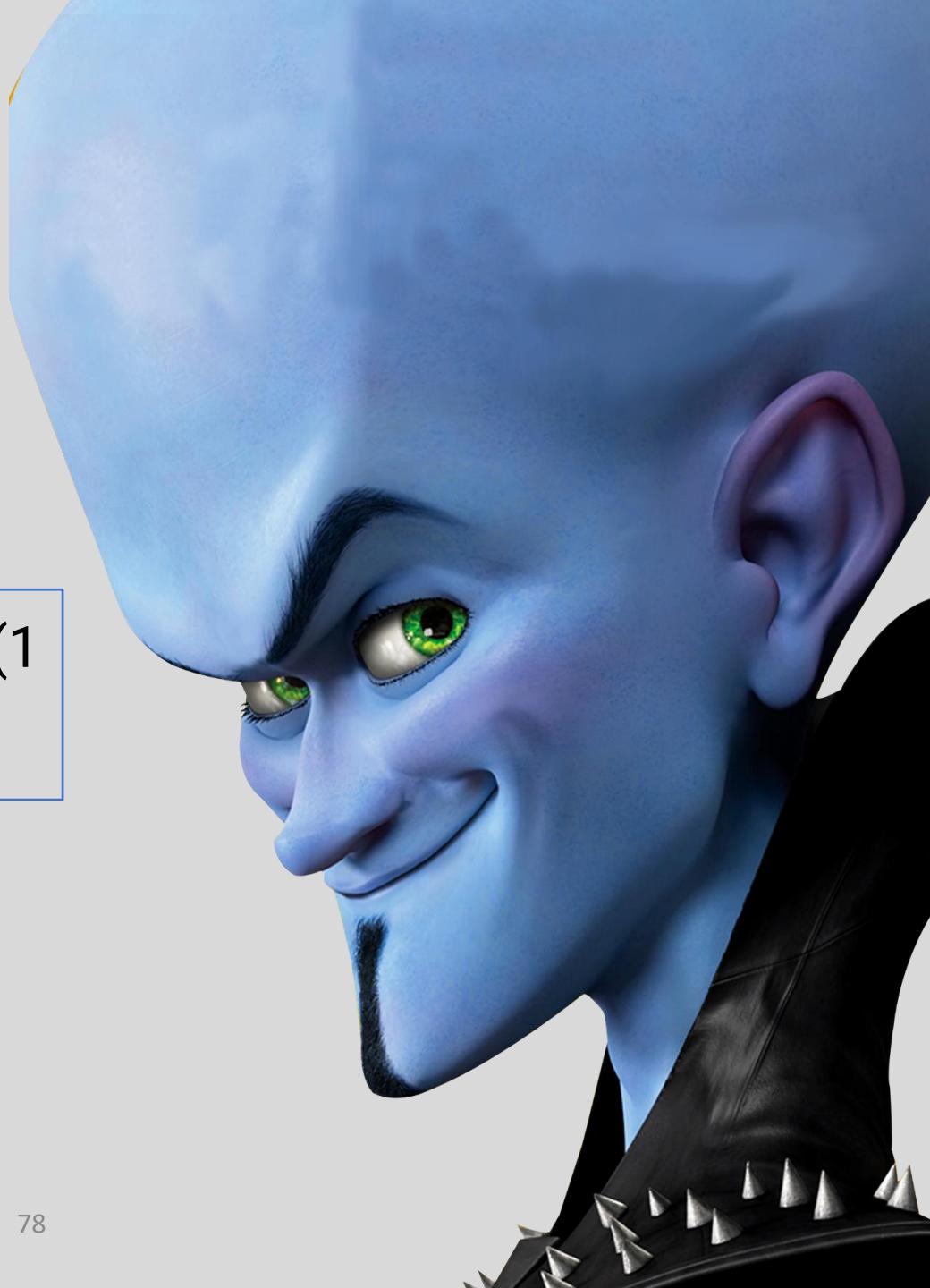


# الواجب - Homework

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(1) متنساش عمل لعبه  
mega mind





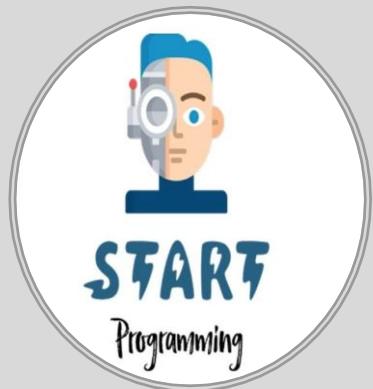
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علي  
الجزء 2





**Const – Var  
- Let**

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# Problem No.1

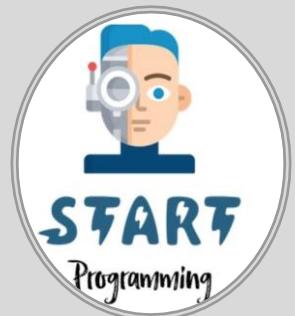
Write a program that prompts the user to input a positive integer. It should then print the multiplication table of that number.

input

5

Result

1*5	5
2*5	10
3*5	15
4*5	20
5*5	25



## Problem No.2

Write a program to find the factorial value of any number entered through the keyboard.

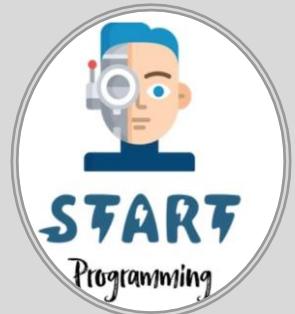
input

5

1\*2\*3\*4\*5

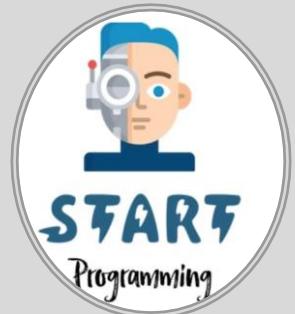
Result

5



## Problem No.3

- ✓ Calculates and prints the sum of the even integers from 2 to 30, and then calculates and
- ✓ prints the product of the odd integers from 2 to 30.



## Problem No.4

Two numbers are entered through the keyboard. Write a program to find the value of one number raised to the power of another. (Do not use JavaScript built-in method)

input

5

5

Result

$5*5*5*5*5$

3125



# Problem No.5

Write a program that prompts the user to input a positive integer. It should then output a message indicating whether the number is a prime number.

input

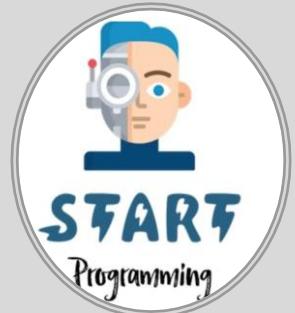
Result

5

prime

12

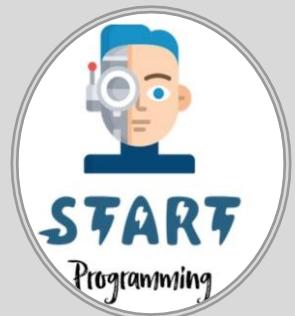
Not prime



# Problem No.6

What's the output?

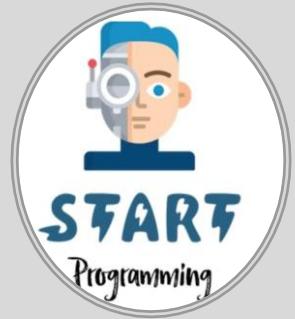
```
for(let i=0, j=1 ; i>2 && j<3 ; i--,j++)  
    console.log(i,j);
```



# Problem No.6

What's the output?

```
For(let i=0; i<=10 ; ){  
    console.log(i);  
    i++;  
}
```



# Problem No.8

What's the output of y ?

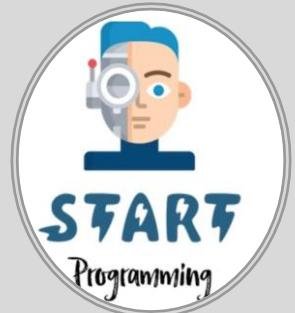
```
Let y=0;  
For(let i=0; i<10 ; i++){  
    y+=i;  
}  
console.log(y);
```

1

36

45

9



# Problem No.9

Which of the following loops print “j” 10 times ?

```
for(let i=0;i<=10;i++)  
    console.log("j");
```

```
for(let i=2;i<10;i++)  
    console.log("j");
```

```
for(let i=1;i<10;i++)  
    console.log("j");
```

```
for(let i=1;i<=10;i++)  
    console.log("j");
```



# كفاره المجلس



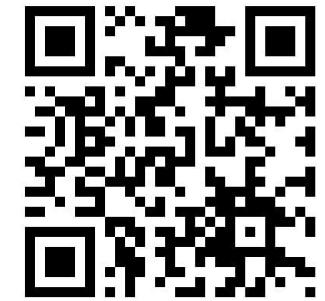
سبحانك اللهم وبحمدك  
أشهد ان لا اله الا انت  
استغفر لك واتوب اليه



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Part 2



Part 1



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يلا بينا  
علي  
الجزء 3





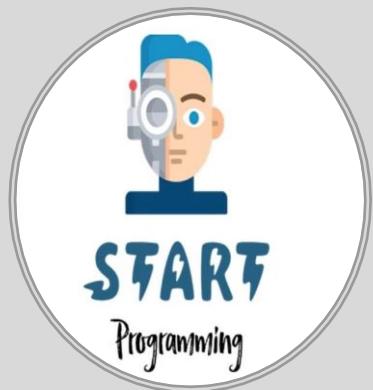
**Continue -  
break**

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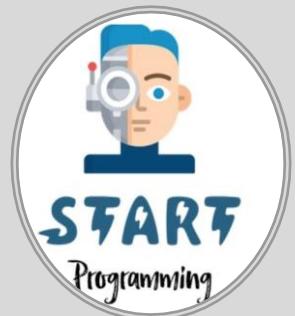


By :- Safaa El-Shafe'y

# Problem No.1

What's the output?

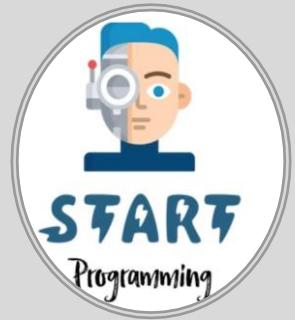
```
for(let i=0;i<5 ;i++);  
console.log("safaa");
```



# Problem No.2.1

What's the output?

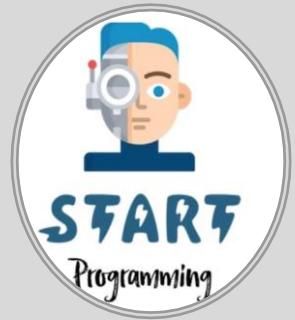
```
for(var i=0;i<5 ;i++);  
console.log(i);
```



## Problem No.2.2

What's the output?

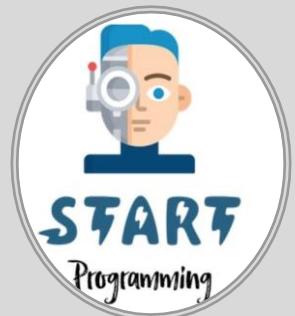
```
let i;  
for(i=0;i<5 ;i++);  
console.log(i);
```



# Problem No.3

What's the output?

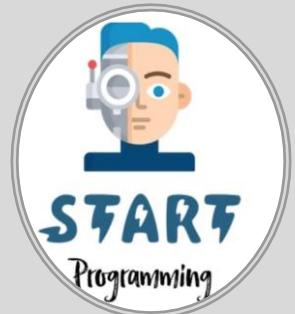
```
for(let i=0;i<5 ;i++)  
  console.log("safaa");  
  console.log("start programming");
```



# Problem No.4

What's the output?

```
for(let i=0;i<5 ;i++){  
    console.log("safaa");  
    console.log("start programming");  
}
```



# Problem No.5

What's the output?

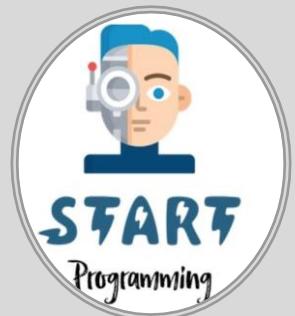
```
for(let i=0;i<5 ;i++){  
    console.log("safaa");  
}
```



# Problem No.6

What's the output?

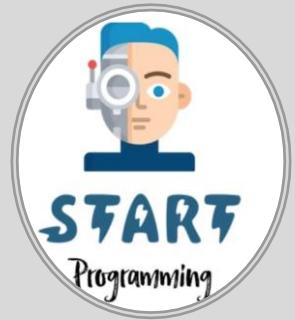
```
for(let i=0;i<5 ;i++)  
  console.log("safaa");
```



# Problem No.7

What's the output?

```
for(let i=0;i<5 ;i++){  
    console.log("safaa");
```



# Problem No.8

What's the output?

```
for(let i=0;i<5 ;i++){  
    console.log(i);  
};
```



# Problem No.9

What's the output?

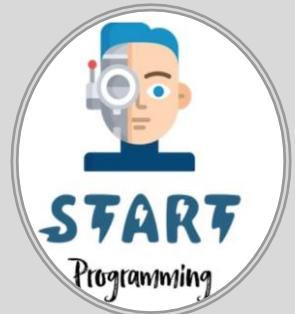
```
for(let i=0;i<=5 ;i++){
    console.log(i);
}
```



# Problem No.10

What's the output?

```
for(let i=0;i=5 ;i++){  
    console.log("safaa");  
}
```



# Problem No.11

What's the output?

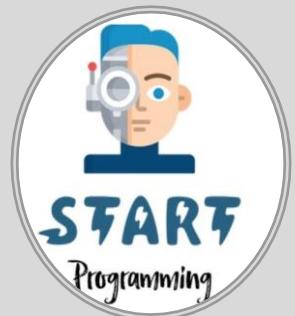
```
for(let i=0;i>0 ;i++){  
    console.log("safaa");  
}
```



# Problem No.12

What's the output?

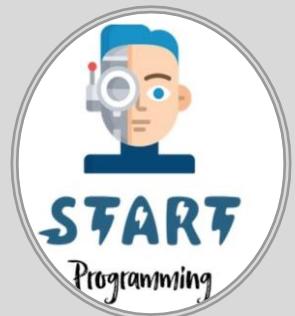
```
for(let i=0,j=0;i<3 ;j++){  
    console.log("safaa");  
}
```



# Problem No.13

What's the output?

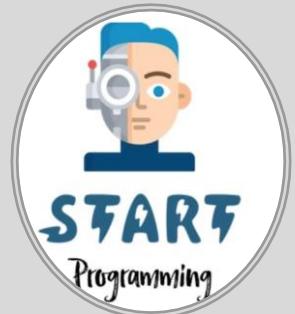
```
for(let i=0;i=0 ;i++){  
    console.log("safaa");  
}
```



# Problem No.14

What's the output?

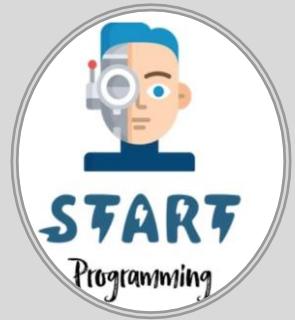
```
for(let i=0;i<5 ;i++){  
    console.log("safaa");  
}  
console.log(i);
```



# Problem No.15

What's the output?

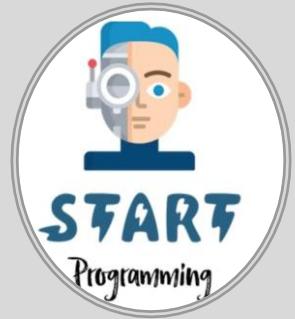
```
for(var i=0;i>5 ;i++){  
    console.log("safaa");  
}  
  
console.log(i);
```



# Problem No.16

What's the output?

```
let sum = 0;
for(let i = 2; i <= 10; i++ )
{
    if( i % 3 == 0 ) continue;
    if( i == 8 ) break;
    sum += i;
}
console.log("sum = " + sum);
```



# Problem No.17

What's the output?

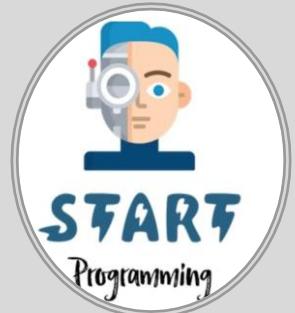
```
let sum = 0;
for(let i = 0; i < 5 ; i++ )
{
    if( i == 2 ) continue;
    sum += i;
}
console.log("sum = " + sum);
```



# Problem No.18

What's the output?

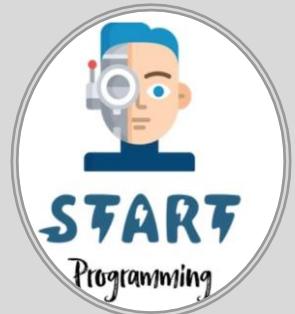
```
let sum = 0;
for(let i = 0; i < 5 ; i++ )
{
    if( i == 2 ) break;
    sum += i;
}
console.log("sum = " + sum);
```



# Problem No.19

What's the output?

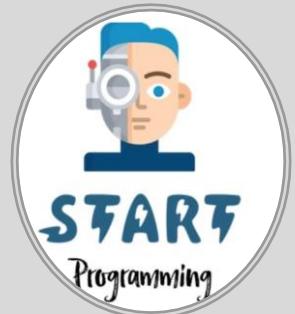
```
for(let i = 0; i <5 ; i++ )  
{  
    if( i %2 != 0 ) continue;  
    console.log(i);  
}
```



# Problem No.20

What's the output?

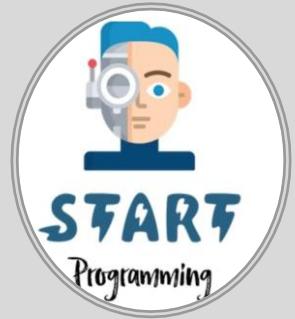
```
for(let i = 0; i <5 ; i++ )  
{  
    console.log(i);  
    if( i == 2 ) break;  
}
```



# Problem No.21

What's the output?

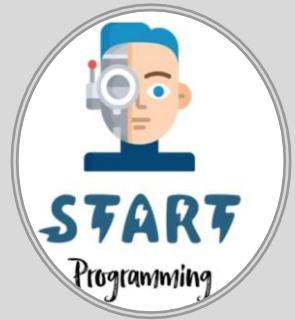
```
for(let i = 0; i <5 ; i++ )  
{  
    if( i == 2 )  
    {  
        console.log("hi");  
        break;  
    } // end if  
} // end loop
```



# Problem No.22

What's the output?

```
a=0;  
for(let i = 0; i <5 ; i++ )  
{  
    a++;  
    if( i == 1 ) continue;  
} // end loop  
console.log(a);
```



# Problem No.23

What's the output?

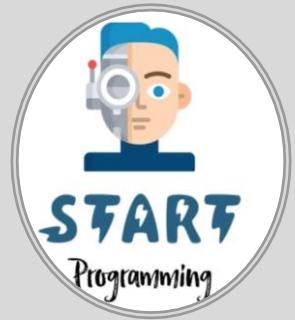
```
a=0;  
for(let i = 0; i <5 ; i++ )  
{  
    a++;  
    if( i == 3 ) break;  
} // end loop  
console.log(a);
```



# Problem No.24

What's the output?

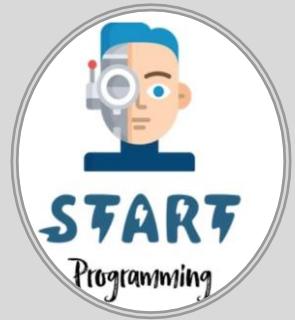
```
Let i=0;  
if( i == 0 ) {  
    console.log(a);  
    break;  
} // end if
```



# Problem No.25

What's the output?

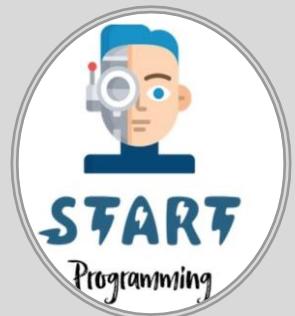
```
Let i=0;  
if( i == 0 ) {  
    console.log(a);  
    continue;  
} // end if
```

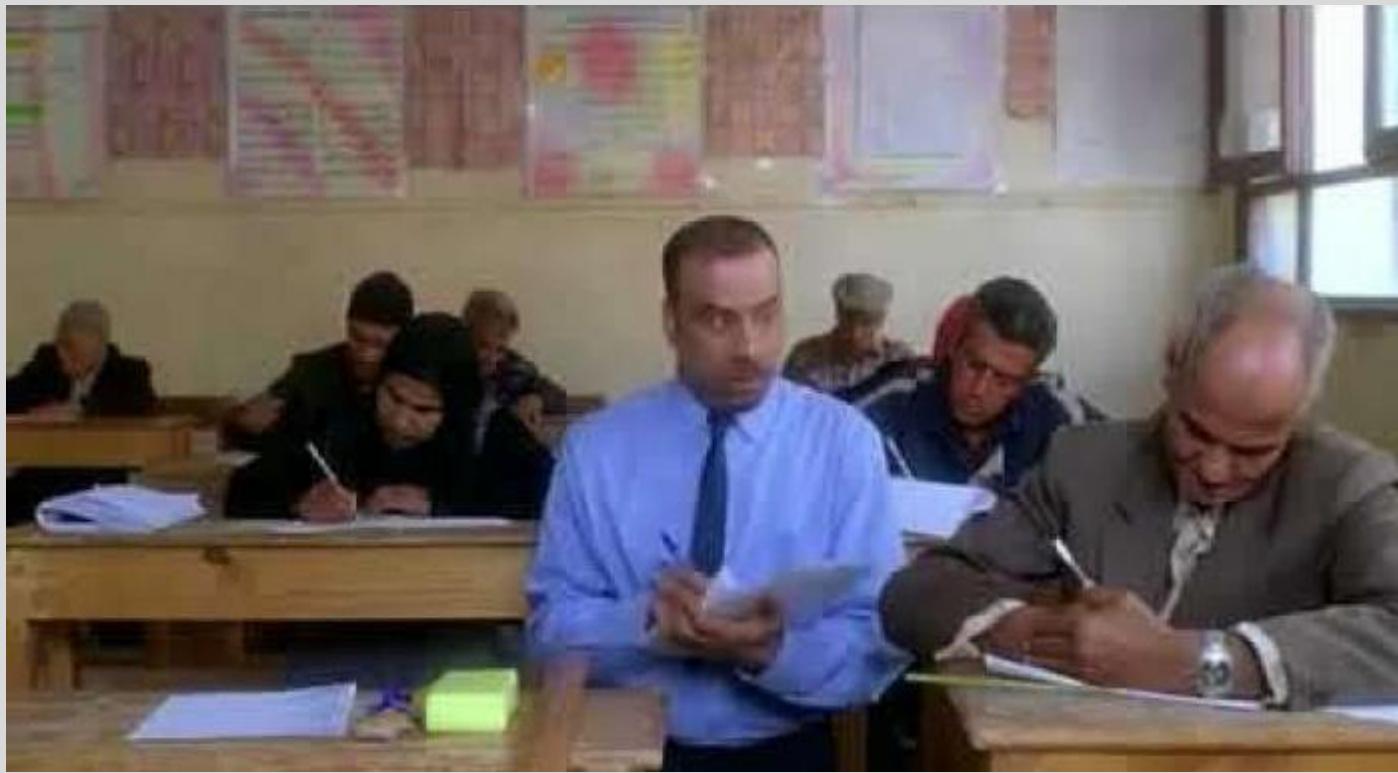


# Problem No.26

What's the output?

```
console.log("Before Continue ");
    continue;
console.log("after Continue");
```

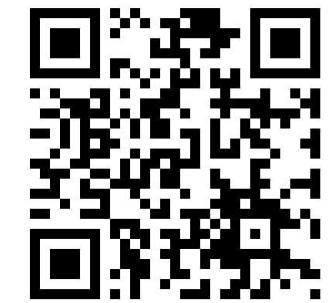




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By :- Safaa El-Shafe'y

# Problem No.1

What's the output?

```
for(let i=0;i<5 ;i++);  
console.log("safaa");
```

Answer

safaa



# Problem No.2.1

What's the output?

```
for(var i=0;i<5 ;i++);  
console.log(i);
```

Answer

5



## Problem No.2.2

What's the output?

```
let i;  
for(i=0;i<5 ;i++);  
console.log(i);
```

Answer

5



# Problem No.3

What's the output?

```
for(let i=0;i<5 ;i++)  
  console.log("safaa");  
  console.log("start programming");
```

Answer

Safaa  
safaa  
safaa  
safaa  
Safaa  
Start programming



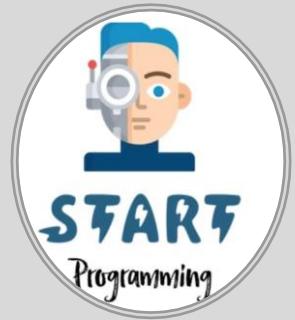
# Problem No.4

What's the output?

```
for(let i=0;i<5 ;i++){  
    console.log("safaa");  
    console.log("start programming");  
}
```

Answer

Safaa  
Start programming  
Safaa  
Start programming  
Safaa  
Start programming  
Safaa  
Start programming  
Safaa  
Start programming



# Problem No.5

What's the output?

```
for(let i=0;i<5 ;i++){  
    console.log("safaa");  
}
```

Answer

Safaa  
safaa  
safaa  
safaa  
safaa



# Problem No.6

What's the output?

```
for(let i=0;i<5 ;i++)  
  console.log("safaa");
```

Answer

Safaa  
safaa  
safaa  
safaa  
safaa



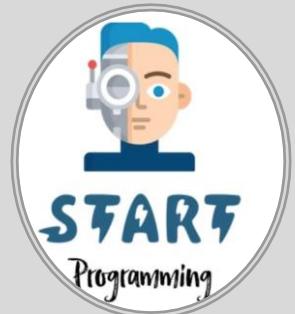
# Problem No.7

What's the output?

```
for(let i=0;i<5 ;i++){  
    console.log("safaa");
```

Answer

Safaa



# Problem No.8

What's the output?

```
for(let i=0;i<5 ;i++){  
    console.log(i);  
};
```

Answer

0  
1  
2  
3  
4



# Problem No.9

What's the output?

```
for(let i=0;i<=5 ;i++){  
    console.log(i);  
};
```

Answer

```
0  
1  
2  
3  
4  
5
```



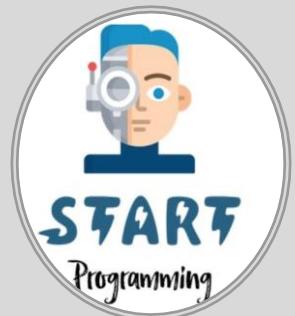
# Problem No.10

What's the output?

```
for(let i=0;i=5 ;i++){  
    console.log("safaa");  
}
```

Answer

It will print safaa to infinity



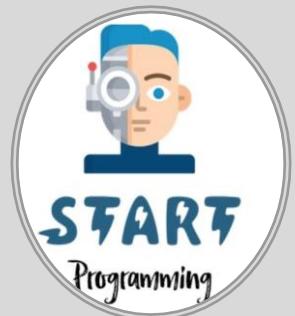
# Problem No.11

What's the output?

```
for(let i=0;i>0 ;i++){  
    console.log("safaa");  
}
```

Answer

No thing



# Problem No.12

What's the output?

```
for(let i=0,j=0;i<3 ;j++){  
    console.log("safaa");  
}
```

Answer

infinity



# Problem No.13

What's the output?

```
for(let i=0;i=0 ;i++){  
    console.log("safaa");  
}
```

Answer

No thing



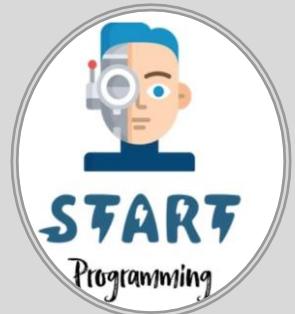
# Problem No.14

What's the output?

```
for(let i=0;i<5 ;i++){  
    console.log("safaa");  
}  
  
console.log(i);
```

Answer

Error



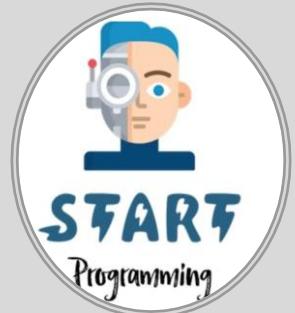
# Problem No.15

What's the output?

```
for(var i=0;i>5 ;i++){  
    console.log("safaa");  
}  
  
console.log(i);
```

Answer

0



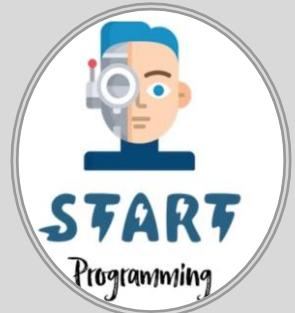
# Problem No.16

What's the output?

```
let sum = 0;  
for(let i = 2; i <= 10; i++ )  
{  
    if( i % 3 == 0 ) continue;  
    if( i == 8 ) break;  
    sum += i;  
}  
console.log("sum = " + sum);
```

Answer

18



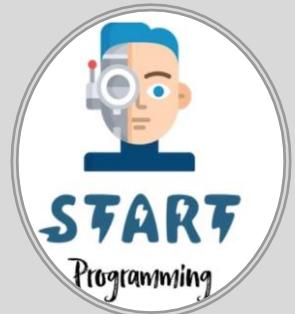
# Problem No.17

What's the output?

```
let sum = 0;
for(let i = 0; i < 5 ; i++ )
{
  if( i == 2 ) continue;
  sum += i;
}
console.log("sum = " + sum);
```

Answer

8



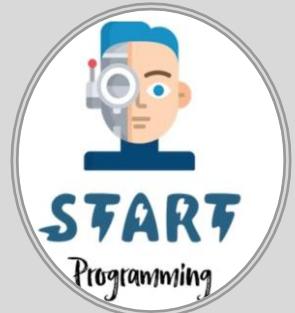
# Problem No.18

What's the output?

```
let sum = 0;
for(let i = 0; i < 5 ; i++ )
{
  if( i == 2 ) break;
  sum += i;
}
console.log("sum = " + sum);
```

Answer

1



# Problem No.19

What's the output?

```
for(let i = 0; i <5 ; i++ )  
{  
    if( i %2 != 0 ) continue;  
    console.log(i);  
}
```

Answer

0 2 4



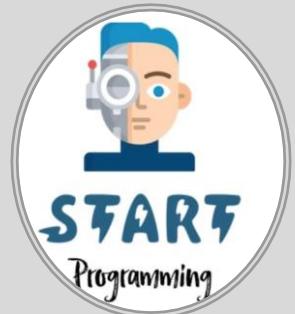
# Problem No.20

What's the output?

```
for(let i = 0; i <5 ; i++ )  
{  
    console.log(i);  
    if( i == 2 ) break;  
}
```

Answer

0 1 2



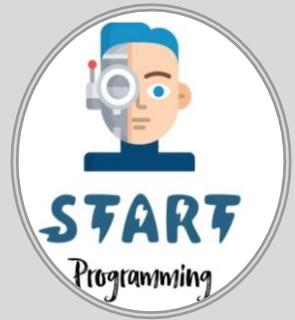
# Problem No.21

What's the output?

```
for(let i = 0; i <5 ; i++ )  
{  
    if( i == 2 )  
    {  
        console.log("hi");  
        break;  
    } // end if  
} // end loop
```

Answer

hi



# Problem No.22

What's the output?

```
a=0;  
for(let i = 0; i <5 ; i++ )  
{  
    a++;  
    if( i == 1 ) continue;  
} // end loop  
console.log(a);
```

Answer

5



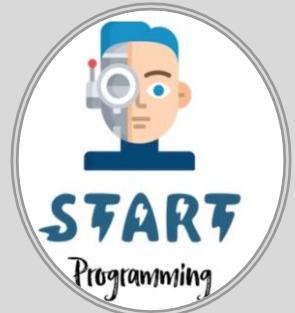
# Problem No.23

What's the output?

```
a=0;  
for(let i = 0; i <5 ; i++ )  
{  
    a++;  
    if( i == 3 ) break;  
} // end loop  
console.log(a);
```

Answer

3



# Problem No.24

What's the output?

```
Let i=0;  
if( i == 0 ) {  
    console.log(a);  
    break;  
} // end if
```

Answer

Error



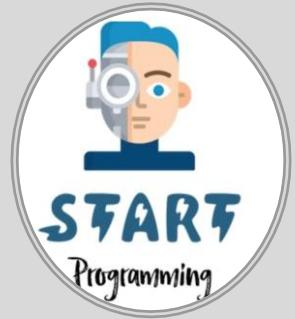
# Problem No.25

What's the output?

```
Let i=0;  
if( i == 0 ) {  
    console.log(a);  
    continue;  
} // end if
```

Answer

Error



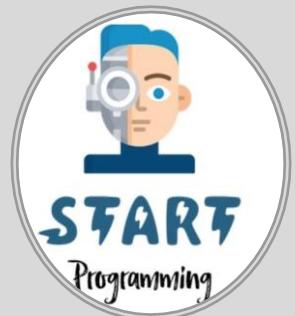
# Problem No.26

What's the output?

```
console.log("Before Continue ");
    continue;
console.log("after Continue");
```

Answer

Error





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**Nested  
loop**

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By :- Safaa El-Shafe'y

# Problem No.1

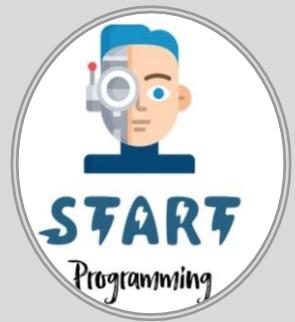
Prints the following patterns separately, one “a” followed by the other “b”. Use for loops to generate them. All the asterisks (\*) should be printed by a single `console.log()` statement in the following form: `console.log ("*")`.

(a)

```
*  
**  
***  
****  
*****  
*****  
*****  
*****  
*****  
*****
```

(b)

```
*****  
*****  
*****  
*****  
*****  
*****  
****  
***  
**  
*
```



# Problem No.2

Write a program to print following :

i) \* \* \* \* \* \* \*  
\* \* \* \* \* \* \*  
\* \* \* \* \* \* \*  
\* \* \* \* \* \* \*

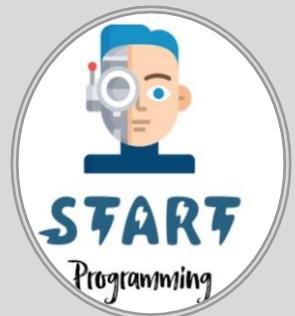
ii) \*  
\*\*  
\*\*\*  
\*\*\*\*  
\*\*\*\*\*

iii) \*  
\*\*  
\*\*\*  
\*\*\*\*  
\*\*\*\*\*

iv) \*  
\*\*\*  
\*\*\*\*  
\*\*\*\*\*  
\*\*\*\*\*

v) 1  
222  
33333  
4444444  
555555555

vi) 1  
212  
32123  
4321234  
543212345



# Problem No.3

What's the output?

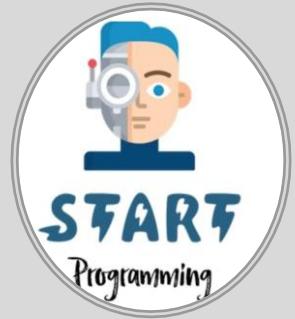
```
for (let i = 1; i < 3; i++){\n    for (let j = 1; j < 3; ++j){\n        if (j == 2)\n            continue;\n        console.log("i = " + i + ", j = " + j);\n    }\n}
```



# Problem No.4

What's the output?

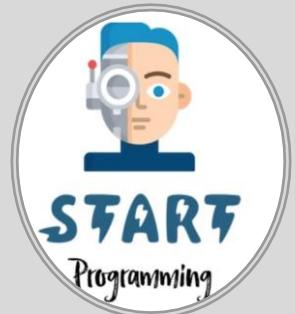
```
for (let i = 0; i < 3; i++){\n    for (let j = 3; j >= 0; j--){\n        if (i == j)\n            continue;\n        console.log(i + " " + j);\n    }\n}
```



# Problem No.5

What's the output?

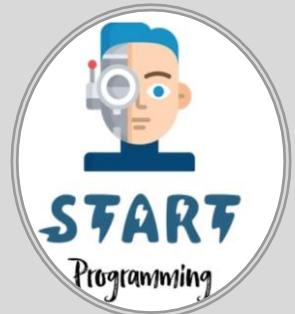
```
for (let i = 1; i <= 3; i++){
    for (let j = 1; j <= 2; j++){
        console.log("Six");
    }
}
```



# Problem No.6

What's the output?

```
for (let i = 1; i <= 5; i++){
    for (let j = 1; j <= 10; j++){
        document.write(i*j+"");
    }
    document.write("<br>");
}
```

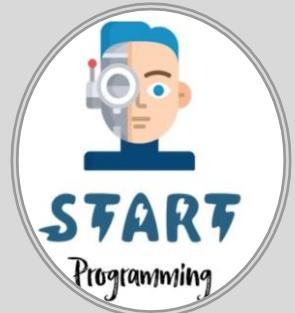


# Problem No.7

What's the output?

```
for (let i = 1; i <= 4; i++){
    for (let j = 1; j <= 5; j++){
        document.write("*");
    }
    document.write("");
}
```

Do you really need a  
nested for loop in this  
case?



# Problem No.8

What's the output?

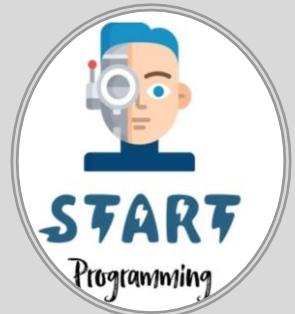
```
for (let i = 1; i <= 6; i++){  
    for (let j = 1; j <= i; j++){  
        document.write("*");  
    }  
    document.write("<br>");  
}
```



# Problem No.9

What's the output?

```
for (let i = 0; i < 5; i++){  
    for (let j = 0; j < 4; j++){  
        if(i>1)  
            break;  
    }  
    console.log("Hi");  
}
```



# Problem No.10

What's the output?

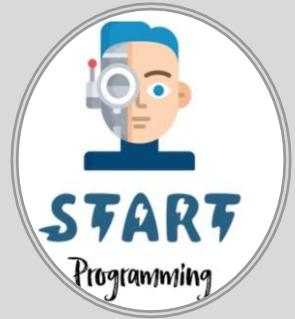
```
for (let i = 0; i < 2; i++){  
    for (let j = 0; j < 3; j++){  
        console.log(i);  
  
        break;  
    }  
}
```



# Problem No.11

What's the output?

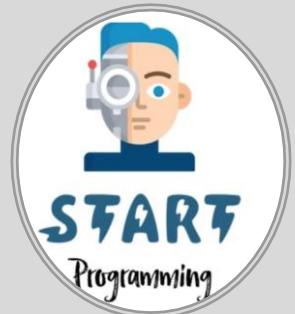
```
for (let i = 0; i < 5; i++){\n    for (let j = 0; j < 4; j++){\n        if(i>1)\n            continue;\n        console.log("Hi");\n    }\n}
```



# Problem No.12

What's the output?

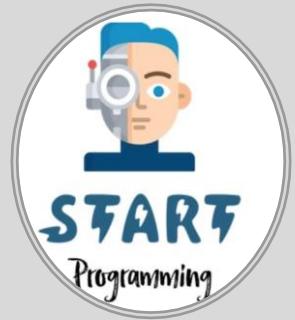
```
for (let i = 0; i < 3; i++){
    for (let j = 0; j < 5; j++){
        if(j==2)
            continue;
        console.log(j);
    }
}
```



# Problem No.13

Create a nested for loops produce the following output.

....1  
...22  
.333  
.4444  
55555

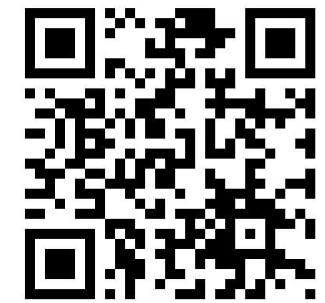




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Part 2



Part 1



**START**  
Programming

By :- Safaa El-Shafe'y

# Problem No.1

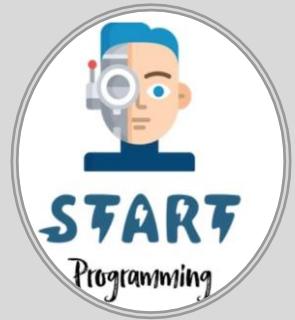
Prints the following patterns separately, one “a” followed by the other “b”. Use for loops to generate them. All the asterisks (\*) should be printed by a single `console.log()` statement in the following form: `console.log ("*")`.

(a)

```
*  
**  
***  
****  
*****  
*****  
*****  
*****  
*****  
*****
```

(b)

```
*****  
*****  
*****  
*****  
*****  
*****  
****  
***  
**  
*
```



# Problem No.2

Write a program to print following :

i) \* \* \* \* \* \* \*  
\* \* \* \* \* \* \*  
\* \* \* \* \* \* \*  
\* \* \* \* \* \* \*

ii) \*  
\*\*  
\*\*\*  
\*\*\*\*  
\*\*\*\*\*

iii) \*  
\*\*  
\*\*\*  
\*\*\*\*  
\*\*\*\*\*

iv) \*  
\*\*\*  
\*\*\*\*  
\*\*\*\*\*  
\*\*\*\*\*

v) 1  
222  
33333  
4444444  
555555555

vi) 1  
212  
32123  
4321234  
543212345



# Problem No.3

What's the output?

```
for (let i = 1; i < 3; i++){\n    for (let j = 1; j < 3; ++j){\n        if (j == 2)\n            continue;\n        console.log("i = " + i + ", j = " + j);\n    }\n}
```

Answer

i = 1, j = 1  
i = 2, j = 1



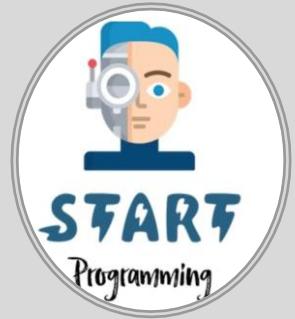
# Problem No.4

What's the output?

```
for (let i = 0; i < 3; i++){\n    for (let j = 3; j >= 0; j--){\n        if (i == j)\n            continue;\n        console.log(i + " " + j);\n    }\n}
```

Answer

```
0 3\n0 2\n0 1\n1 3\n1 2\n1 0\n2 3\n2 1\n2 0
```



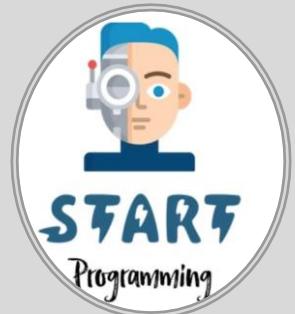
# Problem No.5

What's the output?

```
for (let i = 1; i <= 3; i++){
    for (let j = 1; j <= 2; j++){
        console.log("Six");
    }
}
```

Answer

Six  
Six  
Six  
Six  
Six  
Six



# Problem No.6

What's the output?

```
for (let i = 1; i <= 5; i++){
    for (let j = 1; j <= 10; j++){
        document.write(i*j+"");
    }
    document.write("<br>");
}
```

Answer

```
1 2 3 4 5 6 7 8 9 10
2 4 6 8 10 12 14 16 18 20
3 6 9 12 15 18 21 24 27 30
3 4 8 12 16 20 24 28 32 36 40
5 10 15 20 25 30 35 40 45 50
```

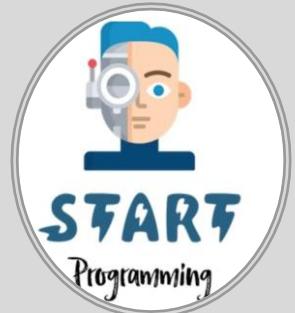


# Problem No.7

What's the output?

```
for (let i = 1; i <= 4; i++){
    for (let j = 1; j <= 5; j++){
        document.write("*");
    }
    document.write("");
}
```

Do you really need a  
nested for loop in this  
case?



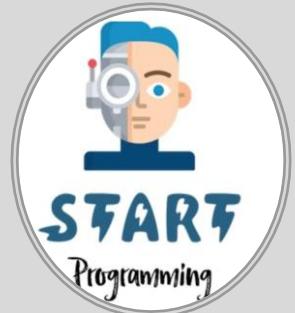
# Problem No.8

What's the output?

```
for (let i = 1; i <= 6; i++){  
    for (let j = 1; j <= i; j++){  
        document.write("*");  
    }  
  
    document.write("<br>");  
}
```

Answer

```
*  
**  
***  
****  
*****  
*****
```



# Problem No.9

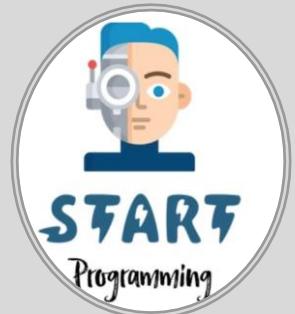
What's the output?

```
for (let i = 0; i < 5; i++){  
    for (let j = 0; j < 4; j++){  
        if(i>1)  
            break;  
    }  
    console.log("Hi");  
}
```

Answer

Hi is printed 5 times

Hi  
Hi  
Hi  
Hi  
Hi



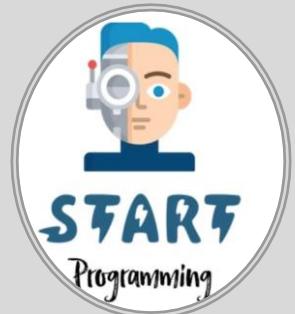
# Problem No.10

What's the output?

```
for (let i = 0; i < 2; i++){\n    for (let j = 0; j < 3; j++){\n        console.log(i);\n\n        break;\n    }\n}
```

Answer

0  
1



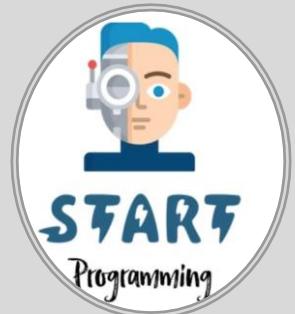
# Problem No.11

What's the output?

```
for (let i = 0; i < 5; i++){  
    for (let j = 0; j < 4; j++){  
        if(i>1)  
            continue;  
        console.log("Hi");  
    }  
}
```

Answer

Hi is printed 8 times



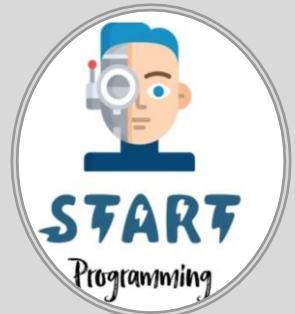
# Problem No.12

What's the output?

```
for (let i = 0; i < 3; i++){\n    for (let j = 0; j < 5; j++){\n        if(j==2)\n            continue;\n        console.log(j);\n    }\n}
```

Answer

0 1 3 4  
0 1 3 4  
0 1 3 4

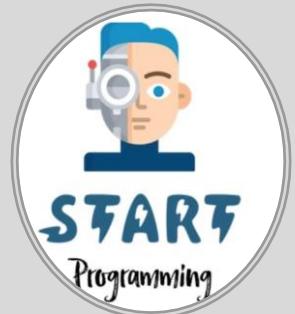


# Problem No.13

Create a nested for loops produce the following output.

....1  
...22  
.333  
.4444  
55555

```
for (let i = 1; i <= 5; i++){  
    for (let j = 1; j <= (5-i); j++)  
        document.write(".");  
    for (let k = 1; k <= i; k++)  
        document.write(i);  
    document.write(" <br>");  
}
```





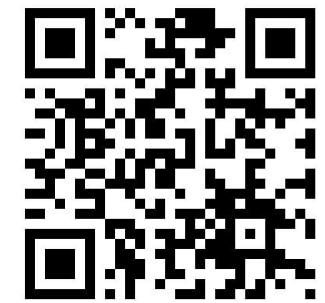
يلا بينا  
علي  
الجزء 5



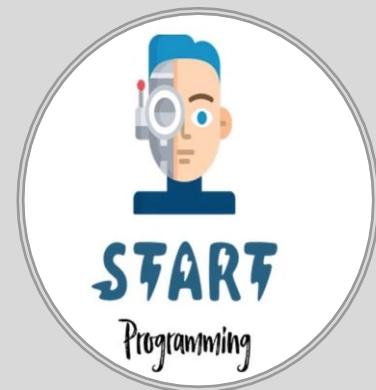
**While  
Do-While**

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By :- Safaa El-Shafe'y

ادعية المطر

اللهم

هون برد الشتاء على عبادك  
المستضعفين في كل مكان  
اللهم انزل دفئك ورحمتك  
على كل فقير لا مأوى له



# Problem No.1

Write a do-while loop that asks the user to enter two numbers. The numbers should be added and the sum displayed. The loop should ask the user whether he or she wishes to perform the operation again. If so, the loop should repeat; otherwise it should terminate.

input

Result

Enter : Y or N

9

5

-4



# Problem No.2

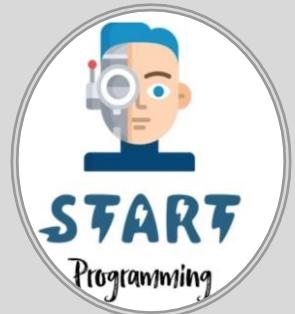
Write a program to enter the numbers till the user wants and at the end it should display the count of positive, negative and zeros entered.

input

5
9
2
0
-4

Result

zero	1
positive	3
negative	1



# Problem No.3

Write a program to enter the numbers till the user wants and at the end the program should display the largest and smallest numbers entered.

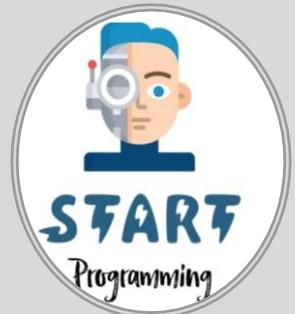
input

9

-4

Result

5
9
2
1
-4



# Problem No.4

Write a program to print Fibonacci series of n terms where n is input by user :  
0 1 1 2 3 5 8 13 24 .....

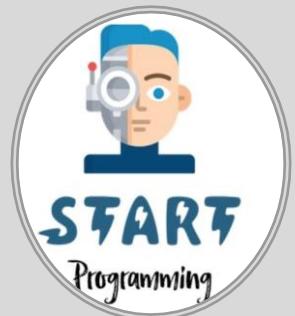
input

9

Result

0 1 1 2 3 5 8 13 21

0 1 1 2 3 5 8 13 24



# Problem No.5

Write a program to calculate the sum of following series where n is input by user.

$$1 + 1/2 + 1/3 + 1/4 + 1/5 + \dots + 1/n$$

input

5

Result

$$1 + 1/2 + 1/3 + 1/4 + 1/5$$



# Problem No.6

Compute the natural logarithm of 2, by adding up to n terms in the series  
 $1 - 1/2 + 1/3 - 1/4 + 1/5 - \dots 1/n$   
where n is a positive integer and input by user.

input

5

Result

$1 - 1/2 + 1/3 - 1/4 + 1/5$



# Problem No.7

Write a program that generates a random number and asks the user to guess what the number is. If the user's guess is higher than the random number, the program should display "Too high, try again." If the user's guess is lower than the random number, the program should display "Too low, try again." The program should use a loop that repeats until the user correctly guesses the random number.

input

5

2

12

5

Result

Too high! Try Again

Too low! Try Again

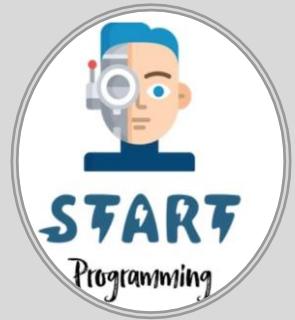
Correct! You got it  
in **No.tries** guesses!



# Problem No.9

What's the output?

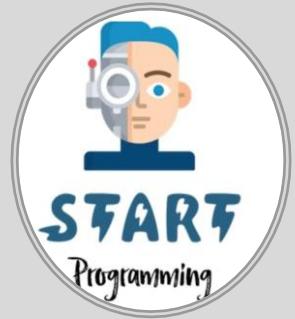
```
let i=0;  
do {  
    i++;  
    if (i==2) continue;  
    console.log("in loop");  
} while (i<2);  
console.log(i);
```



# Problem No.10

What's the output?

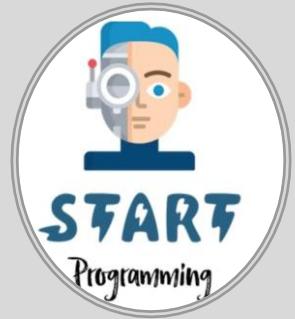
```
let n=3;  
while (true) {  
    if (n<0) break;  
    console.log(n);  
    n-=1;  
}
```



# Problem No.11

What's the output?

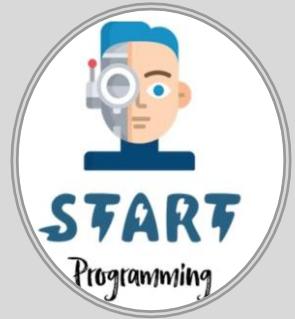
```
let i=0;  
while ( i<2) {  
    if (i==1) break;  
    i++;  
    if (i==1) continue;  
    console.log("in while");  
}  
console.log("after while");
```



# Problem No.12

What's the output?

```
let i=14;  
while ( i<20) {  
    ++i;  
    if (i>=16 && i<=18) continue;  
    console.log(i);  
}
```



# Problem No.13

What's the output?

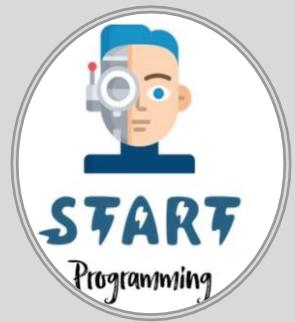
```
let a=0 , b=0;  
while ( ++a<4)  
    console.log(a);  
while ( b++<4)  
    console.log(b);
```

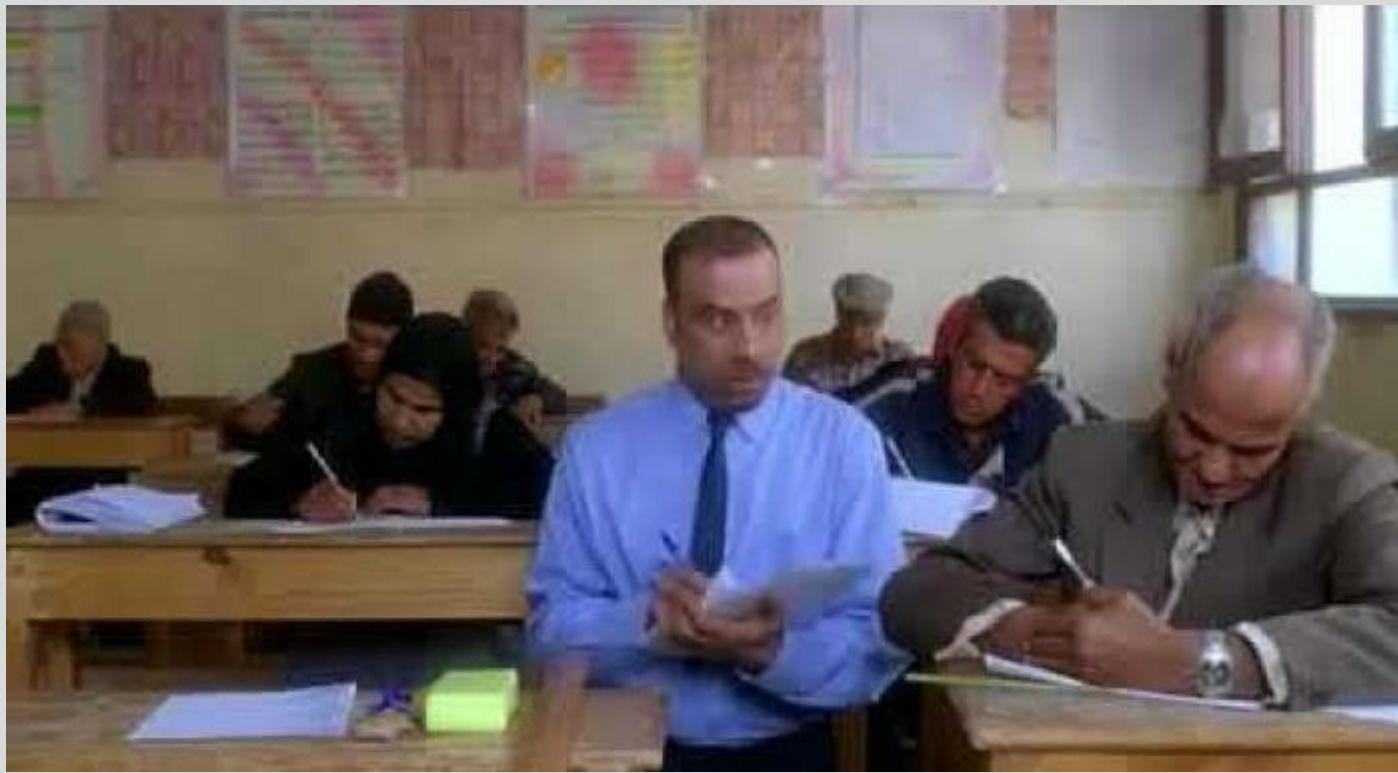


# Problem No.14

What's the output?

```
let i=0, name="loza";
while ( i<2) {
    i++;
    switch(name){
        case "loza":
            console.log(name);
            name="safaa";
            break;
            break;
    } // end switch
} // end loop
console.log("after while");
```

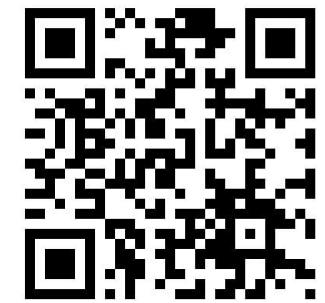




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Part 2



Part 1



By :- Safaa El-Shafe'y

# Problem No.1

Write a do-while loop that asks the user to enter two numbers. The numbers should be added and the sum displayed. The loop should ask the user whether he or she wishes to perform the operation again. If so, the loop should repeat; otherwise it should terminate.

input

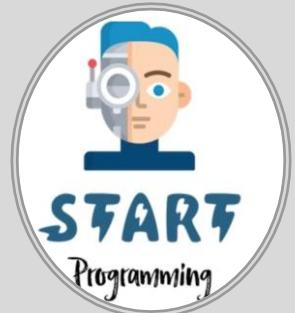
Result

Enter : Y or N

9

5

-4



# Problem No.2

Write a program to enter the numbers till the user wants and at the end it should display the count of positive, negative and zeros entered.

input

5
9
2
0
-4

Result

zero	1
positive	3
negative	1



# Problem No.3

Write a program to enter the numbers till the user wants and at the end the program should display the largest and smallest numbers entered.

input

9

-4

Result

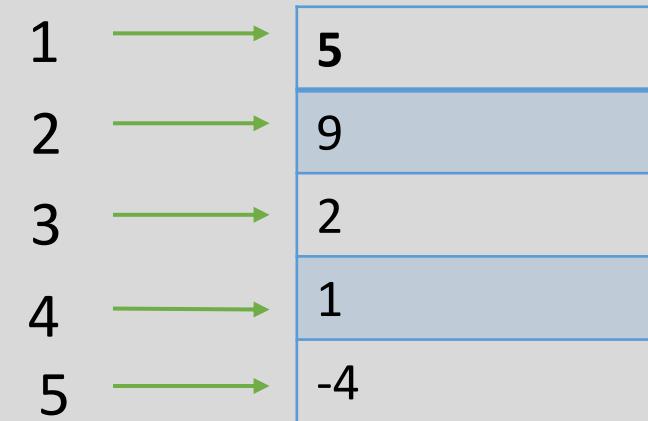
5
9
2
1
-4



# Min Vs Max

Min -4

Max 9



# Problem No.4

Write a program to print Fibonacci series of n terms where n is input by user :  
0 1 1 2 3 5 8 13 24 .....

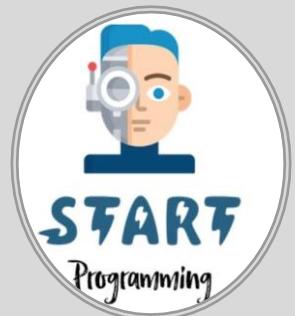
input

9

Result

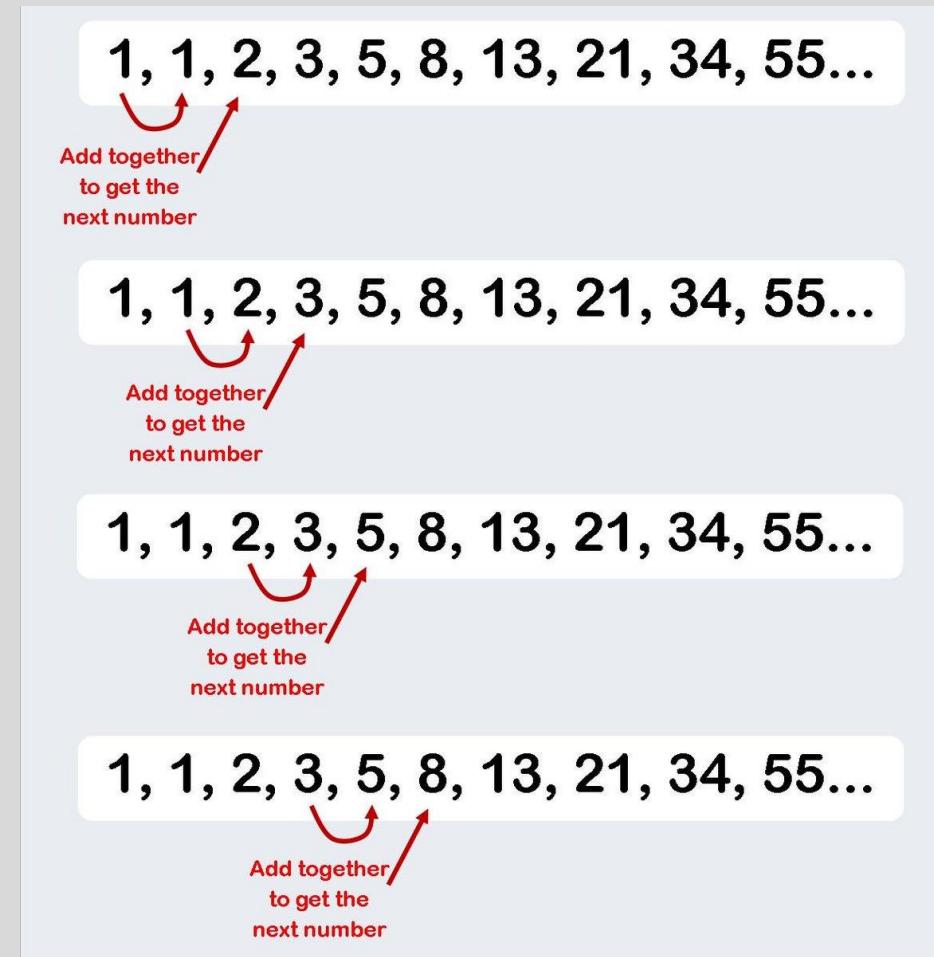
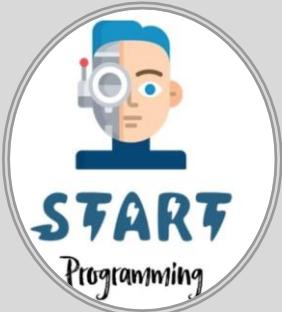
0 1 1 2 3 5 8 13 21

0 1 1 2 3 5 8 13 24



# Fibonacci

بنخلي كل مره  
آخر رقمين -  
هما الرقمين اللي  
مفروض نجمعهم  
علي بعض



# Fibonacci

0    1    1



1



بنخلி كل مره اخر رقمين -  
هما الرقمين اللي مفروض  
نجمعهم على بعض

الرقم الثاني هيبي  
هو الرقم 1  
+  
والرقم الناتج من  
الجمع هيبي هيبي  
هو الرقم 2

Note

# Fibonacci

1    1    2

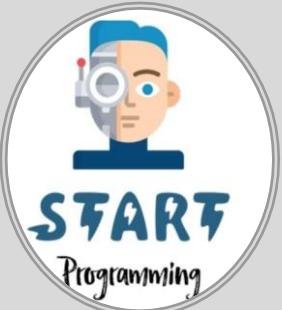


2

بنخلي كل مره  
اخر رقمين -  
هما الرقمين اللي  
مفروض نجمعهم  
علي بعض

الرقم الثاني هيبي  
هو الرقم 1  
+  
والرقم الناتج من  
الجمع هيبي هيبي  
هو الرقم 2

Note



# Fibonacci

1    2    3



3

بنخلي كل مره  
اخر رقمين -  
هما الرقمين اللي  
مفروض نجمعهم  
علي بعض

الرقم الثاني هيبي  
هو الرقم 1  
+  
والرقم الناتج من  
الجمع هيبي هيبي  
هو الرقم 2

Note



# Fibonacci

بنخلي كل مره  
اخر رقمين -  
هما الرقمين اللي  
مفروض نجمعهم  
علي بعض

2      3      5



5

الرقم الثاني هيبي  
هو الرقم 1  
+  
والرقم الناتج من  
الجمع هيبي هيبي  
هو الرقم 2

Note



# Fibonacci

3      5      8



8

بنخلي كل مره  
اخر رقمين -  
هما الرقمين اللي  
مفروض نجمعهم  
علي بعض

الرقم الثاني هيبي  
هو الرقم 1  
+  
والرقم الناتج من  
الجمع هيبي هيبي  
هو الرقم 2

Note



# Fibonacci

5      8      13



13

بنخلي كل مره  
اخر رقمين -  
هما الرقمين اللي  
مفروض نجمعهم  
علي بعض

الرقم الثاني هيبي  
هو الرقم 1  
+  
والرقم الناتج من  
الجمع هيبي هيبي  
هو الرقم 2

Note



# Fibonacci

8      13      21



21

بنخلي كل مره  
اخر رقمين -  
هما الرقمين اللي  
مفروض نجمعهم  
علي بعض

الرقم الثاني هيبي  
هو الرقم 1  
+  
والرقم الناتج من  
الجمع هيبي هيبي  
هو الرقم 2

Note



# Problem No.5

Write a program to calculate the sum of following series where n is input by user.

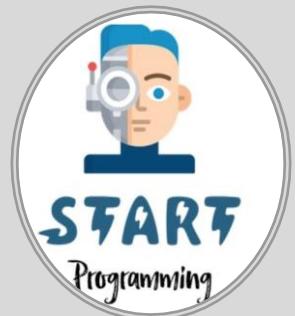
$$1 + 1/2 + 1/3 + 1/4 + 1/5 + \dots + 1/n$$

input

5

Result

$$1 + 1/2 + 1/3 + 1/4 + 1/5$$



# Problem No.6

Compute the natural logarithm of 2, by adding up to n terms in the series  
 $1 - 1/2 + 1/3 - 1/4 + 1/5 - \dots 1/n$   
where n is a positive integer and input by user.

input

5

Result

$1 - 1/2 + 1/3 - 1/4 + 1/5$



# Problem No.7

Write a program that generates a random number and asks the user to guess what the number is. If the user's guess is higher than the random number, the program should display "Too high, try again." If the user's guess is lower than the random number, the program should display "Too low, try again." The program should use a loop that repeats until the user correctly guesses the random number.

input

5

2

12

5

Result

Too high! Try Again

Too low! Try Again

Correct! You got it  
in **No.tries** guesses!

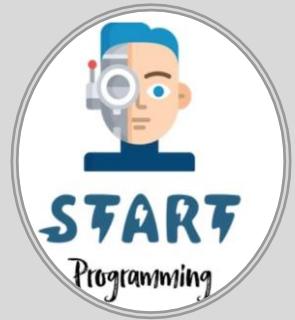


# Problem No.9

What's the output?

```
let i=0;  
do {  
    i++;  
    if (i==2) continue;  
    console.log("in loop");  
} while (i<2);  
console.log(i);
```

In loop  
2

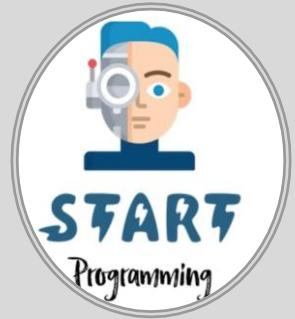


# Problem No.10

What's the output?

```
let n=3;  
while (true) {  
    if (n<0) break;  
    console.log(n);  
    n-=1;  
}
```

3 2 1 0

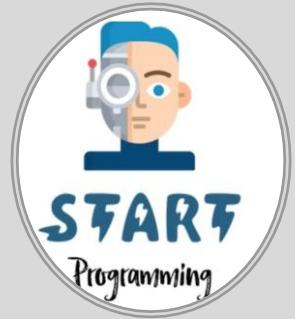


# Problem No.11

What's the output?

```
let i=0;  
while ( i<2) {  
    if (i==1) break;  
    i++;  
    if (i==1) continue;  
    console.log("in while");  
}  
console.log("after while");
```

After while

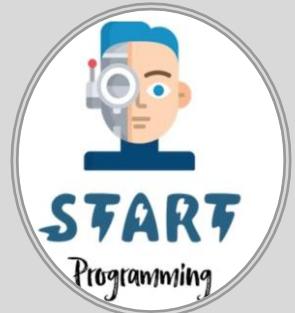


# Problem No.12

What's the output?

```
let i=14;  
while ( i<20) {  
    ++i;  
    if (i>=16 && i<=18) continue;  
    console.log(i);  
}
```

15  
19  
20

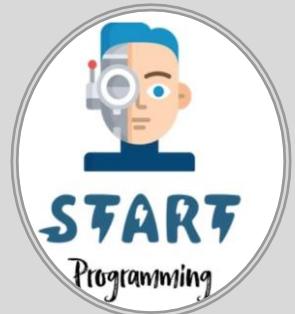


# Problem No.13

What's the output?

```
let a=0 , b=0;  
while ( ++a<4)  
    console.log(a);  
while ( b++<4)  
    console.log(b);
```

1 2 3  
1 2 3 4

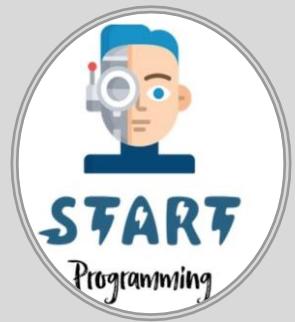


# Problem No.14

What's the output?

loza  
After while

```
let i=0, name="loza";
while ( i<2) {
    i++;
    switch(name){
        case "loza":
            console.log(name);
            name="safaa";
            break;
            break;
    } // end switch
} // end loop
console.log("after while");
```



# Lesson No.8

# JavaScript

## Array



By :- Safaa El-Shafe'y

**Quiz**

**Array**



# Problem No.1

What's name of array ?!!

```
Var MyArray = [3,4,100,5,-9,0];
```

MyArray

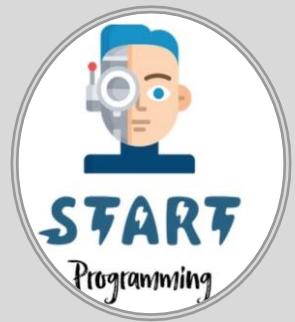


## Problem No.2

What's the index of element ( 4 ) ?!!

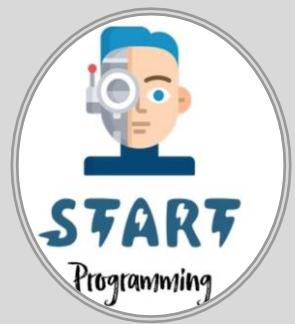


3
4
100
5
-9
0



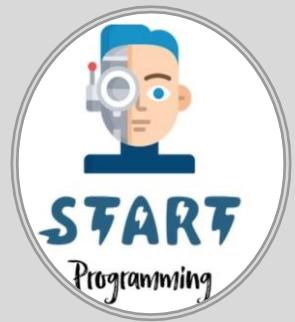
# Problem No.3

What's the order of element ( 100 ) ?!!



# Problem No.4

What's the size of array ?!!

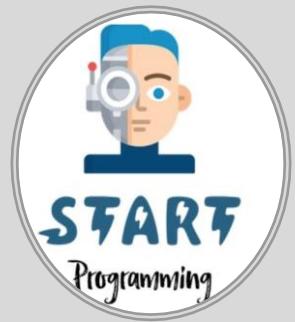


# Problem No.5

What's the last index of array ?!!

MyArray

3
4
100
5
-9
0

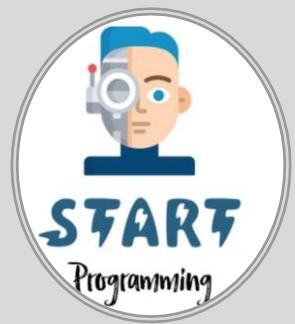


# Problem No.6

What's the first index of array ?!!

MyArray

3
4
100
5
-9
0



# Problem No.7

What's content in the first index of array ?!!

MyArray

3
4
100
5
-9
0

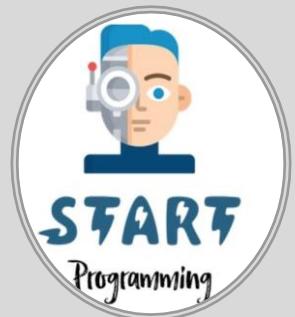


# Problem No.8

What's content in the index No.3 in MyArray ?!!



3
4
100
5
-9
0

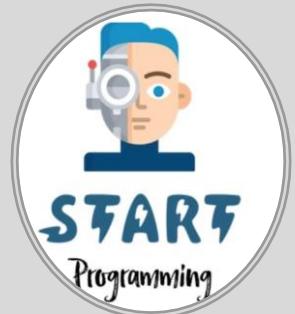


# Problem No.9

Write the index of the largest number in MyArray??

MyArray

3
4
100
5
-9
0



# Problem No.10

Write index of the smallest number in MyArray?!!

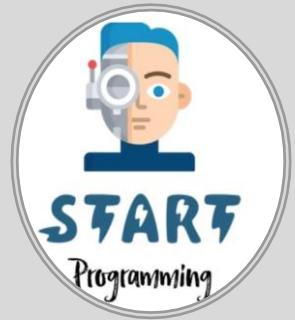


3
4
100
5
-9
0



# Problem No.12

Calculate : MyArray[2]+MyArray[4] =

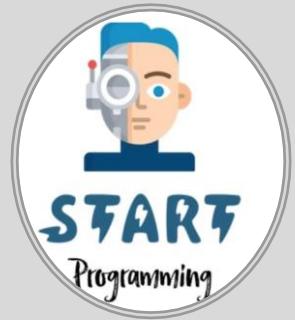
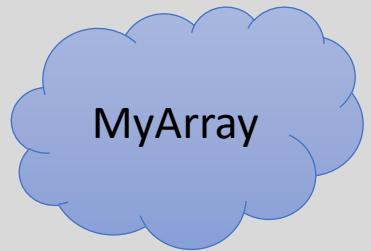


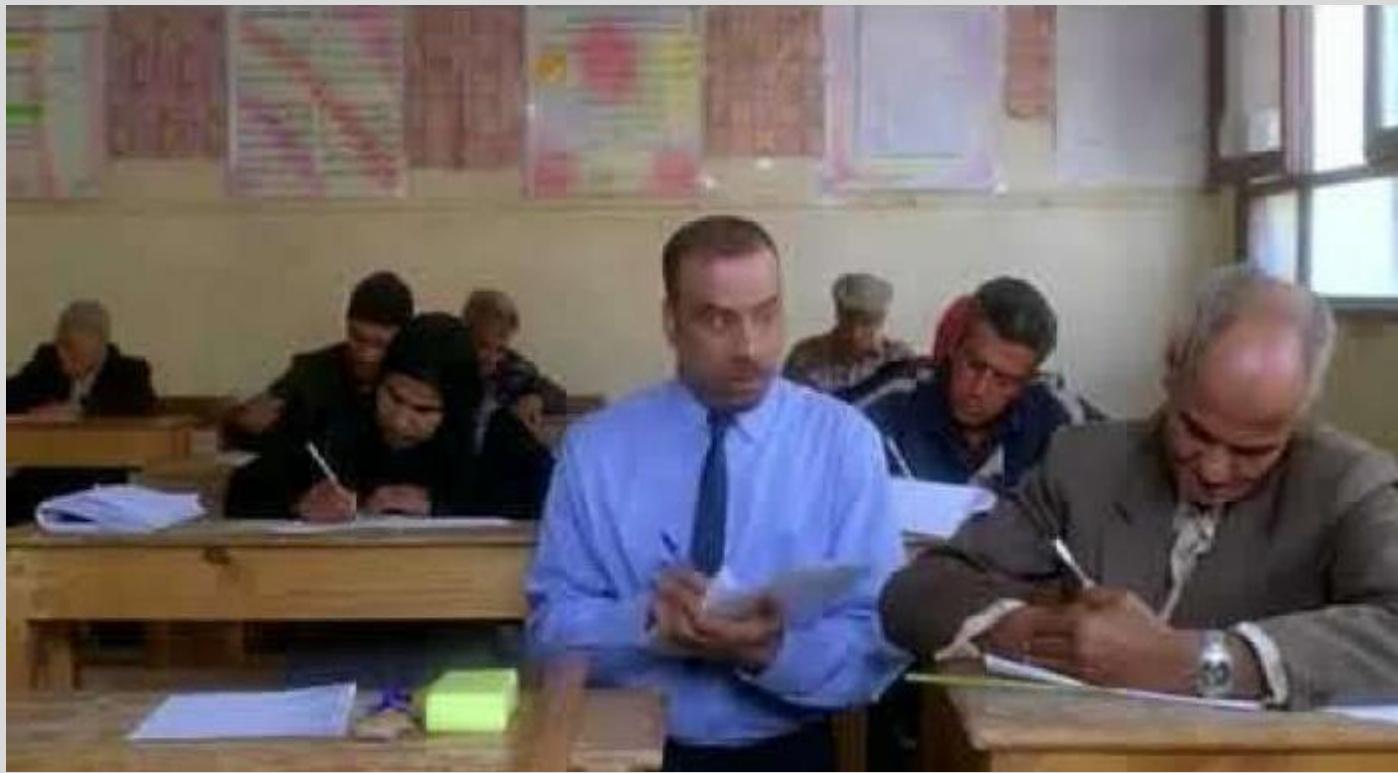
# Problem No.13

**Calculate :**

Var i=1 ;

MyArray[i++]+MyArray[++i] =

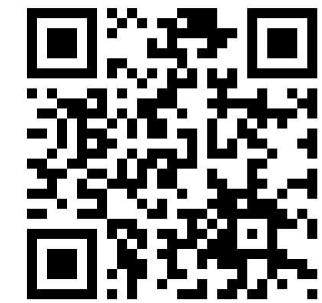




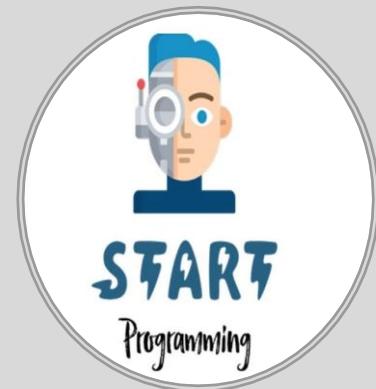
يلا نحل Quiz يا  
لمبي

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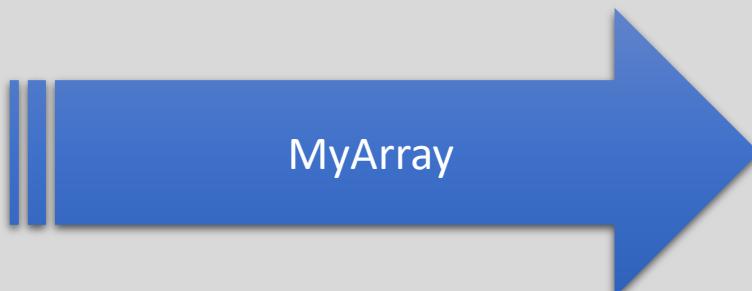
By :- Safaa El-Shafe'y

# Problem No.1

What's name of array ?!!

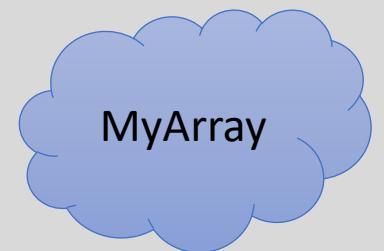
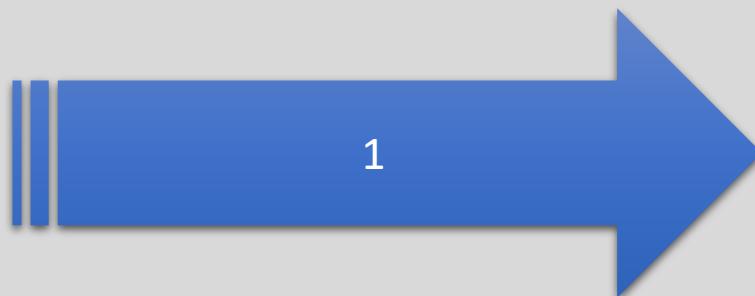
```
Var MyArray = [3,4,100,5,-9,0];
```

MyArray



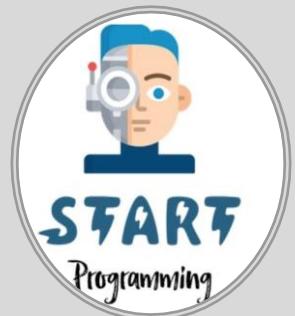
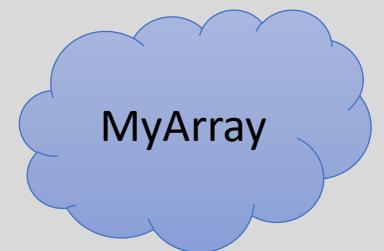
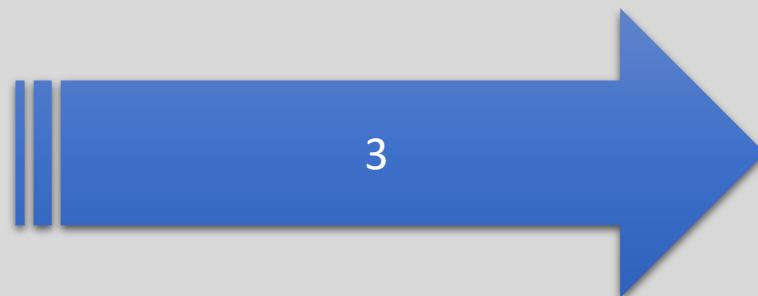
## Problem No.2

What's the index of element ( 4 ) ?!!



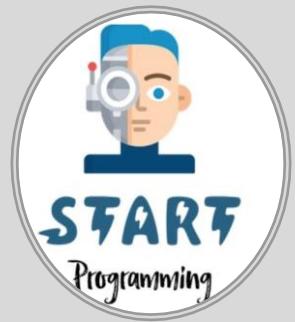
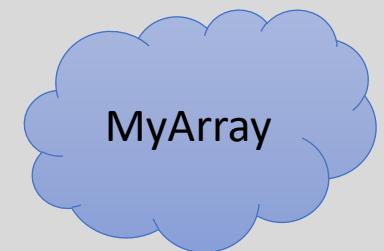
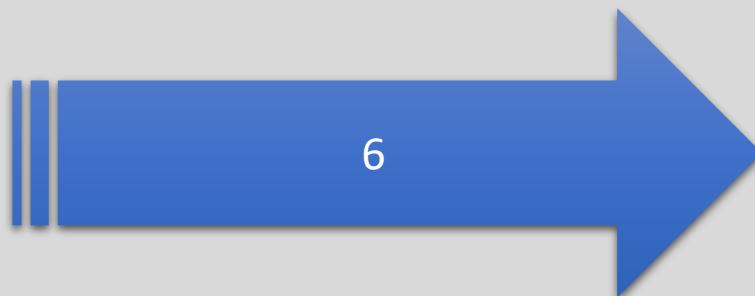
# Problem No.3

What's the order of element ( 100 ) ?!!



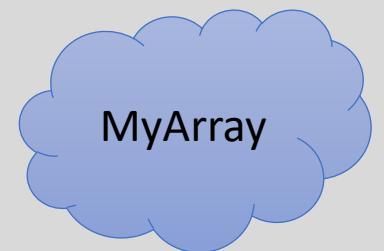
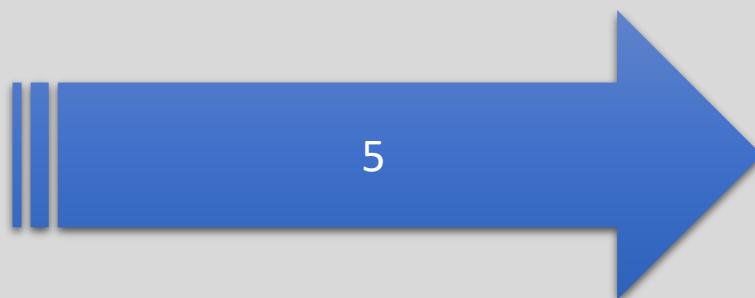
# Problem No.4

What's the size of array ?!!



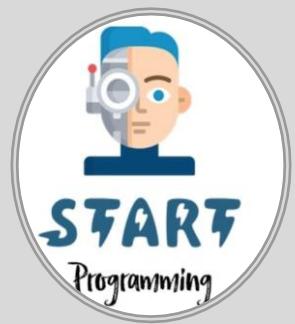
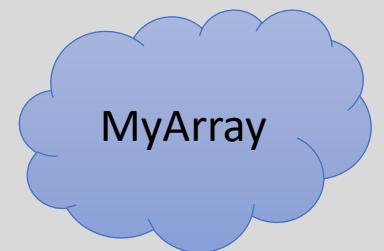
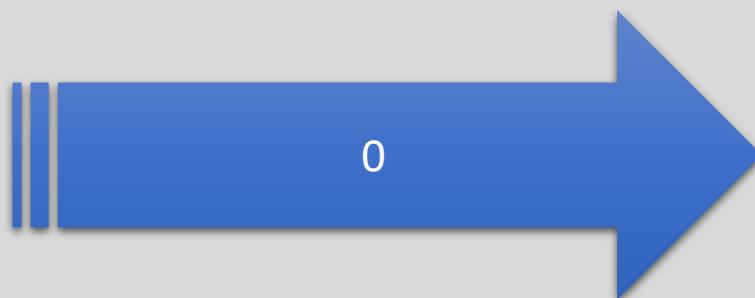
# Problem No.5

What's the last index of array ?!!



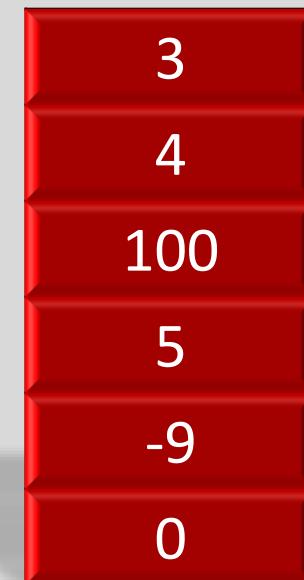
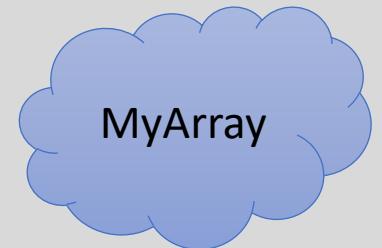
# Problem No.6

What's the first index of array ?!!



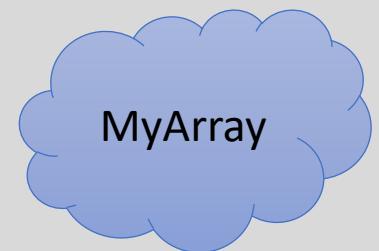
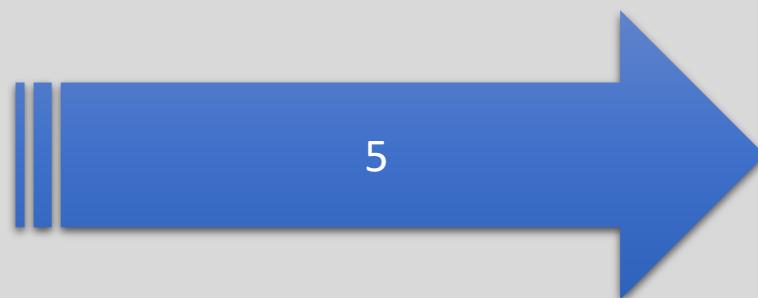
# Problem No.7

What's content in the first index of array ?!!



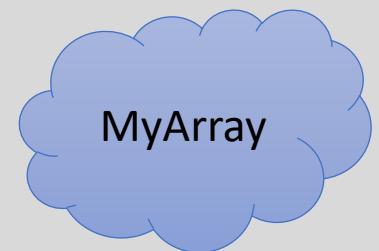
# Problem No.8

What's content in the index No.3 in MyArray ?!!

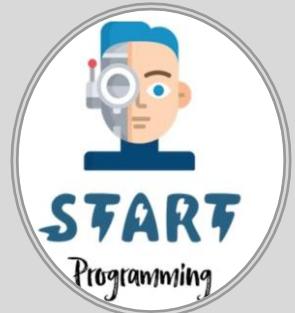


# Problem No.9

Write the index of the largest number in MyArray??!

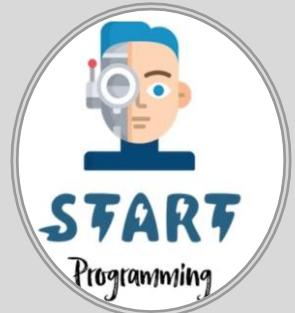
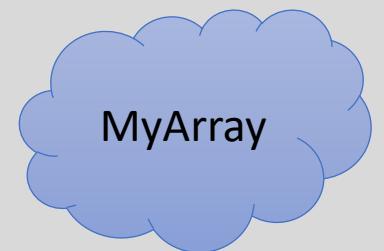
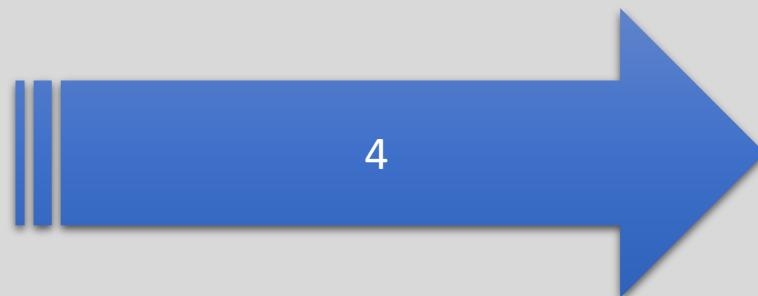


3
4
100
5
-9
0



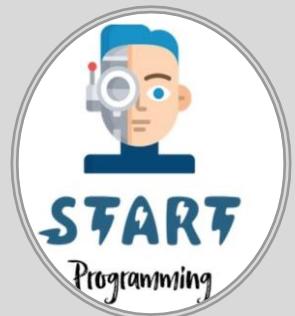
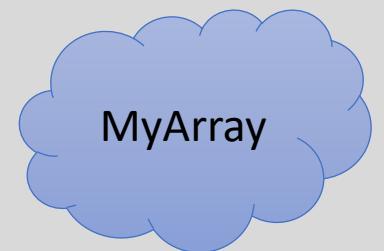
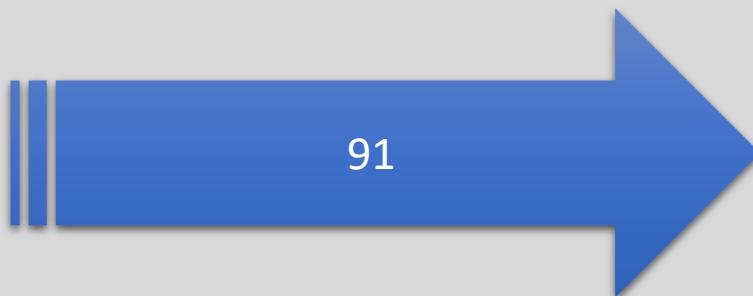
# Problem No.10

Write index of the smallest number in MyArray?!!



# Problem No.12

Calculate : MyArray[2]+MyArray[4] =

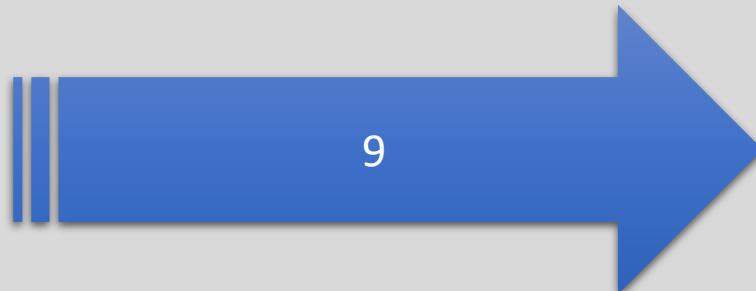
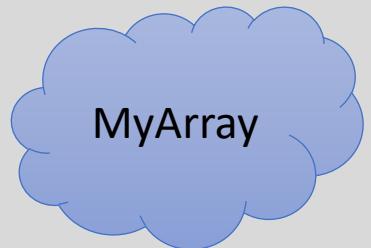


# Problem No.13

**Calculate :**

Var i=1 ;

MyArray[i++]+MyArray[++i] =



# الواجب - Homework



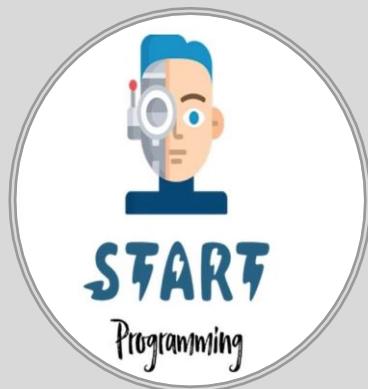
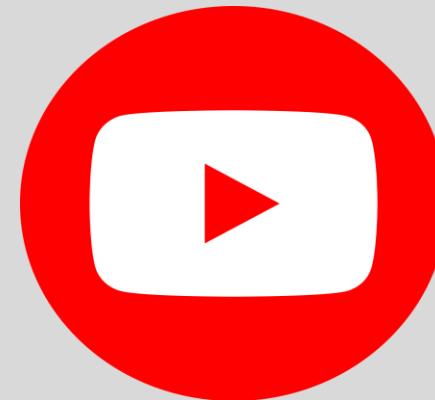
فديو اسئلہ  
الواجب  
مستوى 2 & 1

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By :- Safaa El-Shafe'y

# Problem No.1

Find minimum and maximum element in an array

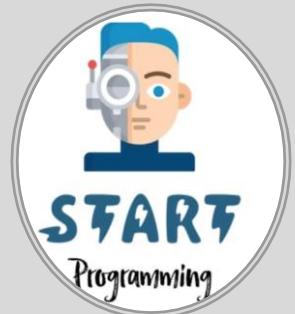
## Input:

$N = 6$

$A[] = \{3, 2, 1, 56, 10000, 167\}$

## Output:

$\min = 1, \max = 10000$



**Built in  
Function**

||| **String**



## Problem No.2

You are given a string . You need to reverse the string.

**Input:**

start

**Output:**

trats



# Problem No.3

You are given a string .

Replace each a with \*

**Input:**

start

**Output:**

St\*rt



# Problem No.4

Given a random set of numbers, Print them in sorted order.

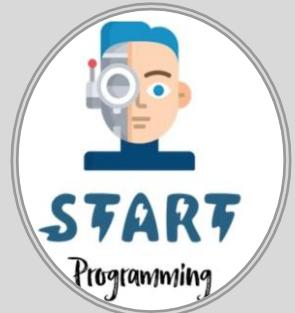
**Input:**

$N = 4$

$A[] = \{ 1,5,3,2 \}$

**Output:**

$A[] = \{ 1,2,3,5 \}$



# Problem No.5

Given an array of size N containing only 0s, 1s, and 2s; sort the array in ascending order.

**Input:**

$N = 5$

$A[] = \{ 0, 2, 1, 2, 0 \}$

**Output:**

$A[] = \{ 0, 0, 1, 2, 2 \}$



# Problem No.6

Given an unsorted array **arr[]** of size **N** having both negative and positive integers. The task is place all negative element at the end of array without changing the order of positive element and negative element.

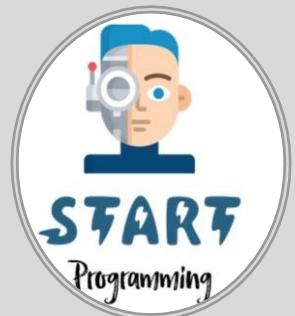
## Input:

**N = 8**

**arr[] = {1, -1, 3, 2, -7, -5, 11, 6 }**

## Output:

**1 3 2 11 6 -1 -7 -5**



# Problem No.7

Given a vector of **N** positive integers and an integer **X**. The task is to find the **frequency** of **X** in vector.

**Input:**

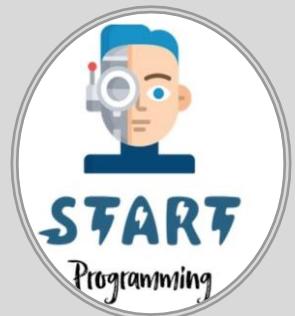
**N** = 5

**vector** = {1, 1, 1, 1, 1}

**X** = 1

**Output:**

5



# Problem No.8

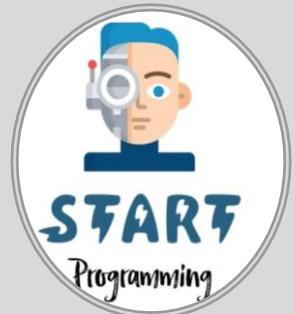
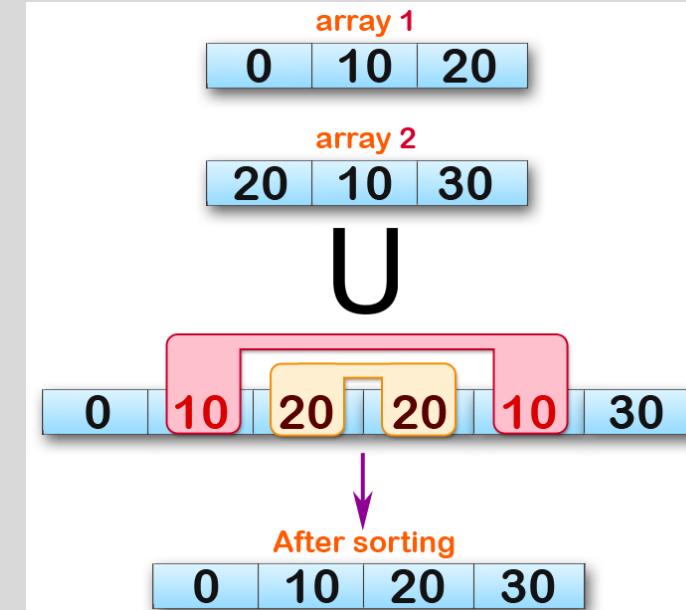
Given two arrays **a[]** and **b[]** of size **n** and **m** respectively. The task is to find union between these two arrays.

**Input:**

5  
3  
1 2 3 4 5  
1 2 3

**Output:**

1 2 3 4 5





LEVEL  
2



Are you ready ?  
**Let's GO**

# Problem No.1

Given an array, rotate the array by one position in clock-wise direction

## Input:

N = 5

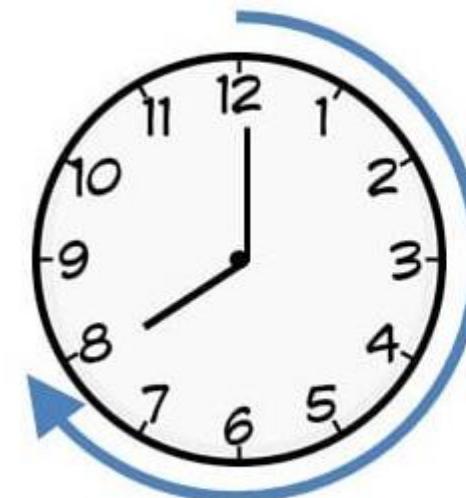
A[] = [1, 2, 3, 4, 5]

## Output:

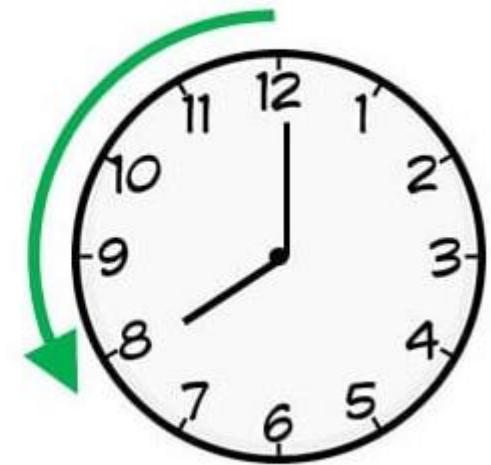
A[] = [5 ,1,2,3,4]



## Clockwise and Anti-Clockwise



Clockwise



Anti-Clockwise

## Problem No.2

Given an array of size **N-1** such that it only contains distinct integers in the range of **1 to N**. Find the missing element.

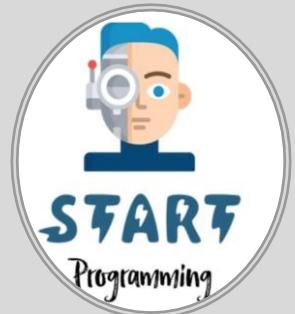
### Input:

$N = 5$

$A[] = \{1, 2, 3, 5\}$

### Output:

4



# Problem No.3

Given an array of **N** integers, and an integer **K**, find the number of pairs of elements in the array whose sum is equal to **K**

## Input:

$N = 4, K = 6$

$\text{arr}[] = \{1, 5, 7, 1\}$

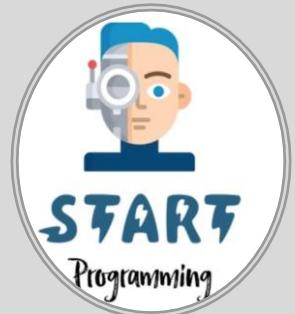
## Output:

2

$$\text{arr}[0] + \text{arr}[1] = 1 + 5 = 6$$

and

$$\text{arr}[1] + \text{arr}[3] = 5 + 1 = 6.$$



# Problem No.4

Find duplicates in an array

**Input:**

$N = 4$

$\text{arr[]} = \{1, 5, 7, 6\}$

**Output:**

-1

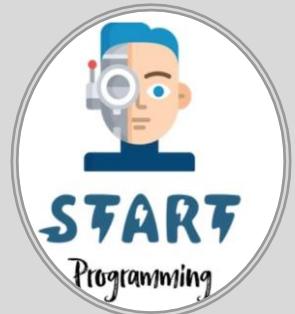
**Input:**

$N = 4$

$\text{arr[]} = \{1, 5, 1, 7, 7\}$

**Output:**

1 , 7



# Problem No.5

Given two arrays sorted in increasing order. Find the elements that are common in two arrays.

**Input:**

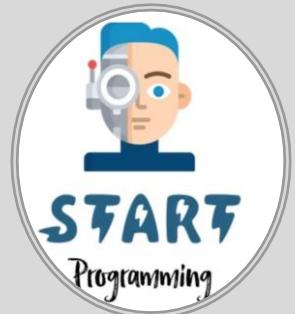
$n_1 = 6; A = \{1, 5, 10, 20, 40, 80\}$

$n_2 = 5;$

$B = \{6, 7, 20, 80, 100\}$

**Output:**

20 , 80



# Problem No.6

## Find First Repeating Element

Given an array arr[] of size n, find the first repeating element. The element should occurs more than once and the index of its first occurrence should be the smallest.



### Input:

n = 7

arr[] = {1, 5, 3, 4, 3, 5, 6}

### Output:

1 ( index of 5 )

# Problem No.7

## Find Non-Repeating Element

Find the first non-repeating element in a given array arr of N integers.

Note: Array consists of only positive and negative integers and not zero.

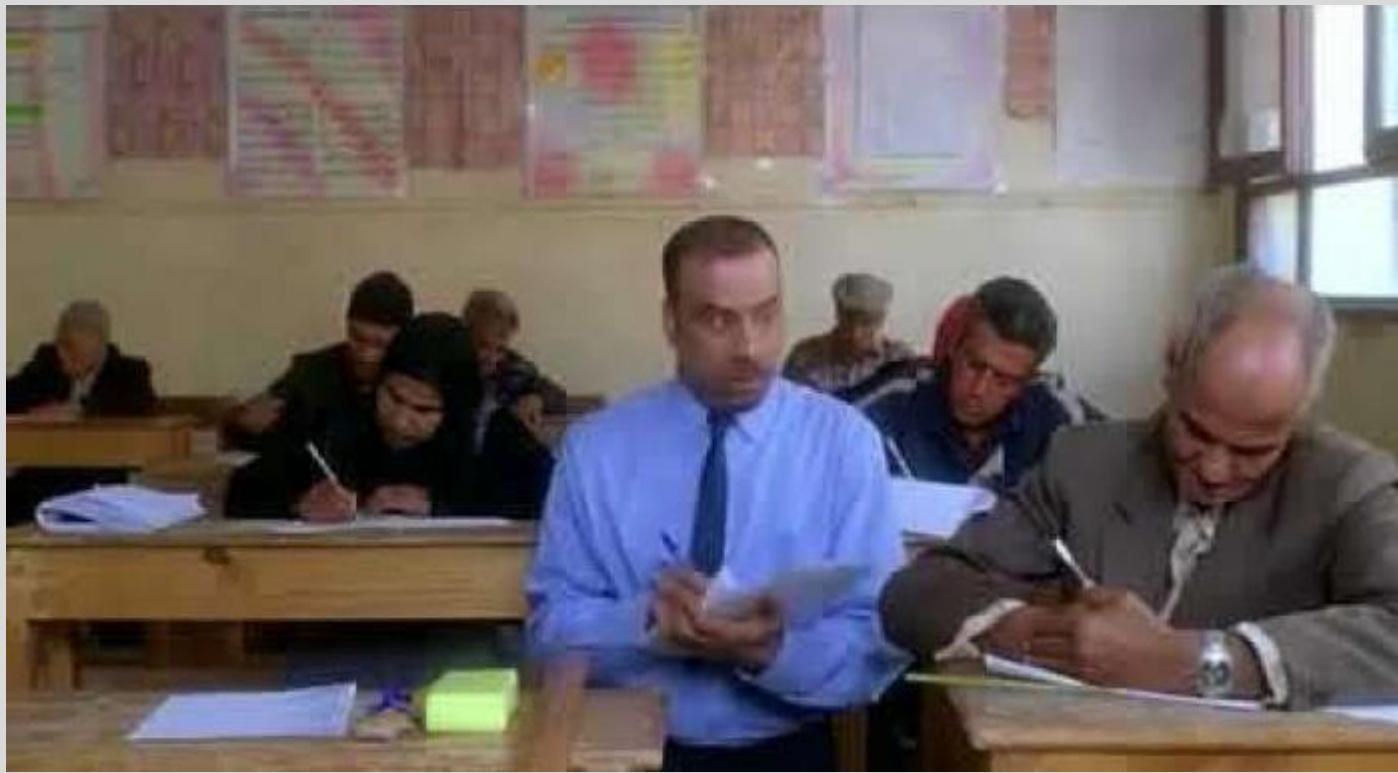
**Input:**

arr[] = {-1, 5, -1, 5, 3}

**Output:**

3





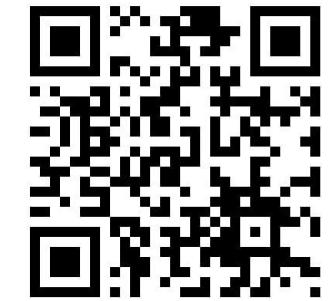
يلا نحل hw يا  
لمبي



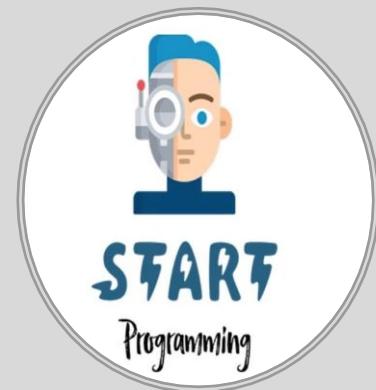
Level 1

# Watch The video

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By :- Safaa El-Shafe'y

## Problem No.4

Sort



# Problem No.4

Given a random set of numbers, Print them in sorted order.

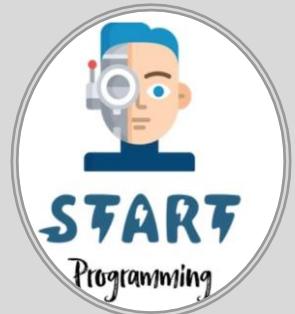
**Input:**

$N = 4$

$A[] = \{ 1,5,3,2 \}$

**Output:**

$A[] = \{ 1,2,3,5 \}$



# Sort

i=0

1	5	4	3	8
---	---	---	---	---

بمعنى انه  
اصغر من كل  
اللي قبله

الواحد ف مكانه الصحيح



# Sort

i=1

1	4	5	3	8
---	---	---	---	---

عملنا swap يعني تبديل م بين 4 & 5

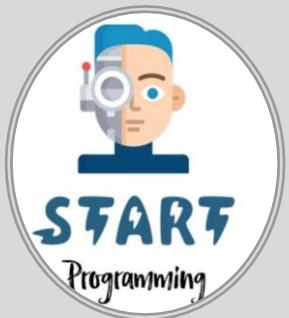


# Sort

i=1

1	3	5	4	8
---	---	---	---	---

عملنا swap يعني تبديل م بين 3 & 4



# Sort

i=1

1	3	5	4	8
---	---	---	---	---

معني انها  
اصغر من كل  
اللي قبلها

دلوقي 3 ف مكانها الصحيح



# Sort

i=2

1	3	4	5	8
---	---	---	---	---

عملنا swap يعني تبديل م بين 4 & 5



# Sort

i=2

1	3	4	5	8
---	---	---	---	---

بمعنى انها  
اصغر من كل  
اللي قبلها

دلوقي 4 ف مكانها الصحيح



# Sort

i=3

1	3	4	5	8
---	---	---	---	---

معني انها  
اصغر من كل  
اللي قبلها

دلوقي 5 ف مكانها الصحيح



# Sort

i=4

1	3	4	5	8
---	---	---	---	---

بمعنى انها  
اصغر من كل  
اللي قبلها

دلوقي 8 ف مكانها الصحيح



# Sort

1	3	4	5	8
---	---	---	---	---



## Problem N0.8

Union



# Problem No.8

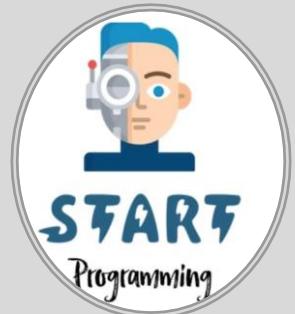
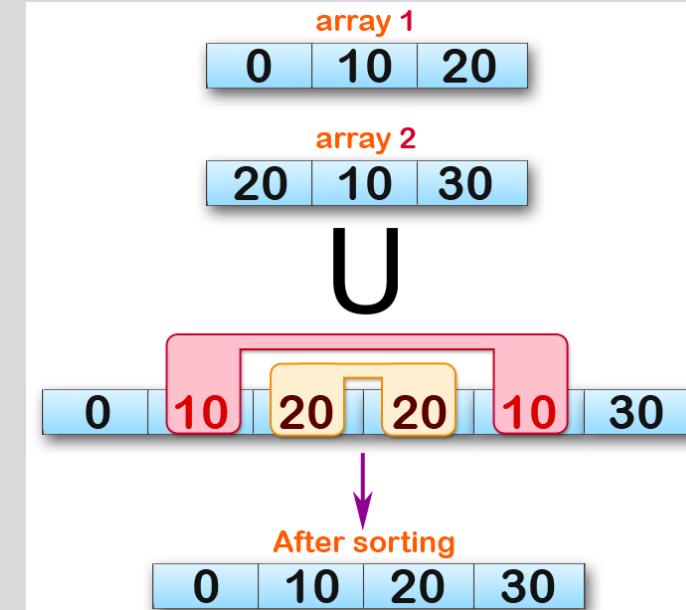
Given two arrays **a[]** and **b[]** of size **n** and **m** respectively. The task is to find union between these two arrays.

**Input:**

5  
3  
1 2 3 4 5  
1 2 3

**Output:**

1 2 3 4 5



# Union Two Array

a

1 2 3 4 5

b

1 3 4 6

union

1 2 3 4 5

Union = a;

union

1 2 3 4 5 6





يلا نحل hw يا  
لمبى -  
المستوى 2



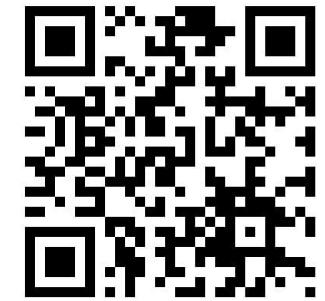
يلا بينا  
علي  
الجزء 1



**Problem  
No.1 & No.2**

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By :- Safaa El-Shafe'y

# Problem No.1

Given an array, rotate the array by one position in clock-wise direction

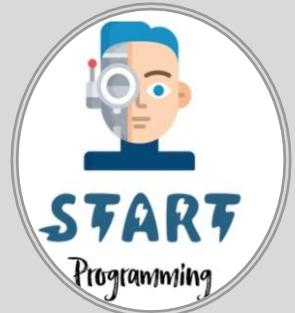
## Input:

N = 5

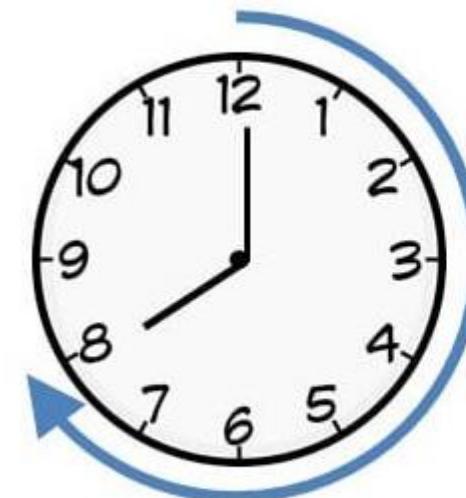
A[] = [1, 2, 3, 4, 5]

## Output:

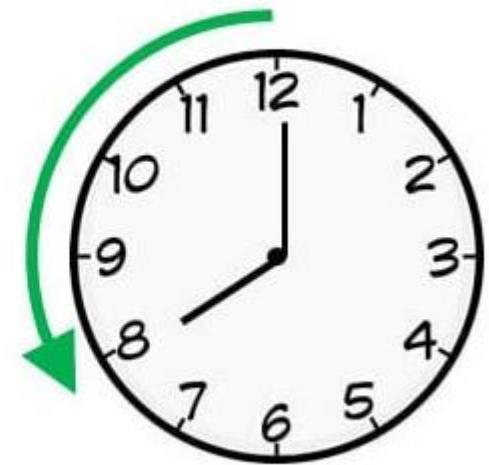
A[] = [5 ,1,2,3,4]



## Clockwise and Anti-Clockwise



Clockwise

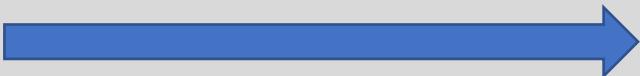


Anti-Clockwise

# Rotate in Clock-Wise direction

Output

1	2	3	4	5
---	---	---	---	---



5	1	2	3	4
---	---	---	---	---



# Rotate in Clock-Wise direction

كيفيه تحريك العناصر - Elements  
اتجاه عقارب الساعه خطوه خطوه  
واحده فقط - one position



# Rotate in Clock-Wise direction

Output



# Rotate in Clock-Wise direction

Output



# Rotate in Clock-Wise direction

Output



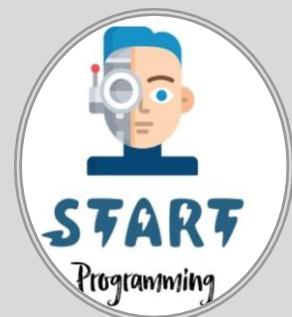
# Rotate in Clock-Wise direction

Output



# Rotate in Clock-Wise direction

Output



Rotate in Clock-Wise direction

طريقه غلط ف التفكير



# Rotate in Clock-Wise direction

i=0

1	2	3	4	5
---	---	---	---	---



2	1	3	4	5
---	---	---	---	---



# Rotate in Clock-Wise direction

i=1

2	1	3	4	5
---	---	---	---	---



2	3	1	4	5
---	---	---	---	---



# Rotate in Clock-Wise direction

i=2

2	3	1	4	5
---	---	---	---	---



2	3	4	1	5
---	---	---	---	---



# Rotate in Clock-Wise direction

i=3



هو كده اكنه حركهم عكس عقارب الساعة  
وهذا ليس المطلوب



# Rotate in Clock-Wise direction

ابدء من  
الآخر وليس  
من الأول

طريقه الصحيح فـ  
التفكير



# Rotate in Clock-Wise direction

i=length-2



Length=5

lastElement = length -1=4



# Rotate in Clock-Wise direction

i=2

1	2	3	4	5
---	---	---	---	---



1	2	5	3	4
---	---	---	---	---



# Rotate in Clock-Wise direction

i=1

1	2	3	4	5
---	---	---	---	---



1	5	2	3	4
---	---	---	---	---



# Rotate in Clock-Wise direction

i=0



## Problem No.2

Given an array of size **N-1** such that it only contains distinct integers in the range of **1 to N**. Find the missing element.

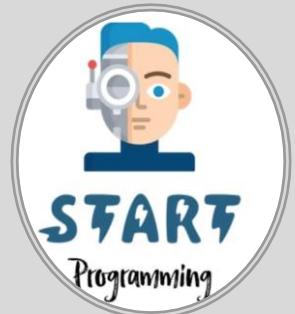
### Input:

$N = 5$

$A[] = \{1, 2, 3, 5\}$

### Output:

4



## Problem No.2

Length =5

New Array

0	2	0	0	0
---	---	---	---	---

2	1	5	3
---	---	---	---

1

New position = element - 1



## Problem No.2

Length =5

New Array

0	2	0	0	0
---	---	---	---	---

2	1	5	3
---	---	---	---

0



## Problem No.2

Length =5

New Array

1	2	0	0	0
---	---	---	---	---

2	1	5	3
---	---	---	---

4



## Problem No.2

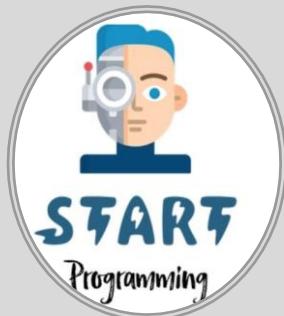
Length =5

New Array

1	2	0	0	5
---	---	---	---	---

2	1	5	3
---	---	---	---

2



# Problem No.2

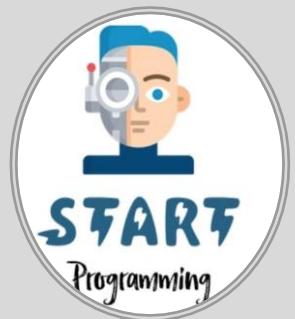
Length =5

New Array

1	2	3	0	5
---	---	---	---	---

2	1	5	3
---	---	---	---

4





يلا بينا  
علي  
الجزء 2

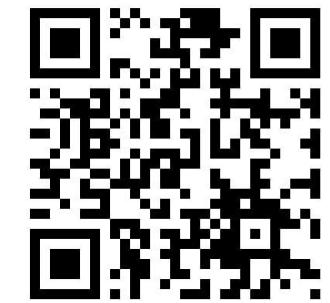




**Problem  
No.3 & No.4**

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By :- Safaa El-Shafe'y

# Problem No.3

Given an array of **N** integers, and an integer **K**, find the number of pairs of elements in the array whose sum is equal to **K**

## Input:

$N = 4, K = 6$

$\text{arr}[] = \{1, 5, 7, 1\}$

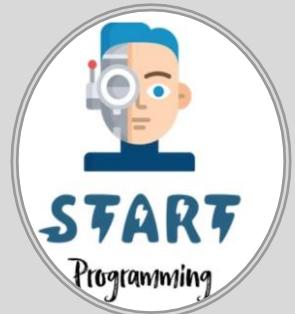
## Output:

2

$$\text{arr}[0] + \text{arr}[1] = 1 + 5 = 6$$

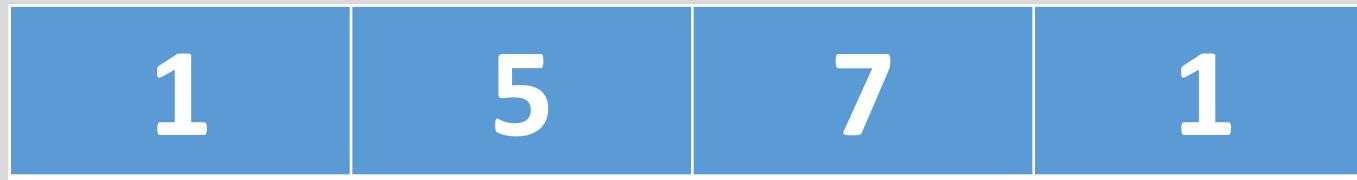
and

$$\text{arr}[1] + \text{arr}[3] = 5 + 1 = 6.$$



# Problem No.3

i=0



Inner loop

j=i+1



# Problem No.3

i=1

1	5	7	1
---	---	---	---



# Problem No.3

i=2

1	5	7	1
---	---	---	---



i=0;i<length-1



# Problem No.4

Find duplicates in an array

**Input:**

$N = 4$

$\text{arr[]} = \{1, 5, 7, 6\}$

**Output:**

-1

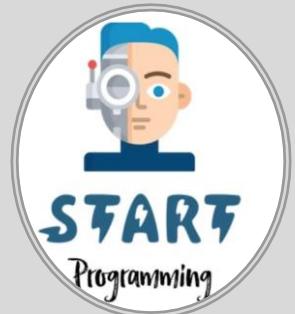
**Input:**

$N = 4$

$\text{arr[]} = \{1, 5, 1, 7, 7\}$

**Output:**

1 , 7



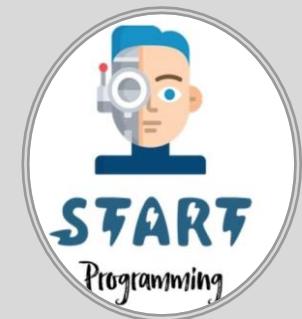
# Problem No.4

i=0



Inner loop

j=i+1



# Problem No.4

i=1

1	5	7	1
---	---	---	---

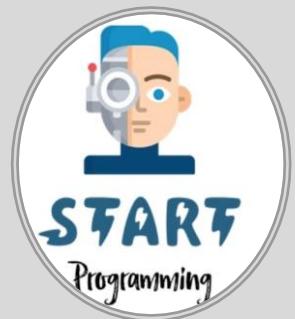


# Problem No.4

i=2



i=0;i<length-1



## Problem No.4

مشكله الرقم بيطبع اكتر من مره



## Problem No.4

Array

1 5 7 1

New Array

فاضي - Empty



## Problem No.4

Array

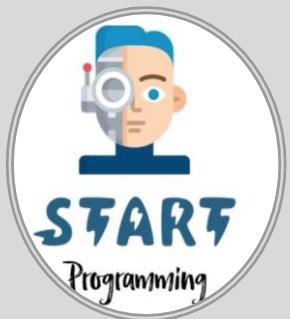
1	5	7	1
---	---	---	---

New Array

1

احط فيه اي حاجه اتكررت

بس قبلها اشوفها اول هي موجوده ولا لا  
لو موجوده مش هحطها ف Array تاني





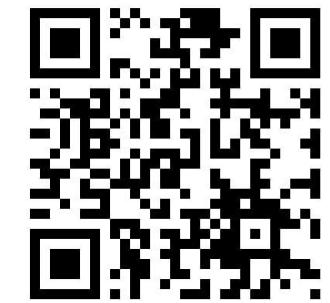
يلا بينا  
علي  
الجزء 3



**Problem  
No.5  
No.6 &  
No.7**

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By :- Safaa El-Shafe'y

# Problem No.5

Given two arrays sorted in increasing order. Find the elements that are common in two arrays.

**Input:**

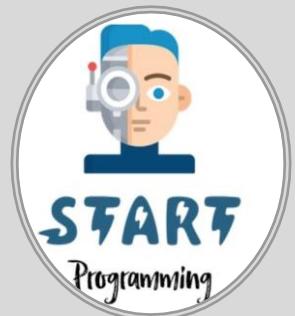
$n_1 = 6; A = \{1, 5, 10, 20, 40, 80\}$

$n_2 = 5;$

$B = \{6, 7, 20, 80, 100\}$

**Output:**

20 , 80



## Problem No.4

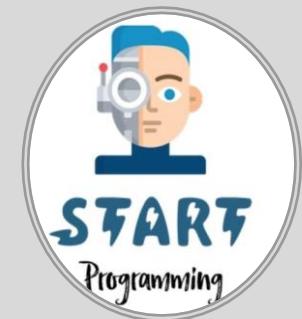
i=0



Inner loop

j=i+1

افکر کویس حل مسائله رقم 4 عشان هنحتاجه

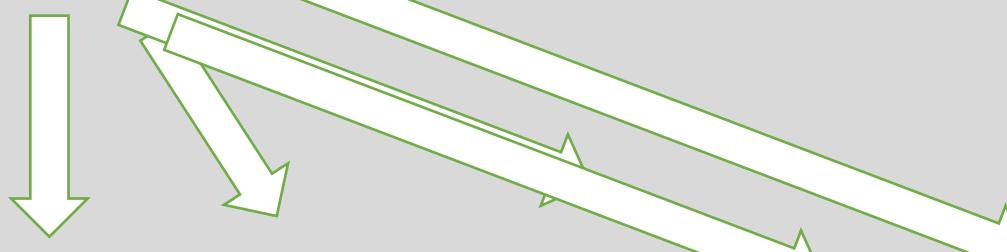


# Problem No.5

i=0

A :

1	5	10	20	40	80
---	---	----	----	----	----

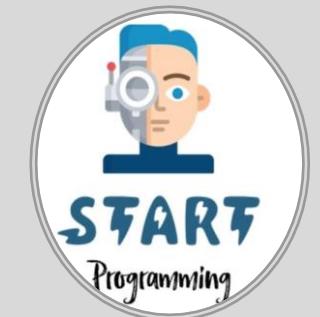


B :

6	7	20	80	100
---	---	----	----	-----

Inner loop

J=0

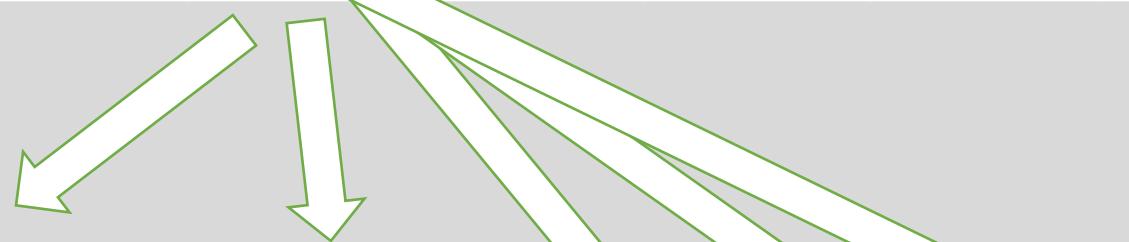


# Problem No.5

i=1

A :

1	5	10	20	40	80
---	---	----	----	----	----

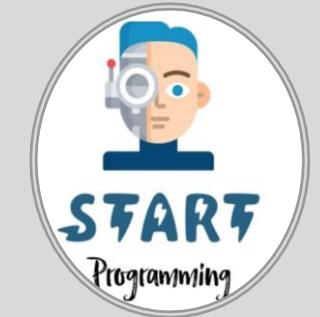


B :

6	7	20	80	100
---	---	----	----	-----

Inner loop

J=0



# Problem No.6

## Find First Repeating Element

Given an array arr[] of size n, find the first repeating element. The element should occurs more than once and the index of its first occurrence should be the smallest.



### Input:

n = 7

arr[] = {1, 5, 3, 4, 3, 5, 6}

### Output:

1 ( index of 5 )

# Problem No.7

## Find Non-Repeating Element

Find the first non-repeating element in a given array arr of N integers.

Note: Array consists of only positive and negative integers and not zero.

**Input:**

arr[] = {-1, 5, -1, 5, 3}

**Output:**

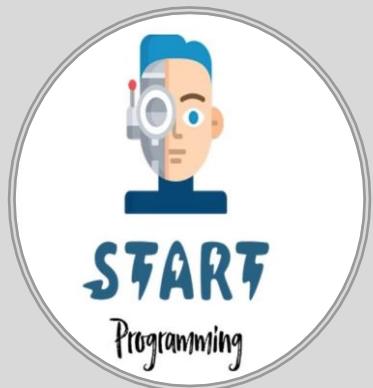
3



# Lesson No.9

# JavaScript

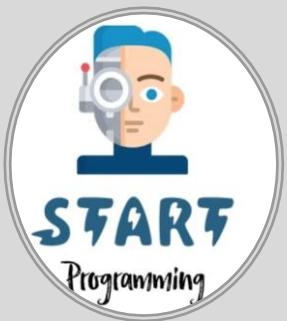
## 2D Array



By :- Safaa El-Shafe'y

# 2D Array

Quiz



# Problem No.1

What's name of array ?!!

```
Var MyArray = [  
    [3,true,"red","cairo","Ahmed"],  
    [10,false,"blue","luxor","safaa"],  
    [-5,false,"green","dahab","yousef"],  
    [6,true,"yellow","alex","amr"]  
];
```

MyArray

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr

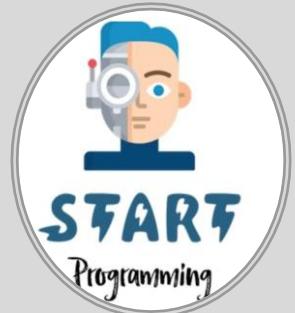


# Problem No.2

What's the index of element ( blue ) ?!!

MyArray

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



# Problem No.3

What's the order of element ( -5 ) ?!!

MyArray

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr

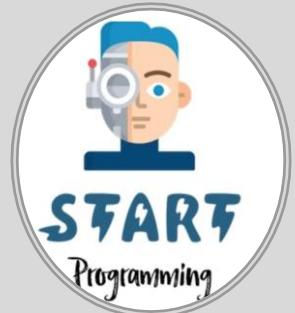


# Problem No.4

What's the size of rows -> 2d array ?!!

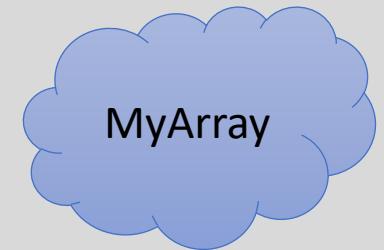
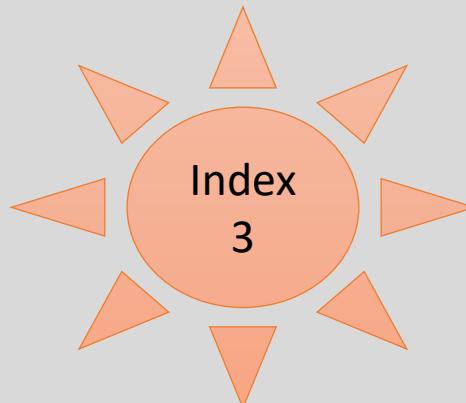
MyArray

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr

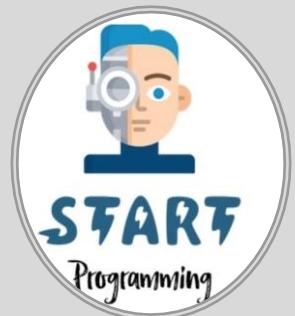


# Problem No.5

What's content in the last index of array ?!!

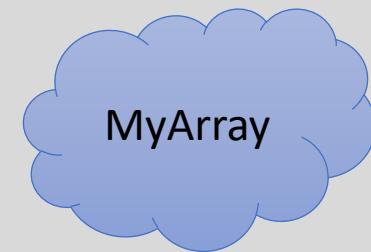
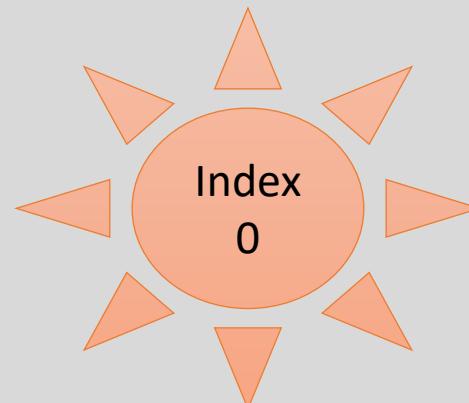


3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



# Problem No.6

What's content in the first index of array ?!!



3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr

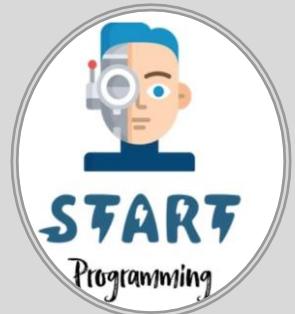


# Problem No.7

What's content in the index No.3 in MyArray ?!!

MyArray

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



# Problem No.8

Write the index of the largest number in MyArray??

MyArray

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



# Problem No.9

Write index of the smallest number in MyArray?!!

MyArray

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



# Problem No.10

Calculate :

**MyArray[2][0]+MyArray[1][0] =**

MyArray

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



# Problem No.11

Calculate :

**MyArray[3][2]+MyArray[2][4] =**

MyArray

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



# Problem No.12

**Calculate :**

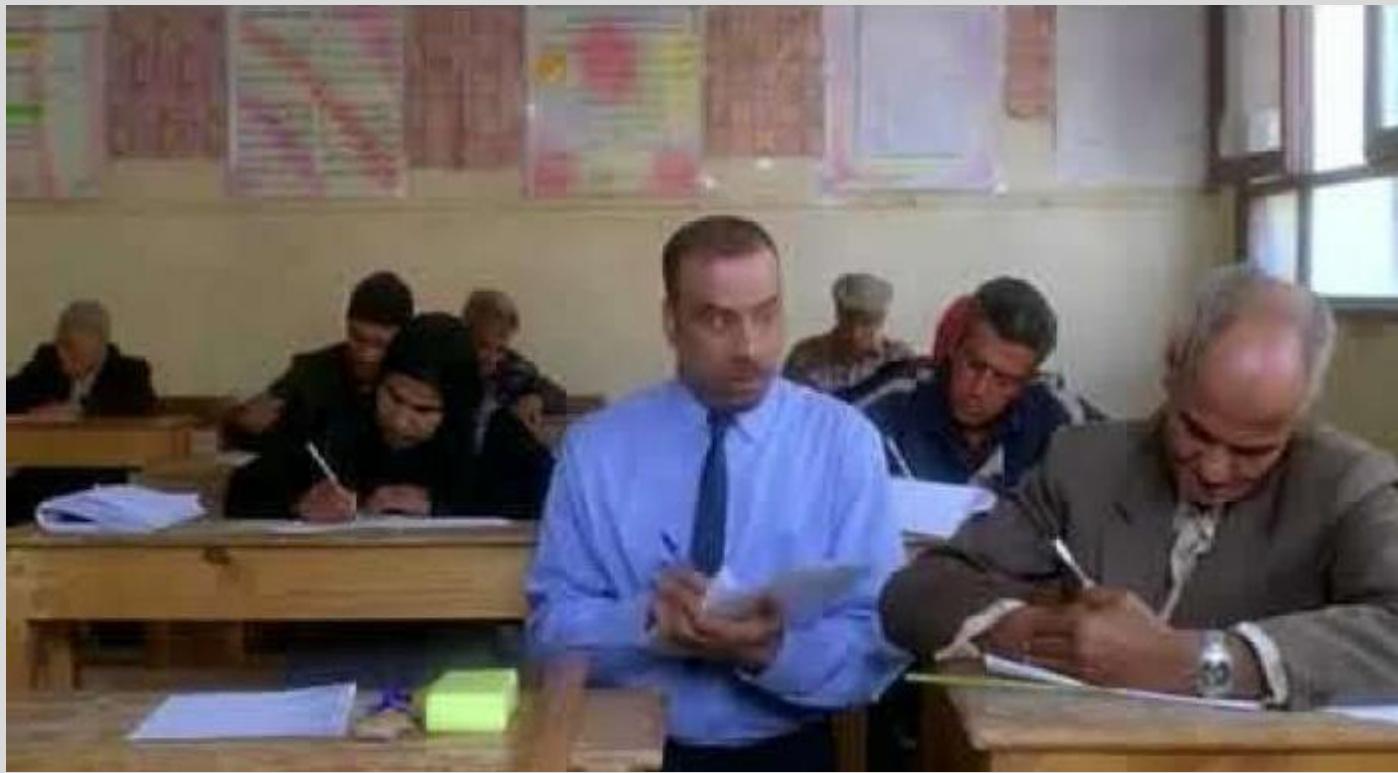
Var i=1 ;

MyArray[i++][0]+MyArray[++i][0] =

MyArray

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr

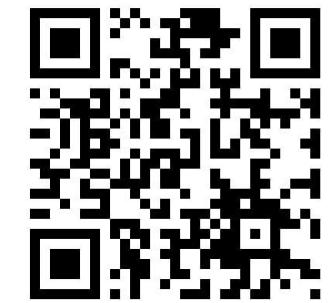




يلا نحل Quiz يا  
لمبي

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Click Here ...



By :- Safaa El-Shafe'y

# Problem No.1

What's name of array ?!!

```
Var MyArray = [  
    [3,true,"red","cairo","Ahmed"],  
    [10,false,"blue","luxor","safaa"],  
    [-5,false,"green","dahab","yousef"],  
    [6,true,"yellow","alex","amr"]  
];
```

MyArray

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr

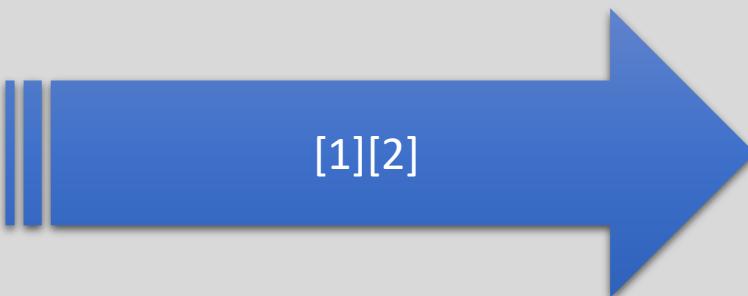
MyArray



# Problem No.2

What's the index of element ( blue ) ?!!

MyArray



3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



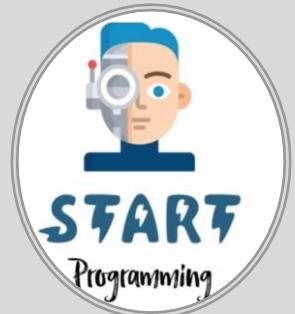
# Problem No.3

What's the order of element ( -5 ) ?!!

MyArray

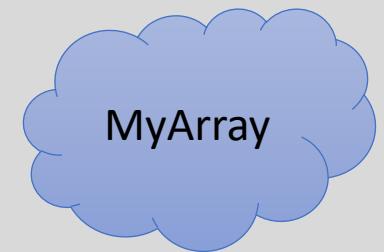
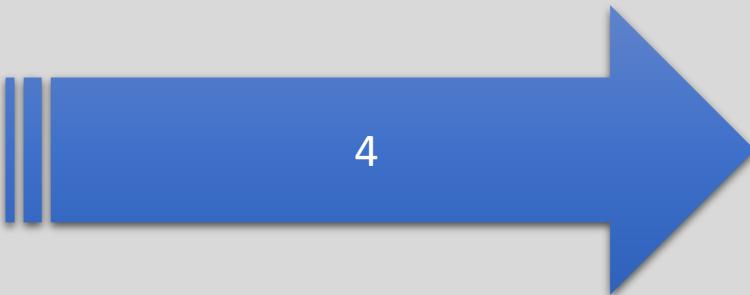
Row = 3  
Col = 1

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



# Problem No.4

What's the size of rows -> 2d array ?!!

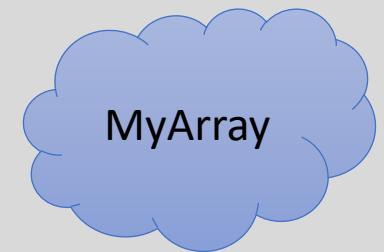
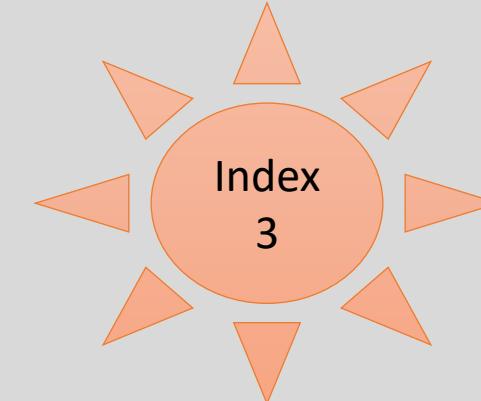


3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



# Problem No.5

What's content in the last index of array ?!!



[6,true,"yellow","alex","amr"]

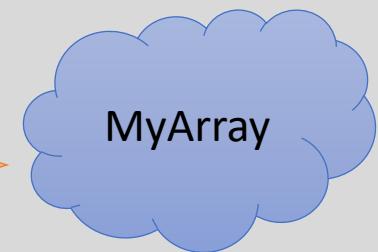
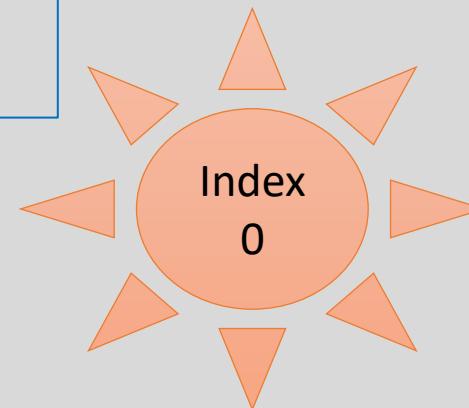
3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



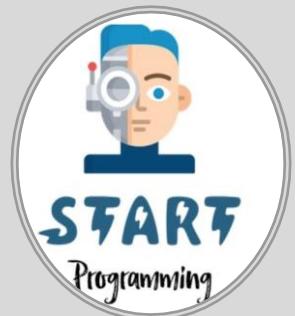
# Problem No.6

What's content in the first index of array ?!!

[3,true,"red","cairo",Ahmed]



3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



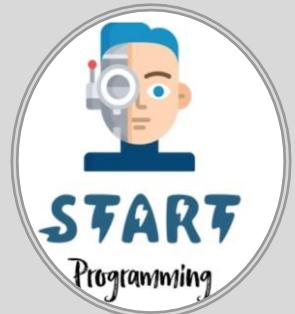
# Problem No.7

What's content in the index No.3 in MyArray ?!!

MyArray

[6,true,"yellow","alex","amr"]

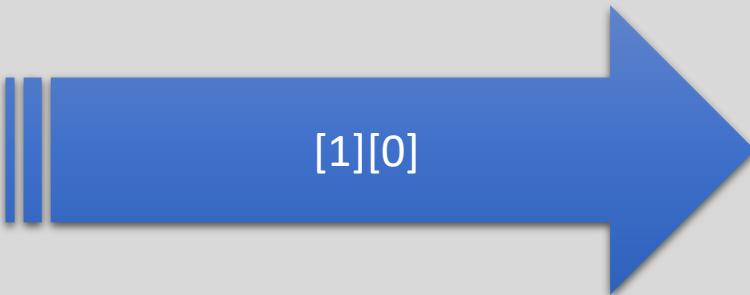
3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



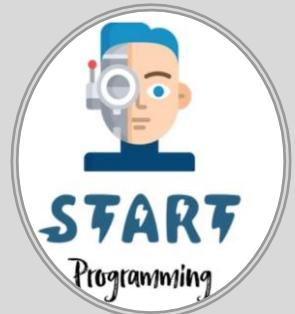
# Problem No.8

Write the index of the largest number in MyArray??!

MyArray



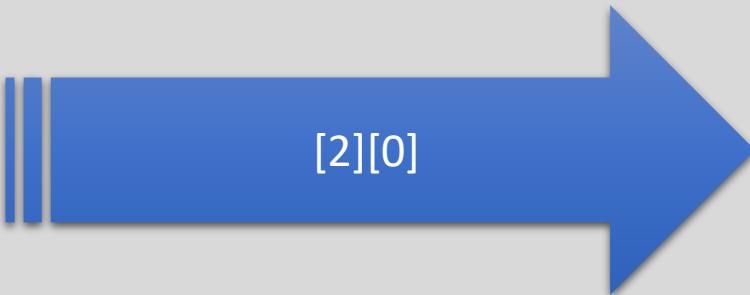
3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



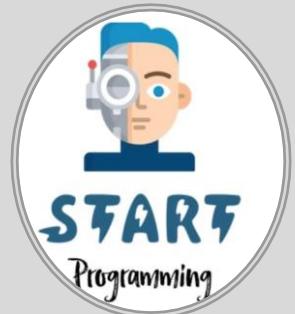
# Problem No.9

Write index of the smallest number in MyArray?!!

MyArray



3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



# Problem No.10

Calculate :

**MyArray[2][0]+MyArray[1][0] =**

MyArray

5

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



# Problem No.11

Calculate :

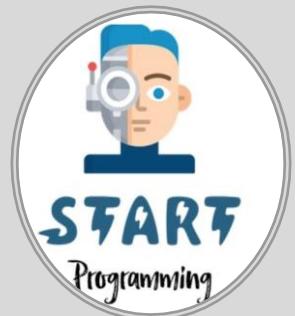
**MyArray[3][2]+MyArray[2][4] =**

MyArray



yellowousef

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



# Problem No.12

Calculate :

Var i=1 ;

MyArray[i++][0]+MyArray[+i][0] =

MyArray[1][0]=10  
i++; i=2;  
++i; i=3  
MyArray[3][0]=6

Trace  
Code

MyArray

16

3	true	red	cairo	Ahmed
10	false	blue	luxor	safaa
-5	false	green	dahab	yousef
6	true	yellow	Alex	amr



# الواجب - Homework



فديو اسئله  
الواجب

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By :- Safaa El-Shafe'y

# Problem No.1

Write a program in JavaScript for a 2D array of size 2\*2 and print the matrix

**Input:**

element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4

**Output:**

1 2  
3 4



# Problem No.2

Write a program in JavaScript for addition of two Matrices of same size

## Matrix No.1 :

element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4

## Matrix No.2 :

element - [0],[0] : 5  
element - [0],[1] : 6  
element - [1],[0] : 7  
element - [1],[1] : 8

## Output :

6 8  
10 12



# Problem No.3

Write a program in JavaScript for subtraction of two Matrices of same size

## Matrix No.1 :

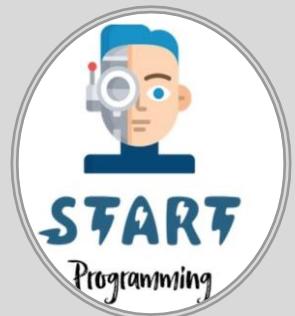
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4

## Matrix No.2 :

element - [0],[0] : 5  
element - [0],[1] : 6  
element - [1],[0] : 7  
element - [1],[1] : 8

## Output :

4 4  
4 4



# Problem No.4

Write a program in JavaScript for multiplication of two Matrices of same size

## Matrix No.1 :

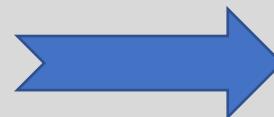
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4

## Matrix No.2 :

element - [0],[0] : 5  
element - [0],[1] : 6  
element - [1],[0] : 7  
element - [1],[1] : 8

## Output :

19 22  
43 50



## Output :

5 12  
21 32



# Problem No.5

Write a program in JavaScript to compare two matrices and check whether they are equal

**Matrix No.1:**

1	2
3	4

**Matrix No.2:**

1	2
3	4

Two matrices are equal



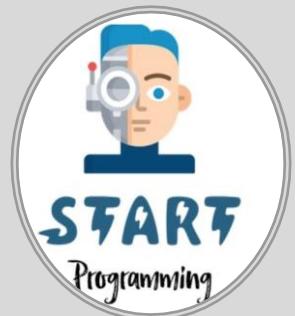
# Problem No.6

Write a program to print a matrix in spiral form

**Matrix:**

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

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



# Problem No.7

Write a program in JavaScript to find sum of rows an columns of a Matrix

**Matrix:**

5 6  
7 8

**Output:**

5 6 11  
7 8 15



# Problem No.8

Write a program in JavaScript to find transpose of a given matrix.

**Matrix:**

1 2  
3 4



**Output:**

1 3  
2 4



# Problem No.9

Write a program in JavaScript to find sum of main diagonal of a matrix

**Matrix:**

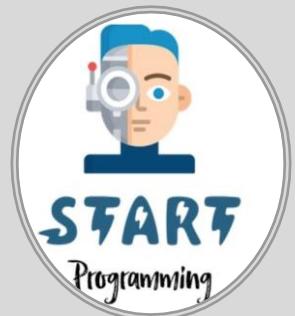
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4

1	7	-8	0
9	8	10	9
-4	-6	7	3
7	0	4	-9

main diagonal

**Output:**

5



# Problem No.10

Write a program in JavaScript to check whether a given matrix is an identity matrix

**Matrix:**

1 0 0  
0 1 0  
0 0 1

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

an identity matrix.

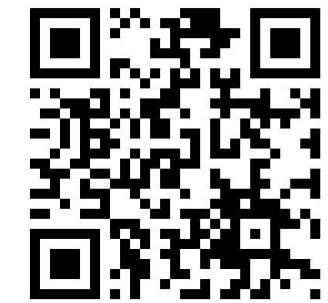




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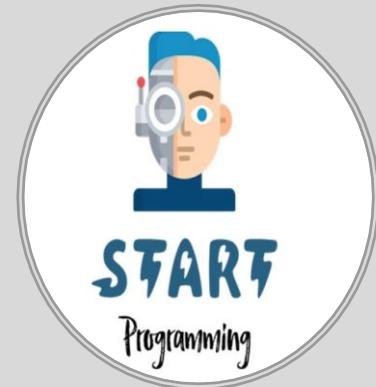
Click Here ...



Part 2



Part 1



By :- Safaa El-Shafe'y

# Problem No.8

Write a program in JavaScript to find transpose of a given matrix.

**Matrix:**

1 2  
3 4



**Output:**

1 3  
2 4

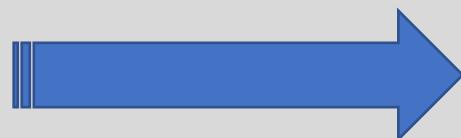




العلاقه

# Transpose The Matrix

	0	1	2
0	1	2	3
1	4	5	6
2	7	8	9



	0	1	2
0	1	4	7
1	2	5	8
2	3	6	9

Matrix[0][1]=2

Matrix[1][2]=6

Matrix[1][0]=2

Matrix[2][1]=6



# Problem No.9

Write a program in JavaScript to find sum of main diagonal of a matrix

**Matrix:**

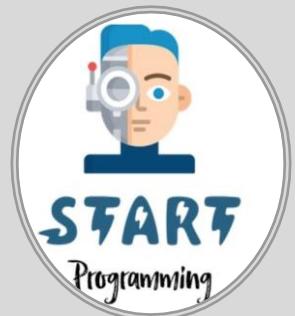
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4

1	7	-8	0
9	8	10	9
-4	-6	7	3
7	0	4	-9

main diagonal

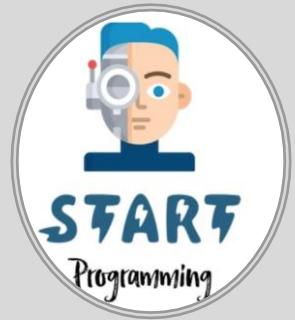
**Output:**

5



# main diagonal

	0	1	2
0	1	2	3
1	4	5	6
2	7	8	9





LEVEL  
2



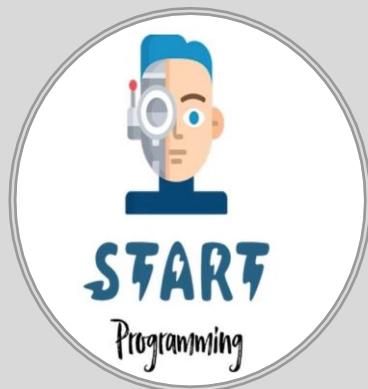
Are you ready ?  
**Let's GO**

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By :- Safaa El-Shafe'y

# Problem No.1

لو عدد الاصفار اللي فيها اكتر  
من الارقام اللي فيها

Write a program in JavaScript to accept a matrix and determine whether it is a sparse matrix

## Matrix:

element - [0],[0] : 0  
element - [0],[1] : 0  
element - [1],[0] : 1  
element - [1],[1] : 0

A sparse matrix .

هي فيها 4 ارقام  
في منهم 3 اصفار خلاص تبقي

.....



## Problem No.2

Write a program to find the row with maximum number of 1s.

**Matrix:**

```
0 1 0 1 1  
1 1 1 1 1  
1 0 0 1 0  
0 0 0 0 0  
1 0 0 0 1
```

**Output:**

```
1
```



# Problem No.3

Write a program to search an element in a row wise and column wise sorted matrix.

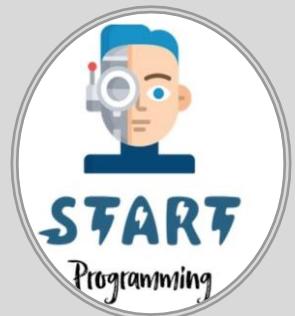
**Matrix:**

15 23 31 39  
18 26 36 43  
25 28 37 48  
30 34 39 50

**element:**

37

The element Found at the position in the matrix is:  
2, 2



# Problem No.4

Write a program in JavaScript to print or display the lower triangular of a given matrix

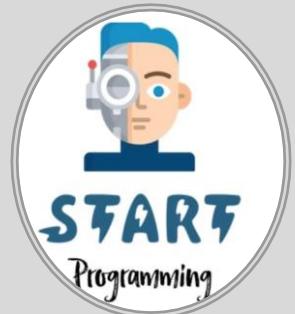
After Setting zero in lower triangular matrix.

**Matrix:**

1 2 3  
4 5 6  
7 8 9

**Output:**

1 2 3  
0 5 6  
0 0 9



# Upper Vs Lower Triangular Matrix

Upper triangular matrix

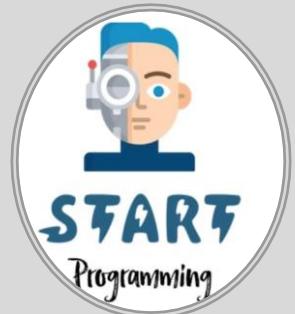
3	2	6	7
0	6	6	8
0	0	2	4
0	0	0	1

Below the main diagonal  
are 0

VS

Lower Triangular Matrix

1	0	0
4	2	0
6	5	1



# Problem No.5

Write a program in JavaScript to print or display the upper triangular of a given matrix

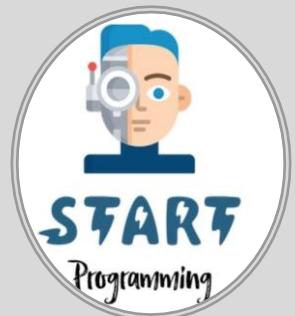
After Setting zero in upper triangular matrix.

**Matrix:**

1 2 3  
4 5 6  
7 8 9

**Output:**

1 0 0  
4 5 0  
7 8 9



# Problem No.6

Write a program to find the sum of upper triangular elements of a matrix

**Matrix:**

1 2 3  
4 5 6  
7 8 9

The elements being summed  
of the upper triangular  
matrix are:  
2 3 6

**Output:**  
11



# Problem No.7

Write a program to find the sum of lower triangular elements of a matrix

**Matrix:**

1 2 3  
4 5 6  
7 8 9

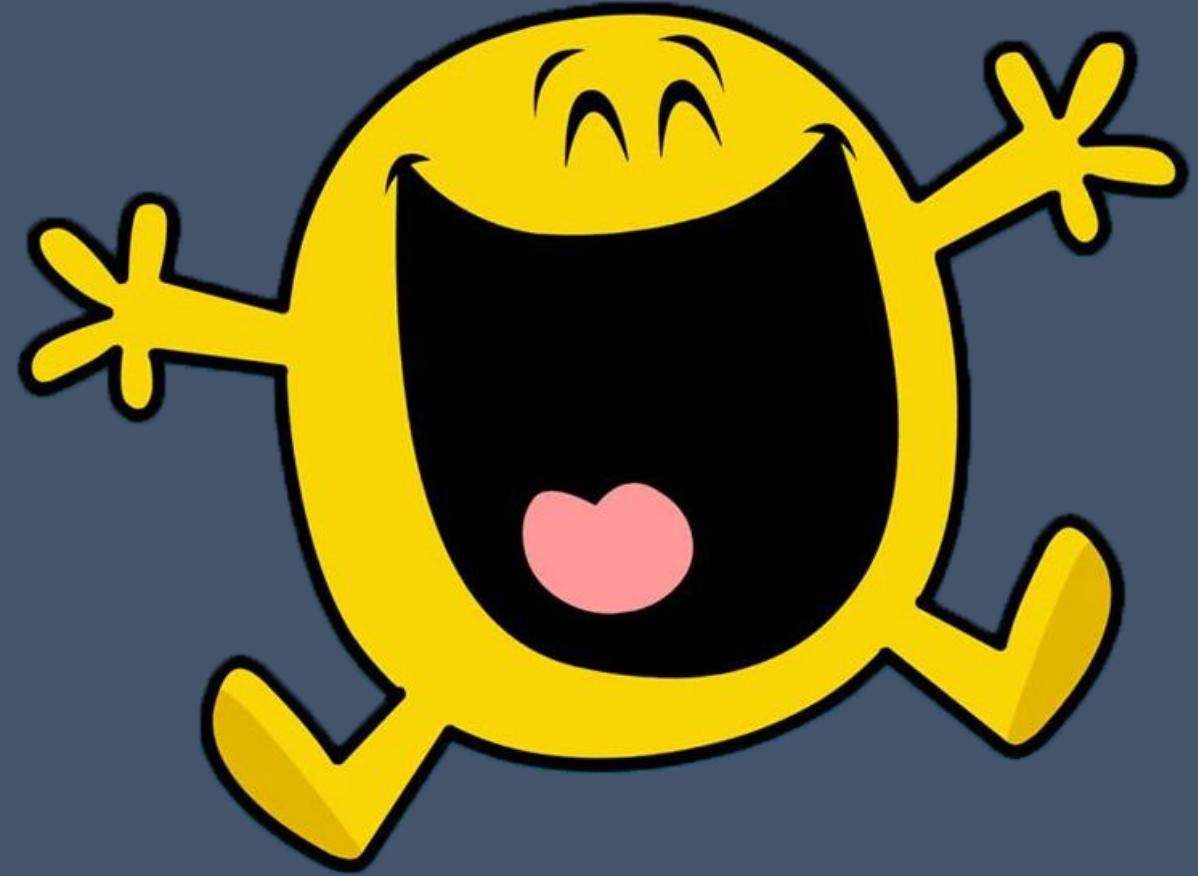
The elements being summed  
of the lower triangular  
matrix are:  
4 7 8

**Output:**  
19



# Next !!!

# FOR FUN



# Problem No.1

Write a program in JavaScript to calculate determinant of a  $3 \times 3$  matrix

**Matrix:**

1 0 -1  
0 0 1  
-1 -1 0

**Output:**

1

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

$$\downarrow$$
$$A = a(ei - fh) - b(di - fg) + c(dh - eg)$$

$$\downarrow$$
$$\begin{bmatrix} a_x & f \\ e & i \end{bmatrix} - \begin{bmatrix} d_x & f \\ g & i \end{bmatrix} + \begin{bmatrix} c_x & e \\ d & g \end{bmatrix}$$

$$\downarrow$$
$$A = a \begin{bmatrix} e & f \\ h & i \end{bmatrix} - b \begin{bmatrix} d & f \\ g & i \end{bmatrix} + c \begin{bmatrix} d & e \\ g & h \end{bmatrix}$$

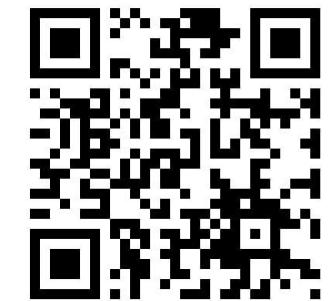




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Part 2



Part 1



By :- Safaa El-Shafe'y

# Problem No.4

Write a program in JavaScript to print or display the lower triangular of a given matrix

After Setting zero in lower triangular matrix.

**Matrix:**

1 2 3  
4 5 6  
7 8 9

**Output:**

1 2 3  
0 5 6  
0 0 9



# Upper Vs Lower Triangular Matrix

Upper triangular matrix

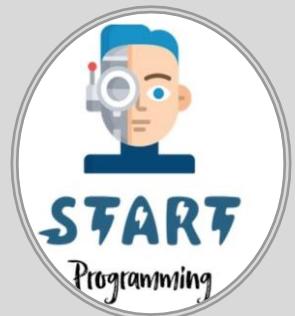
3	2	6	7
0	6	6	8
0	0	2	4
0	0	0	1

Below the main diagonal are 0

VS

Lower Triangular Matrix

1	0	0
4	2	0
6	5	1

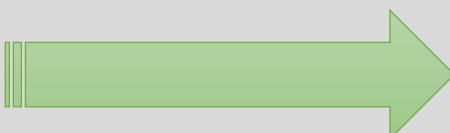




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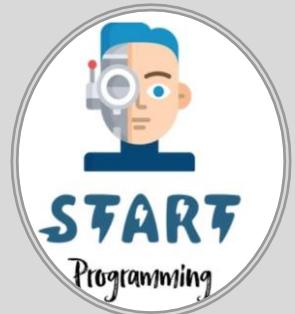
# Low Triangular Matrix

	0	1	2
0	1	2	3
1	4	5	6
2	7	8	9



	0	1	2
0	1	2	3
1	0	5	6
2	0	0	9

Row > Cols



# Problem No.5

Write a program in JavaScript to print or display the upper triangular of a given matrix

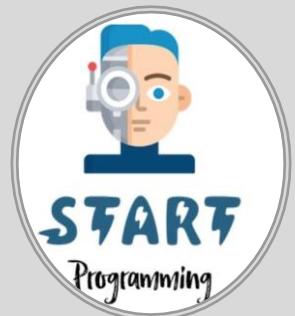
After Setting zero in upper triangular matrix.

**Matrix:**

1 2 3  
4 5 6  
7 8 9

**Output:**

1 0 0  
4 5 0  
7 8 9

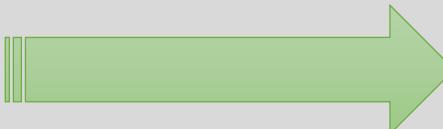




العلاقه

# Upper Triangular Matrix

	0	1	2
0	1	2	3
1	4	5	6
2	7	8	9



	0	1	2
0	1	0	0
1	4	5	0
2	7	8	9

Col > Row



پلا بینا علی الرحله

3





السلام عليكم ورحمة الله  
وببركاته