Arreglos HTML y JS

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Ejercicio 1

Descripción
Genera en pantalla dos listas de los números del uno al diez

```html
<!DOCTYPE html>
<html lang="es">
<head>
    <title>Document</title>
    <link rel="stylesheet" href="Bootstrap/css/bootstrap.css">
</head>
<body>
    <div class="container">
        <h1>Lista Uno</h1>
        <ul class="list-group" id="listNum1"></ul>
        <h1>Lista Dos</h1>
        <ul class="list-group" id="listNum2"></ul>
    </div>
    <script src="Bootstrap/js/bootstrap.js"></script>
    <script src="Bootstrap/js/bootstrap.bundle.js"></script>
    <script src="js/script.js"></script>
</body>
</html>
```

Variables	Tipo de Variable
1. array1	1. array
2. resultado1	2. string
3. index	3. int

```javascript
let array1 = [1, 2, 3, 4, 5, 6, 7, 8, 10]
let resultado1 = ''
for (let index = 0; index < array1.length; index++) {
    resultado1 += `<li class="list-group-item">${array1[index]}</li>`
}
document.getElementById('listNum1').innerHTML = resultado1
```

Variables	Tipo de Variable
1. array2	1. array
2. index	2. int
3. resultado2	3. string

```javascript
let array2 = []
for (let index = 0; index < 10; index++) {
    array2.push(index+1)
}
let resultado2 = ''
for (let index = 0; index < array2.length; index++) {
    resultado2 += `<li class="list-group-item">${array2[index]}</li>`
}
document.getElementById('listNum2').innerHTML = resultado2
```

Lista Uno

1
2
3
4
5
6
7
8
10

Lista Dos

1
2
3
4
5
6
7
8
9
10

Ejercicio 2

Descripción

Presenta en pantalla el proceso y el resultado del factorial de los números del uno al cinco

```
<!DOCTYPE html>
<html lang="es">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
    <link rel="stylesheet" href="Bootstrap/css/bootstrap.css">
</head>

<body>

    <div class="container">
        <ul class="list-group list-group-horizontal">
            <li class="list-group-item col-4 list-group-item-
danger"><h4>Factorial</h4></li>
            <li class="list-group-item col-4 list-group-item-
danger"><h4>Proceso</h4></li>
            <li class="list-group-item col-4 list-group-item-
danger"><h4>Resultado</h4></li>
        </ul>
        <div id="list-groups">
        </div>
    </div>

    <script src="Bootstrap/js/bootstrap.js"></script>
    <script src="Bootstrap/js/bootstrap.bundle.js"></script>
    <script src="js/script.js"></script>
</body>

</html>
```

Variable	Tipo de Variable
1. factorial	1. array
2. data	2. array
3. index1	3. int
4. index2	4. int

```
let factorial = []
let data = []

for (let index1 = 1; index1 <= 5; index1++) {
    data.push(index1)
```

```
    data.push('')
    data.push(index1)
    for (let index2 = index1; index2 >= 1; index2--) {
        data[1] += `${index2}`
        if (index2 !== 1) {
            data[1] += ' X '
            if (index2 === data[2]) {
                continue
            }
            data[2] *= index2
        }
    }
    factorial.push(data)
    data = []
}
```

Variables	Tipo de Variable
1. screen	1. string
2. index	2. int
3. factorial	3. array

```
let screen = ''

for (let index = 0; index < factorial.length; index++) {
    screen += `
        <ul class="list-group list-group-horizontal">
            <li class="list-group-item col-4">${factorial[index][0]}!</li>
            <li class="list-group-item col-4">${factorial[index][1]}</li>
            <li class="list-group-item col-4">${factorial[index][2]}</li>
        </ul>
        `
}

document.getElementById('list-groups').innerHTML = screen
```

Factorial	Proceso	Resultado
1!	1	1
2!	2 X 1	2
3!	3 X 2 X 1	6
4!	4 X 3 X 2 X 1	24
5!	5 X 4 X 3 X 2 X 1	120

Ejercicio 3

Descripción

Muestra en pantalla las tablas de multiplicar del uno hasta el cinco

```html
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
    <link rel="stylesheet" href="Bootstrap/css/bootstrap.css">
</head>

<body>

    <div class="container">
        <h1 class="text-center">Tablas de multiplicar</h1>
        <div class="row align-items-center" id="tablas">
        </div>
    </div>

    <script src="Bootstrap/js/bootstrap.js"></script>
    <script src="Bootstrap/js/bootstrap.bundle.js"></script>
    <script src="js/script.js"></script>
</body>

</html>
```

Variables	Tipo de Variable
1. screen	1. string
2. index1	2. int
3. index2	3. int

```javascript
document.addEventListener('DOMContentLoaded', function () {
    let screen = ''

    for (let index1 = 1; index1 <= 5; index1++) {
        screen += `
                <div class="col">
                    <div class="card">
                        <h5 class="card-header text-center">
                            Tabla del ${index1}
                        </h5>
                        <ul class="list-group list-group-flush">
                    `
        for (let index2 = 1; index2 <= 10; index2++) {
            screen += `
```

```
                <li class="list-group-item">${index1} X ${index2} = ${index1 *
index2}</li>
                `

        }
        screen += `
                        </ul>
                    </div>
                </div>
                `

    }

    document.getElementById('tablas').innerHTML = screen
})
```

Tablas de multiplicar

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

Ejercicio 4

Descripción

Genera en pantalla 4 tablas de Bingo con números aleatorios y algunas con unos detalles demás

```
<!DOCTYPE html>
<html lang="es">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
    <link rel="stylesheet" href="Bootstrap/css/bootstrap.css">
    <link rel="stylesheet" href="css/style.css">
</head>

<body>

    <div class="container text-center">
        <h2>TABLA BINGO</h2>
        <div class="row justify-content-center">
            <div class="col-3">
                <table class="table table-bordered border-dark" id="table1">
                    <thead class="table-dark">
                        <tr>
                            <th scope="col-2">B</th>
                            <th scope="col-2">I</th>
                            <th scope="col-2">N</th>
                            <th scope="col-2">G</th>
                            <th scope="col-2">O</th>
                        </tr>
                    </thead>
                    <tbody name="nums">
                    </tbody>
                </table>
            </div>
        </div>
        <div class="row justify-content-evenly">
            <div class="col-3">
                <table class="table table-bordered border-dark" id="table2">
                    <thead class="table-dark">
                        <tr>
                            <th scope="col-2">B</th>
                            <th scope="col-2">I</th>
                            <th scope="col-2">N</th>
                            <th scope="col-2">G</th>
                            <th scope="col-2">O</th>
```

```
                    </tr>
                </thead>
                <tbody name="nums">
                </tbody>
            </table>
        </div>
        <div class="col-3">
            <table class="table table-bordered border-dark" id="table3">
                <thead class="table-dark">
                    <tr>
                        <th scope="col-2">B</th>
                        <th scope="col-2">I</th>
                        <th scope="col-2">N</th>
                        <th scope="col-2">G</th>
                        <th scope="col-2">O</th>
                    </tr>
                </thead>
                <tbody name="nums">
                </tbody>
            </table>
        </div>
        <div class="col-3">
            <table class="table table-bordered border-dark" id="table4">
                <thead class="table-dark">
                    <tr>
                        <th scope="col-2">B</th>
                        <th scope="col-2">I</th>
                        <th scope="col-2">N</th>
                        <th scope="col-2">G</th>
                        <th scope="col-2">O</th>
                    </tr>
                </thead>
                <tbody name="nums">
                </tbody>
            </table>
        </div>
    </div>
</div>

<script src="Bootstrap/js/bootstrap.js"></script>
<script src="Bootstrap/js/bootstrap.bundle.js"></script>
<script src="js/createTable.js"></script>
<script src="js/drawX.js"></script>
<script src="js/colorLetters.js"></script>
</body>

</html>
```

```css
.line {
    position: absolute;
    z-index: 1;
    height: 5px;
    transform-origin: 0 50%;
    border-radius: 50px;
    border: 1px solid
}

#X1 {
    background-color: rgba(13, 109, 253, 0.5);
    border-color: rgba(13, 109, 253);
}

#X2 {
    background-color: rgb(25, 135, 84, 0.5);
    border-color: rgb(25, 135, 84);
}

#X3 {
    background-color: rgb(220, 53, 69, 0.5);
    border-color: rgb(220, 53, 69);
}

#X4 {
    background-color: rgb(255, 193, 7, 0.5);
    border-color: rgb(255, 193, 7);
}
```

createTable.js

Variables	Tipo de Variable
1. numsBingo	1. array
2. cont	2. int
3. index1	3. int
4. index2	4. int

```javascript
let numsBingo = [];
let cont = 1;

for (let index1 = 0; index1 < 5; index1++) {
    numsBingo[index1] = [];
    for (let index2 = 0; index2 < 15; index2++) {
        numsBingo[index1][index2] = cont;
        cont++;
    }
}
```

Variables	Tipo de Variable
1. tableBingo	1. array
2. index1	2. int
3. nums	3. array
4. index2	4. int
5. num	5. int

```
let tableBingo = [];

for (let index1 = 0; index1 < 5; index1++) {
    let nums = [];
    for (let index2 = 0; index2 < 5; index2++) {
        let num = numRandom(index1);
        if (num !== null) {
            if (!tableBingo[index1]) {
                tableBingo[index1] = [];
            }
            tableBingo[index1].push(num);
        } else {
            break; // No hay más números disponibles para esta columna
        }
    }
    if (nums.length > 0) {
        tableBingo[index1] = nums;
    }
}
```

Variable	Tipo de Variable
1. index	1. int
2. avaibleNumbers	2. array
3. randomIndex	3. int

```
const numRandom = function (index) {

    let availableNumbers = getAvailableNumbers(index);
    if (availableNumbers.length === 0) {
        return null; // No hay más números disponibles
    }

    let randomIndex = Math.floor(Math.random() * availableNumbers.length);
    return availableNumbers[randomIndex];
}
```

Variables	Tipo de Variable
1. index	1. int
2. avaibleNumbers	2. array

```
const getAvailableNumbers = function (index) {
    let availableNumbers = [];
    numsBingo[index].forEach(num => {
        if (!tableBingo[index] || !tableBingo[index].includes(num)) {
```

```
            availableNumbers.push(num);
        }
    });
    return availableNumbers;
}
```

Variables	Tipo de Variable
1. screen	1. string
2. index1	2. int
3. index2	3. int
4. tables	4. array
5. table	5. object

```
screen = ''

for (let index1 = 0; index1 < 5; index1++) {
    screen += '<tr>'
    for (let index2 = 0; index2 < 5; index2++) {
        screen += `<td>${tableBingo[index2][index1]}</td>`
    }
    screen += '</tr>'
}


let tables = document.getElementsByName('nums')

tables.forEach(table => {
    table.innerHTML = screen
})
```

drawX.js

```
function createX() {
    // Tabla 2
    drawX('table2', [
        [[0, 0], [4, 4], 'X1'],
        [[4, 0], [0, 4], 'X1']
    ]);

    // Tabla 3
    drawX('table3', [
        [[0, 0], [2, 2], 'X2'],
        [[2, 0], [0, 2], 'X2'],
        [[2, 0], [4, 2], 'X3'],
        [[4, 0], [2, 2], 'X3'],
        [[0, 2], [2, 4], 'X4'],
        [[2, 2], [0, 4], 'X4']
    ]);
```

```
}
```

Variables	Tipo de Variable
1. tableId	1. parameter
2. coordinates	2. parameter
3. table	3. object
4. x1	4. parameter
5. y1	5. parameter
6. x2	6. parameter
7. y2	7. parameter
8. id	8. parameter
9. start	9. object
10. end	10. object

```
function drawX(tableId, coordinates) {
    // trae la tabla deseada del documento
    let table = document.getElementById(tableId);

    coordinates.forEach(([[x1, y1], [x2, y2], id]) => {
        //trae los dos elementos necesarios para hacer la 13ínea
        let start = table.children.nums.children[x1].cells[y1];
        let end = table.children.nums.children[x2].cells[y2];

        drawLine(start, end, id);
    });

}
```

Variable	Tipo de Variable
1. start	1. parameter
2. end	2. parameter
3. id	3. parameter
4. point1	4. object
5. point2	5. object
6. x1	6. float
7. y1	7. float
8. x2	8. float
9. y2	9. float
10. length	10. float
11. m1	11. float
12. m2	12. int
13. angle	13. float
14. line	14. object

```
function drawLine(start, end, id) {
    // Extrae las coordenadas de cada elemento en el documento
    let point1 = start.getBoundingClientRect()
```

```
    let point2 = end.getBoundingClientRect()

    // Calcula las coordenadas del punto central de cada elemento
    let x1 = point1.left + point1.width / 2
    let y1 = point1.top + point1.height / 2
    let x2 = point2.left + point2.width / 2
    let y2 = point2.top + point2.height / 2

    // Calcula la distancia que existe entre dos puntos de una recta
    let length = ((x2 - x1) ** 2 + (y2 - y1) ** 2) ** (1 / 2)

    // Calcula el angulo que se origina entre dos puntos de una recta
    let m1 = (y2 - y1) / (x2 - x1)
    let m2 = 0
    let angle = Math.atan((m1 - m2) / (1 + m1 * m2)) * 180 / Math.PI

    // Crea la linea y la ubica en el documento en la posicion y el angulo
calculado
    let line = document.createElement('div')
    line.id = `${id}`
    line.className = 'line'
    line.style.width = `${length}px`
    line.style.transform = `rotate(${angle}deg)`
    line.style.left = `${x1}px`
    line.style.top = `${y1}px`

    document.body.appendChild(line)
}
```

Variables	Tipo de Variable
1. lines	1. array
2. line	2. parameter: object

```
window.addEventListener('resize', () => {

    setTimeout(() => {

        // Elimina todas las líneas existentes
        let lines = document.querySelectorAll('.line');
        lines.forEach(line => line.remove())

        // crea nuevamente las lineas
        createX()
    }, 500);

});
```

colorLetters.js

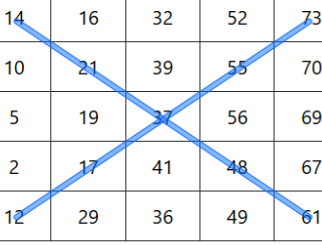
Variables	Tipo de Variable
1. table4 2. index1 3. index2 4. cell	1. object 2. int 3. int 4. object

```
function colorLetter() {
    let table4 = document.getElementById('table4')
    for (let index1 = 0; index1 < 5; index1++) {
        for (let index2 = 0; index2 < 5; index2++) {
            let cell = table4.children.nums.children[index1].cells[index2]
            switch (true) {
                case index2 === 0:
                    cell.classList.add('table-primary')
                    break
                case index2 === 1:
                    cell.classList.add('table-success')
                    break
                case index2 === 2:
                    cell.classList.add('table-danger')
                    break
                case index2 === 3:
                    cell.classList.add('table-warning')
                    break
                case index2 === 4:
                    cell.classList.add('table-info')
                    break
            }
            cell.classList.add('border-dark')
        }
    }
}
```

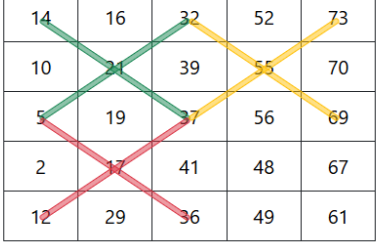
TABLA BINGO

B	I	N	G	O
14	16	32	52	73
10	21	39	55	70
5	19	37	56	69
2	17	41	48	67
12	29	36	49	61

B	I	N	G	O
14	16	32	52	73
10	21	39	55	70
5	19	37	56	69
2	17	41	48	67
12	29	36	49	61



B	I	N	G	O
14	16	32	52	73
10	21	39	55	70
5	19	37	56	69
2	17	41	48	67
12	29	36	49	61



B	I	N	G	O
14	16	32	52	73
10	21	39	55	70
5	19	37	56	69
2	17	41	48	67
12	29	36	49	61