

Question 1 : Answer The Following Questions (10 points)

- 1- Html elements that aren't meant to store content or other elements are called **empty** elements .
- 2- What are the difference between em , rem vs px
- 3- What is the difference between <input type="submit" value="click me"> and <button type="submit">Click me</button>?
- 4- Explain Hoisting and Event loop in javascript
- 5- What is the difference between for .. of , for .. in loop and Which JavaScript loop ensures that at least a singular iteration will happen?

Question 2 : What is the output : (10 points)

```
let c = { greeting: 'Hey!' };
let d;
d = c;
c.greeting = 'Hello';
console.log(d.greeting);

let x = 50
let y = x
x = 100
console.log(y)
```

Output:
Hello
50

```
var a = ['dog', 'cat', 'hen'];
a[100] = 'fox';
console.log(a.length);
```

Output:
101

```
const shape = {
  radius: 10,
  diameter() {
    return this.radius * 2;
  },
  perimeter: () => 2 * Math.PI * this.radius,
};
```

```
console.log(shape.diameter());
console.log(shape.perimeter());
```

// 2 * Math.PI * undefined results in NaN

Output:

20

NaN

```
sum(10, 20);
```

```
diff(10, 20);
```

```
function sum(x, y) {
```

```
  return x + y;
```

```
}
```

Output:

30

```
let diff = function (x, y) {
```

```
  return x - y;
```

```
}; ReferenceError: Cannot access 'diff' before initialization
```

```
function myFunc(...args) {
  console.log(typeof(args))
}
```

```
myFunc()
```

```
function addNumbers(x, y, z) {
```

```
  const sum = x + y + z
```

```
  console.log(typeof(sum))
}
```

```
addNumbers(2, 10)
```

Output:

object

number

Question 3 : Answer The Following Questions (55 points)

- 1- There are two sibling combinators that can be used to select elements contained within the same parent element; the general sibling combinator (~) and the adjacent sibling combinator (+). Referring to the example below, which elements will the styles be applied to? (5 points)

```
<section>
  <p>paragraph 1</p>
  <h2>Heading</h2>
  <p>paragraph 2</p>
  <p>paragraph 3</p>
</section>
```

```
h2 ~ p {
  color: blue;
}
h2 + p {
  background: beige;
}
```

- 2- What is the best is the best way to mark up this layout? (5 points)

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- 3- Write a function `areAnagrams` that checks if two strings are anagrams of each other (they have the same characters but in different orders).

```
console.log(areAnagrams('listen', 'silent')); // Output: true  
(10 points)
```

- 4- Write a function `calculateMean` that calculates the mean (average) of all the numbers in an array. Example usage:
`console.log(calculateMean([1, 2, 3, 4, 5])); // Output: 3` (5 points)

- 5- Check if the season is Autumn, Winter, Spring or Summer. If the user input is : (5 points)

- September, October or November, the season is Autumn.
- December, January or February, the season is Winter.
- March, April or May, the season is Spring
- June, July or August, the season is Summer

- 6- How do you write a factorial code in JavaScript ? (10 points)

A factorial is a mathematical operation that you write like this: $n!$. It represents the multiplication of all numbers between 1 and n .

Ex : `factorial(4) => 4 * 3 * 2 * 1 = 24`

Hint : your solution must be without loop

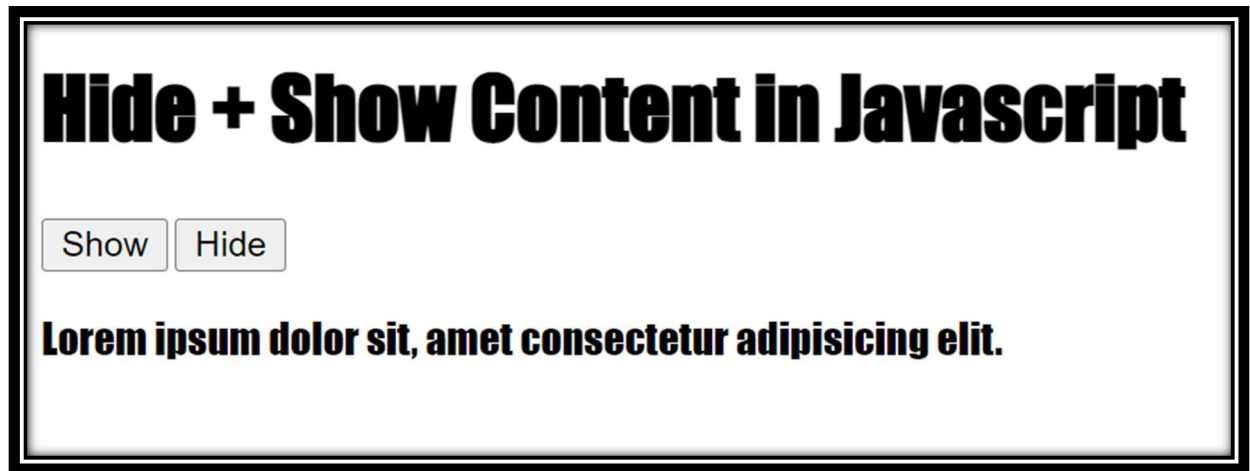
- 7- Make This Work : (5 points)

```
Duplicate([1, 2, 3, 4]) => [1, 2, 3, 4, 1, 2, 3, 4]
```


- 8- How to empty an array in javascript [4 ways] (10 points)


Question 4 : Make This Possible (25 Points)


1-



2- Using Html and css only

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Good luck 😊

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