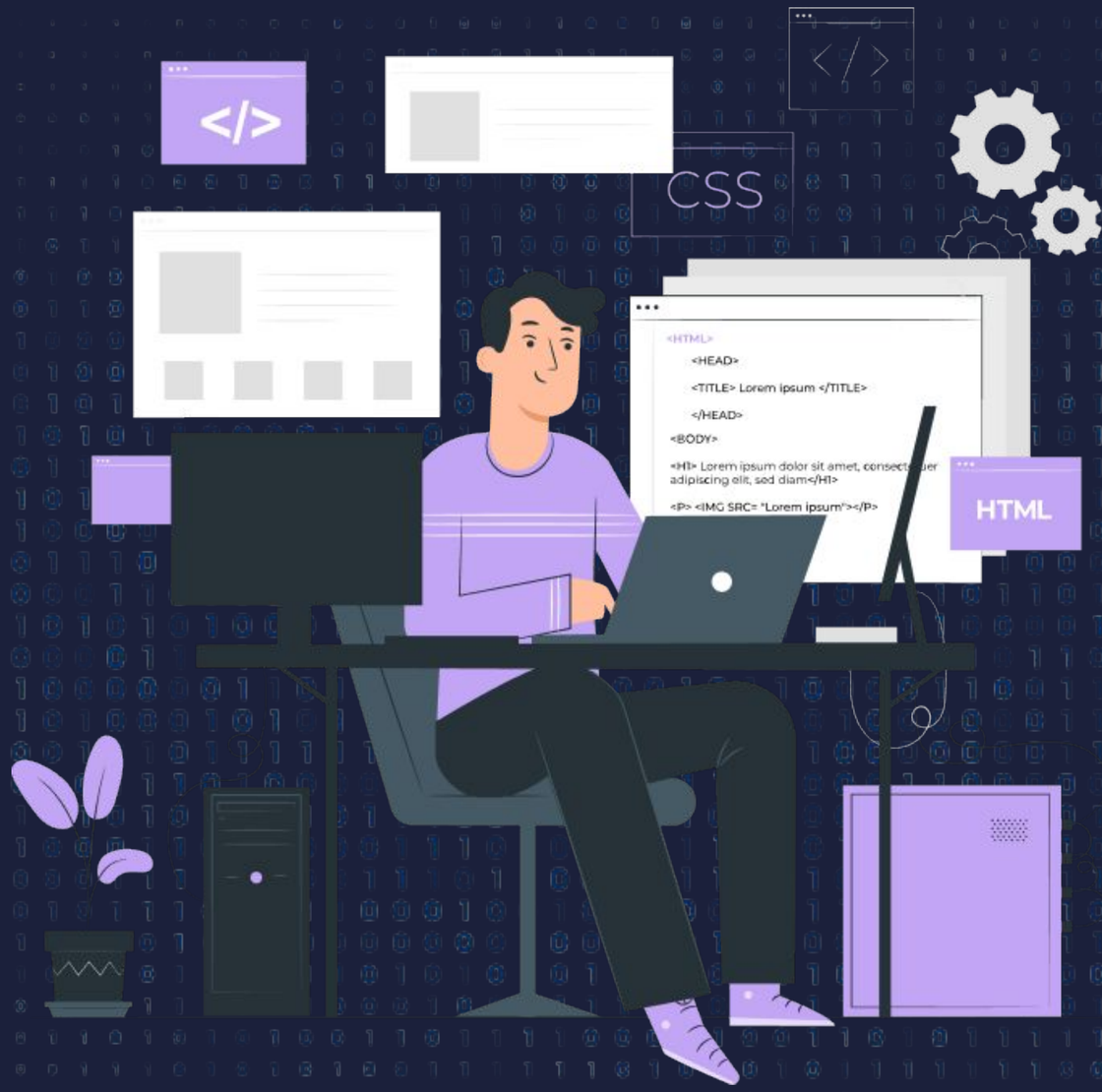
PW SKILLS

# Math, String and Date in JavaScript



# Topics Covered

- Math with example
- String with property, method example
- Date in JavaScript

# Math with Example -

In JavaScript, Math is an object with data properties and methods for processing numbers. It provides a range of mathematical functionalities.

**Math Properties** - Some of the commonly use math properties includes - **Math.PI, Math.E, Math.SQRT2, Math.LN2, Math.LN10**

**Example -**

```
console.log(Math.PI); // output - 3.141592653589793
console.log(Math.E); // output - 2.718281828459045
console.log(Math.SQRT2); //output - 1.4142135623730951
console.log(Math.LN2); // output - 0.6931471805599453
console.log(Math.LN10); // output - 2.302585092994046
```

**Math methods** - Some of the commonly use math properties includes - Math.abs(), **Math.ceil(), Math.exp(), Math. trunc(), Math.sqrt(), Math.round(), Math.random(), Math.pow(), Math.min(), Math.max(), Math.floor()**

**Example**

```
console.log(Math.abs(-19)); // output - 19
console.log(Math.ceil(19.6)); // output 20
console.log(Math.exp(2)); //
7.38905609893065
console.log(Math.sqrt(4)); // 2
console.log(Math.round(44.3)); // 44
console.log(Math.random()); // float value
between 0 to 1
console.log(Math.pow(2, 3)); //  8
console.log(Math.min(1, 22, 44, 2)); // 1
console.log(Math.max(1, 22, 44, 2)); // 44
console.log(Math.floor(4.55)); // 44
```

# String with property, method example

In JavaScript, string is an object with a sequence of characters enclosed in single or double quotes used to represent and manipulate text, and it is one of the most commonly used datatypes in Javascript.
Example
let hello = "**hello world**"

String Immutability -
Strings are immutable, which means that once a string is created, it cannot be changed. This immutability applies to individual characters within the string as well as the string as a whole. When you perform string operations or use non-string methods on a string, a new string is created rather than modifying the original string.
Example -

```
let firstName = "Mang";
let fullName = firstName.concat(" Touthang"); // Returns // a new string "Mang Touthang"
console.log(fullName); // output - Mang Touthang (new //string )
console.log(firstName); // Output: "Hello" (original //string is unchanged)
```

String Properties - it includes length, which returns the number of characters present in the string.
Example

```
console.log("hello".length); // 5
```

# String Immutability

Strings are immutable, which means that once a string is created, it cannot be changed. This immutability applies to individual characters within the string as well as the string as a whole.

**Example 1 -**

```
let firstName = "Mang";
let fullName = firstName.concat(" Touthang"); // Returns // a new string "Mang Touthang"
console.log(fullName); // output - Mang Touthang (new //string )
console.log(firstName); // Output: "Hello" (original //string is unchanged)
```

**Example 2 -**

```
let str = "Hello";
str[0] = "b"; // try to change no change
console.log(str); // output -  Hello
```

From the above example 2, the str with a value “Hello” is an attempt to be changed by assigning the value “b” to str[0], However when consoling the str variable, the same output original string is given i.e “Hello”. Since JavaScript string is immutable.

String method - it includes **charAt(), at() concat(), endsWith(), includes(), indexOf(), padEnd(), padStart(), repeat(), replace(), replaceAll(), search(), slice(), split(), startswith(), subString, toLowerCase(), toUpperCase(), trim(), trimEnd(), trimStart()**

```
/**
 ******* String method ********8
 */
console.log("hello".at(1)); // e
console.log("hello".at(-1)); // o

console.log("chartAt".charAt(3)); // r

console.log("hello" + " " + "world"); // hello world

console.log("endswith".endsWith("with")); // true
console.log("endswith".endsWith("end")); // true

console.log("includes".includes("c")); // true
console.log("includes".includes("o")); // false
```

```
console.log("indexOf".indexOf("O")); // 5
console.log("indexOf".indexOf("m")); // 5

console.log("padEnd".padEnd(10, "!")); // padEnd!!!!

console.log("4514".padStart(10, "*")); // ******4514

console.log("hello".repeat(3)); // hellohellohello

console.log("hello world world".replace("world", "earth")); // hello earth
console.log("hello world world".replaceAll("world", "earth")); // hello earth earth

console.log("Hello World!".slice(6)); // World!
console.log("Hello World!".slice(6, 11)); // World

console.log("hello,world,hello,world".split(","));
// output - [ 'hello', 'world', 'hello', 'world' ]

console.log("hello World".startsWith("hell")); // true

console.log("hello".substring(2)); // llo
console.log("hello".substring(1, 3)); // el

console.log("Hello Word".toLowerCase()); // hello world
console.log("hello world".toUpperCase()); // HELLO WORLD

console.log("  hello world    ".trim());

console.log("  Hello    ".trimEnd()); //  "   Hello"
console.log("  Hello    ".trimStart()); // "Hello    "
```

# Date JavaScript

In JavaScript dates are object which works with dates and time. It provides methods for creating, manipulating, and formatting dates.

It can be created using the new Date() keyword.

**Example -**

```
let date = new Date()
console.log(date)
// output - 2023-05-30T11:35:26.252Z
```

Date method - some of the importance date method include **now(), getDate(), getDay(), getFullYear(), getHours(), getMilliseconds(), getHours(), getMillisiconds(), getMinutes(), getMonth(), getTime(), setDate(), setMonth(), setFullyear(), toDateString()**

```
/**
 * Dates in javascript -
 */
/**
 * date in javascript
 */
let date = new Date();
console.log(date); // output - 2023-05-30T11:35:26.252Z

// now()
console.log(Date.now()); // 1685447212121 in millisecond

// getDate()
console.log(date.getDate()); // 30 present date of the day

// getDay()
console.log(date.getDay()); // week day in number i.e 2 which is tuesday

// getFullYear()
console.log(date.getFullYear()); // 2023
```

```
// getHours()
console.log(date.getHours()); // 17

// getMilliseconds
console.log(date.getMilliseconds()); // 556

// getMinutes()
console.log(date.getMinutes()); // 28 current minutes

// getMonth()
console.log(date.getMonth()); // 4 present month in number.

// getTime()
console.log("GetTime ", date.getTime()); // 1685449330596

// Time
console.log(date.getDate()); // 30

// setDate
console.log(date.setDate(15)); // 1684152190884

// setMonth
console.log(date.setMonth(4)); // 1684152543926

// setFullYear
console.log(date.setFullYear(2020)); // 1589544543926

console.log(date.toDateString()); // Fri May 15 2020
```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THANK YOU