**Date Methods**

The **Date** object in provides a variety of methods for manipulating dates and times. Here's a list of some important methods and examples for each:

**Creating a Date**

* **new Date()**: Creates a new Date object with the current date and time.
* **new Date(year, month, day, hours, minutes, seconds, milliseconds)**: Creates a Date object with the specified values.

// Current date and time

const now = new Date();

console.log(now);

// Specific date and time (year, month [0-11], day, hours, minutes, seconds, milliseconds)

const specificDate = new Date(2023, 4, 7, 10, 30, 0);

console.log(specificDate);

**Getting Date Information**

* **getFullYear()**: Returns the four-digit year.
* **getMonth()**: Returns the month (0-11, with 0 for January).
* **getDate()**: Returns the day of the month (1-31).
* **getHours()**: Returns the hours (0-23).
* **getMinutes()**: Returns the minutes (0-59).
* **getSeconds()**: Returns the seconds (0-59).
* **getMilliseconds()**: Returns the milliseconds (0-999).
* **getDay()**: Returns the day of the week (0-6, with 0 for Sunday).

const date = new Date(2023, 4, 7, 10, 30, 0);

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

console.log(date.getMonth()); // 4 (May)

console.log(date.getDate()); // 7

console.log(date.getHours()); // 10

console.log(date.getMinutes()); // 30

console.log(date.getSeconds()); // 0

console.log(date.getDay()); // 0 (Sunday)

**Setting Date Information**

* **setFullYear(year)**: Sets the full year.
* **setMonth(month)**: Sets the month (0-11).
* **setDate(day)**: Sets the day of the month (1-31).
* **setHours(hours)**: Sets the hours (0-23).
* **setMinutes(minutes)**: Sets the minutes (0-59).
* **setSeconds(seconds)**: Sets the seconds (0-59).
* **setMilliseconds(milliseconds)**: Sets the milliseconds (0-999).

const date = new Date(2023, 4, 7, 10, 30, 0);

date.setFullYear(2024);

date.setMonth(6); // July

date.setDate(15);

console.log(date); // Updated date: 2024-07-15

**Date Arithmetic**

* **getTime()**: Returns the time value in milliseconds since January 1, 1970.
* **setTime(time)**: Sets the date based on a given time value in milliseconds.
* **toISOString()**: Returns the date as a string in ISO 8601 format.
* **toDateString()**: Returns a human-readable date string.
* **toTimeString()**: Returns a human-readable time string.

const now = new Date();

const timestamp = now.getTime();

console.log(timestamp); // Milliseconds since epoch

const newDate = new Date();

newDate.setTime(timestamp + 86400000); // Add one day (86400000 milliseconds) console.log(newDate.toISOString()); // ISO 8601 formatted string console.log(newDate.toDateString()); // Human-readable date string console.log(newDate.toTimeString()); // Human-readable time string

**Math Methods**

The **Math** object in provides various mathematical functions and constants. Here's a list of some important methods and examples for each:

**Mathematical Constants**

* **Math.PI**: The value of π (pi).
* **Math.E**: The value of e (Euler's number).

console.log(Math.PI); // 3.141592653589793

console.log(Math.E); // 2.718281828459045

**Basic Mathematical Functions**

* **Math.abs(x)**: Returns the absolute value of x.
* **Math.round(x)**: Rounds x to the nearest integer.
* **Math.floor(x)**: Rounds x down to the nearest integer.
* **Math.ceil(x)**: Rounds x up to the nearest integer.
* **Math.sqrt(x)**: Returns the square root of x.
* **Math.pow(x, y)**: Returns x to the power of y.

console.log(Math.abs(-10)); // 10

console.log(Math.round(4.5)); // 5

console.log(Math.floor(4.7)); // 4

console.log(Math.ceil(4.1)); // 5

console.log(Math.sqrt(16)); // 4

console.log(Math.pow(2, 3)); // 8

**Trigonometric Functions**

* **Math.sin(x)**: Returns the sine of x (in radians).
* **Math.cos(x)**: Returns the cosine of x (in radians).
* **Math.tan(x)**: Returns the tangent of x (in radians).

console.log(Math.sin(Math.PI / 2)); // 1

console.log(Math.cos(0)); // 1

console.log(Math.tan(Math.PI / 4)); // 1

**Randomness and Maximum/Minimum Values**

* **Math.random()**: Returns a pseudo-random number between 0 (inclusive) and 1 (exclusive).
* **Math.max(x1, x2, ...)**: Returns the maximum value from a set of numbers.
* **Math.min(x1, x2, ...)**: Returns the minimum value from a set of numbers.

console.log(Math.random()); // A random number between 0 and 1

console.log(Math.max(1, 5, 10, -3)); // 10

console.log(Math.min(1, 5, 10, -3)); // -3