Satyaansh Softech

Project Based Learning

- NEW Something new for everyone — beginner or pro
- 100% Project-Based Learning
- 24/7 Every video = Contains assignments

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Cup

(coffee)

Container

(Food)

JavaScript

DATA TYPES

(To store different kind of values)

Primitive

Example: 25, "Hello", true

Non Primitive

Made up of primitive types.

Example:
{name: "Ali", age: 20}, [1,2,3]

PRIMITIVE DATA TYPES

- Number
- Boolean
- Null
- BigInt
- String
- Undefined
- Symbol

Number

For all kinds of numbers (integers, decimals, negatives).

8 Bytes memory.

```
let age = 25;
let pi = 3.14;
```

Usage: Math, calculations, prices.

String

For text (always inside quotes: " " or ' ').

2 bytes per char in memory.

```
let name = "Riya";
let city = 'Delhi';
```

Usage: Names, messages, labels..

Boolean

For logical values: only true or false.

4 Bytes in memory.

```
let isLoggedIn = true;
let isStudent = false;
```

Usage: Conditions in if, while, etc..

Undefined

A variable declared but not given a value.

Small fixed size

```
let x;
console.log(x);
```

Usage: Represents "not assigned yet"..

Null

An intentional “empty” value.

Small fixed size in memory.

```
let data = null;
```

Usage: Represents "nothing here on purpose"..

Symbol

Unique identifiers to avoid conflicts in object.

```
let s1 = Symbol("id");
let s2 = Symbol("id");
console.log(s1 === s2); // false unique values
```

Usage: Hidden object keys (rarely used by beginners).

BigInt

Beyond normal Number range.

Range of **Number** type = $2^{53} - 1$

```
let big =
1234567890123456789012345678 90n;
```

Usage: Huge numbers (cryptography, scientific data)..

Data Type	Size in memory(in Bytes)	USAGE
Number	8	Math, calculations, money, etc.
String	2 bytes per char	Text, names, messages
Boolean	4	Flags, conditions (if, while)
Undefined	Small fixed size	Placeholder when variable is declared but not assigned.
Null	Small fixed size	Intentional empty value
Symbol	Not precisely measured	Unique key in objects.
Big Int	Depends on digits	Very large integers beyond Number.MAX_SAFE_INTEGE

NON PRIMITIVE DATA TYPES

- Object
- Array(Object)
- Function (Object)

Object

Key-value pairs, like a real-world object with properties.

```
let student = {
  name: "Ali",
  age: 20,
  isActive: true
};
```

Usage: To represent real-world entities.

Array

Ordered list of values, indexed from 0.

```
let fruits = ["apple", "banana", "mango"];
console.log(fruits[1]);
```

Usage: Store collections (lists, groups of data)..

Function

Also an object.

A block of reusable code that can be called.

```
function greet() {
  return "Hello!";
}
```

Usage: Encapsulate logic, run tasks multiple times.

Data Type	Size in memory	USAGE
Object	Varies (depends on number of keys + values)	Represent real-world entities with properties
Array	Varies (depends on length + element size)	Store ordered collections/lists of data
Function	Varies (depends on code + closures)	Encapsulate reusable logic/behavior)

ASSIGNMENT

QUESTIONS FOR YOU

01 *What will be the output of typeof null in JavaScript?*

02 *Which data type is used to store very large integers in JavaScript?*

03 *Are Strings in JavaScript immutable?*

04 *Guess the Output:*

```
let x;
console.log(typeof x);
```

05 *Guess the Output:*

```
let fruits = ["apple", "banana"];
let b = fruits;
b.push("mango");
console.log(fruits);
```

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