



LECTURE 2 — JAVASCRIPT DATA TYPES

JavaScript Fundamentals — Data Types (Primitive)

First Principles • Real-Life Mapping • Zero Confusion



FIRST PRINCIPLE — “DATA TYPE KYU CHAHIYE?”

Simple Soch (Real-Life Example)

Socho tum ek **almirah** ho:

- Kapde alag jagah
- Paise alag jagah
- Documents alag jagah

Reason:

Har cheez ka **type alag hota hai**, isliye use handle karne ka tareeqa bhi alag hota hai.



Same rule programming me apply hota hai



Data Type decide karta hai:

- Variable ke andar **kis type ka data store hoga**
- Us data ke sath **kaunse operations allowed honge**

Real-Life Mapping (Must Understand)

Real Life	JavaScript Data Type
Instagram comment	String
Like count	Number
Block status	Boolean

📌 Isliye data types JavaScript ka foundation hote hain

■ EXAMPLE — DATA TYPE IN ACTION

```
let comment = "Nice pic!";  
  
console.log(comment);           // Nice pic!  
  
console.log(typeof comment); // string
```

■ HIGHLIGHT

`typeof` operator batata hai variable ka data type kya hai.

■ TYPES OF DATA IN JAVASCRIPT

◆ JavaScript me data 2 categories me hota hai

1 Primitive Data Types

- Simple values
- Immutable (change hone par nayi value banti hai)

2 Non-Primitive Data Types

- Complex structures (Array, Object, Function)

■ IMPORTANT

👉 Is lecture me sirf Primitive Data Types cover ho rahe hain

■ ■ ■ PRIMITIVE DATA TYPES ■ ■ ■

① NUMBER

◆ Kya Represent Karta Hai?

- Integers (10, 20, -5)
- Decimals (10.5, 5000.75)

◆ Use Cases

- Age
- Balance
- Likes

```
let balance = 5000.75;  
  
console.log(balance);           // 5000.75  
  
console.log(typeof balance); // number
```

■ NOTE

JavaScript me **integer aur decimal dono ka type = number** hota hai.

② STRING

◆ Kya Represent Karta Hai?

Textual data jo likha jata hai:

- 'single quotes'
- "double quotes"
- `backticks`

◆ Use Cases

- Username
- Comments
- Messages

```
let username = "Harshal";  
  
console.log(username);  
  
console.log(typeof username); // string
```

```
let post = "Rohit is a bad boy";  
  
console.log(post);  
  
console.log(typeof post); // string
```

■ HIGHLIGHT

Quotes ke andar jo bhi hota hai → **STRING**

③ BOOLEAN

◆ Kya Represent Karta Hai?

Sirf 2 values:

- `true`
- `false`

◆ Use Cases

- Login status
- Block status
- Admin check

```
let isBlocked = true;  
  
console.log(isBlocked);           // true  
  
console.log(typeof isBlocked); // boolean
```

■ REAL-LIFE ANALOGY

Switch ON/OFF → Boolean true/false

④ UNDEFINED

◆ Meaning

- Variable declare kiya
- Lekin value assign nahi ki

◆ Use Cases

- Input field empty
- Data abhi receive nahi hua

```
let searchInput;  
  
console.log(searchInput);           // undefined  
  
console.log(typeof searchInput); // undefined
```

■ IMPORTANT

Undefined ka matlab: **“Value abhi di hi nahi gayi”**

⑤ NULL

◆ Meaning

- Intentionally empty value
- Developer khud bol raha hai: “yahan kuch nahi hai”

◆ Real-Life Case

Server down hai
Isliye **0 (zero)** bhejna galat hoga
👉 **null bhejna sahi hota hai**

```
let result = null;  
  
console.log(result);           // null  
  
console.log(typeof result); // object
```

⚠ BIGGEST JS BUG — `typeof null`

🔴 Weird Behavior

```
typeof null // "object"
```

🧠 Reason (First Principle)

- JavaScript ka **old bug**
- Pehle type **memory address pattern** se detect hota tha
- `null` ka pattern **object** jaisa lagta tha

❌ Agar aaj fix kar diya:

- Purana code toot jaayega

🟢 Conclusion

```
typeof null === "object"
```

👉 Bug hai, par backward compatibility ke liye rakha gaya hai

⑥ BIGINT

🔹 Purpose

Bahut **bade integers** ko store karne ke liye

🔹 Use Cases

- Aadhaar number
- Cryptographic keys

```
let bigValue = 123456789123456789123456789n;
```

```
console.log(bigValue);
```

```
console.log(typeof bigValue); // bigint
```

🟡 HIGHLIGHT

`n` suffix → JavaScript ko batata hai ye **BigInt** hai

⑦ SYMBOL

◆ Meaning

- Unique
- Immutable identifier

◆ Use Cases

- Object keys
- Hidden / private values

```
let userId = Symbol("id");  
  
console.log(userId);  
  
console.log(typeof userId); // symbol
```

■ REAL-LIFE ANALOGY

Aadhaar number → unique
Symbol bhi waise hi **unique identity** deta hai

■ ■ ■ SUMMARY TABLE ■ ■ ■

Data Type	Meaning	Example	typeof
Number	Integer / Decimal	<code>let x = 45.6</code>	<code>"number"</code>
String	Text	<code>"Raj"</code>	<code>"string"</code>
Boolean	true / false	<code>false</code>	<code>"boolean"</code>
Undefined	Value not assigned	<code>let y;</code>	<code>"undefined"</code>

Null	Intentional empty	<code>null</code>	<code>"object"</code>
BigInt	Large integers	<code>123n</code>	<code>"bigint"</code>
Symbol	Unique identifier	<code>Symbol()</code>	<code>"symbol"</code>

■■■ FINAL POWER SUMMARY ■■■

■ ONE-GLANCE REVISION

- Data types decide **data + operations**
- JavaScript me **2 categories** hote hain
- Primitive = simple & immutable
- `typeof` type batata hai
- `null` ka `"object"` ek **JS bug** hai
- BigInt = large numbers
- Symbol = unique identity