Lesson:

Values and Data type

PW SKILLS

Topics

1. Introduction to Data type
2. Primitive data types
3. Non-primitive types

Introduction To Data Type

- Data types are used to define the way the data is stored in memory. Storing data is an essential part of programming as it enables the manipulation, processing, and sharing of information within a program.
- The data type is a classification of data according to the type of value that we want to operate on.
- JavaScript is a dynamically typed language, which means the data type is identified during execution. The programmer need not to explicitly declare the data type in code

There are **`primitive types`** and **`non-primitive types`**. The big difference under the hood is the way that they're **stored** and **accessed from memory**.

A. **Primitive types:** Stored directly in the location that the variable is accessed.

B. **Non-primitive types:** The data types that are derived from primitive data types. It is also known as derived data types or reference data types.

Primitive Data types

Following are the 7 primitive types in javascript:

1. String

Combination of alphanumeric characters wrapped in either single or double quotes. Strings can include any number, letter or symbol.

```javascript
"Prabir" or 'Prabir'
```

2. Number

Any number in JavaScript is the Number type, including floats and decimals. Some languages have separate types for floats and integers. JavaScript does not. Numbers are not wrapped in quotes.

```javascript
30
98.9
```

NaN stands for **"Not a Number"** and is a special value that represents the result of an undefined or unrepresentable mathematical operation.

We will learn more in detail in the upcoming lectures.

3. BigInt:
In JavaScript, there is a maximum safe value, which is approximately 2^53 - 1. Similarly, there is also a minimum safe value, which is approximate -(2^53 - 1).

This means that integers less than min safe value or greater than max safe value, may lose precision when represented as a JavaScript number. So, for such numbers, we use BigInt data type.

The BigInt data type number can also be treated as a regular number by adding n to it at the end.

```
JavaScript
9007199243740991n
```

4. Boolean:
A boolean is a true or false value.

```
JavaScript
true or false
```

5. Null:
Null means nothing or empty value. It is often used to indicate that a variable or property has no value. We will learn more about variables in the upcoming lecture.

```
JavaScript
null
```

6. undefined
undefined is a special value that indicates that a variable or property has been declared but has not been assigned a value.

```
JavaScript
undefined
```

7. Symbol:
A Javascript Symbol is a relatively new javascript feature . It was introduced in ES6. This is a new Primitive data type called Symbol. Symbols are immutable i.e means can not be changed and are unique.

We will learn more about symbol in the upcoming lectures.

```
JavaScript
Symbol("name")
```

Non-primitive types:

Reference types are a non-primitive value and when assigned to a variable, the variable is given a reference to that value. The reference points to the object's location in memory. Unlike primitives, where the variable contains the actual value.

Arrays:
I know we haven't gone over arrays yet so don't worry if you've never worked with them. They're essentially a data structure that can hold multiple values. We will learn in depth in the upcoming lectures.

```javascript
[1,2,3,4] ;
["Prabir", 43, 'Kumar']
```

Objects:
Objects are comma separated lists of name-value pairs. Objects are usually created by curly brackets { }.We'll get into them later, but just to give you an example here.

```javascript
{
  name: 'Prabir',
  age: 20
}
```