**Question 1: What is an object in JavaScript? How are objects different from arrays?**

**Objects in JavaScript**

An object in JavaScript is a collection of key-value pairs, where each key (also called a property) is a string (or symbol) that maps to a value. Objects allow us to store and organize data in a structured way.

**Declaring an Object**

You can create an object using **object literal notation** or the new Object() constructor.

**1. Using Object Literals (Recommended)**

let person = {

name: "Dhoni",

age: 30,

isStudent: false

};

console.log(person.name);

console.log(person.age);

2. Using the new Object() Constructor

let person = new Object();

person.name = "Virat";

person.age = 30;

**Key Features of Objects:**

* **Unordered** collection of key-value pairs.
* Keys are **strings** (or symbols).
* Values can be **any data type**, including arrays and functions.

**Difference Between Objects and Arrays**

|  |  |  |
| --- | --- | --- |
| **Feature** | **Objects** | **Arrays** |

|  |  |  |
| --- | --- | --- |
| **Structure** | **Key-value pairs ({ key: value })** | **Indexed elements ([value1, value2])** |

|  |  |  |
| --- | --- | --- |
| **Access** | **object. Key or object["key"]** | **array[index]** |

|  |  |  |
| --- | --- | --- |
| **Ordering** | **Unordered** | **Ordered** |

|  |  |  |
| --- | --- | --- |
| **Use Case** | **Storing structured data (e.g., user details)** | **Storing lists of values (e.g., numbers, names)** |

**Question 2: Explain how to access and update object properties using dot notation and bracket notation.**

**Accessing and Updating Object Properties in JavaScript**

JavaScript provides two ways to access and update object properties:

1. Dot Notation (.)
2. Bracket Notation ([])

**1. Accessing Object Properties**

Using Dot Notation (.)

* The most common and readable way to access object properties.
* Only works when the property name is a valid identifier (i.e., no spaces, special characters, or numbers at the start).

**Example:**

let person = { name: "sahil", age: 25, city: "surat" };

console.log(person.name);

console.log(person.age);

**Using Bracket Notation ([])**

* Useful when property names contain spaces, special characters, or are stored in variables.

**Example:**

let person = { "full name": " Johnson", age: 25 };

console.log(person["full name"]);

console.log(person["age"]);

**2. Updating Object Properties**

**Using Dot Notation**

let user = { name: "raina", age: 30 };

user.age = 31;

console.log(user.age);

**Using Bracket Notation**

let car = { brand: "Toyota", model: "Camry" };

car["model"] = "Corolla";

console.log(car.model);