

# DATA TYPES

```
1. x=5;

y=x;

x=10;

console.log(x);

console.log(y);
```

ans: Output: **10**

**5**

The variable `x` is initially assigned the value `5`. Then, `y` is assigned the current value of `x`, which is `5`. When `x` is updated to `10`, `y` remains `5`, so the output will be `10` for `x` and `5` for `y`.

```
2. obj1 = {name: "alice"};

obj2 = obj1;

obj1.name = "bob";

console.log(obj1.name);

console.log(obj2.name);
```

ans: output **bob**

**bob**

`obj1` is initially set with the property `name` equal to `"alice"`. When `obj2` is assigned `obj1`, both variables reference the same object. Updating `obj1.name` to `"bob"` changes the shared object, so the output will be `"bob"` for both `obj1.name` and `obj2.name`.

```
3. a="hello";

b = 42;

c = true;

d = {key: "value"};
```

```
e = null;
```

```
f = undefined;
```

```
console.log(typeof a);
```

```
console.log(typeof b);
```

```
console.log(typeof c);
```

```
console.log(typeof d);
```

```
console.log(typeof e);
```

```
console.log(typeof f);
```

**ans: string**

**number**

**boolean**

**object**

**object**

**undefined**

The `typeof` operator returns the data type of each variable. For `a`, it outputs `"string"`; for `b`, it outputs `"number"`; for `c`, it outputs `"boolean"`; for `d`, it outputs `"object"`; for `e`, it outputs `"object"` (since `null` is a special case); and for `f`, it outputs `"undefined"`. Thus, the console will display: `"string", "number", "boolean", "object", "object", and "undefined".`

**4. numbers=[10,20,30,40,50];**

```
console.log(numbers[2]);
```

```
console.log(numbers[0]);
```

```
console.log(numbers[numbers.length-1]);
```

**ans: output 30**

**10**

**50**

The array numbers contains five elements: [10, 20, 30, 40, 50]. The expression numbers[2] accesses the third element, which is 30, while numbers[0] retrieves the first element, 10. Finally, numbers[numbers.length-1] accesses the last element of the array, which is 50

```
5. fruits=["apple","banana","mango"];
fruits [1]= "orange";
console.log(fruits);
ans: output [ 'apple', 'orange', 'mango' ]
```

The code initializes an array called fruits containing three items: "apple," "banana," and "mango." It then updates the second item (index 1) from "banana" to "orange." The console.log(fruits)

```
6.matrix = [
    [1,2,3],
    [4,5,6],
    [7,8,9]
];
console.log(matrix[1][2]);
console.log(matrix[2][0]);
```

**Output: 6**

**7**

The code defines a 2D array (matrix) with three rows and three columns. matrix[1][2] accesses the element in the second row and third column, which is 6. matrix[2][0] accesses the element in the third row and first column, which is 7

```
7. person={
    name:'KTR',
    age:'22',
    city:'Ongole'
};
console.log(person.name);
console.log(person.age);
```

**Output: KTR**

**22**

The code defines an object person with properties: name, age, and city. console.log(person.name) retrieves the value of the name property, which is 'THARUN'. console.log(person.age) retrieves the value of the age property, which is '22'

```
8.car ={
    make:'toyota',
    model:'corolla',
    year:'2021'
};
```

```
console.log(car["make"]);  
console.log(car["model"]);
```

Output: **toyota**  
**corolla**

The code defines an object car with properties: make, model, and year.

console.log(car["make"]) retrieves the value of the make property, which is 'toyota'.

console.log(car["model"]) retrieves the value of the model property, which is 'corolla'

```
9. book={  
    title:"the great gatsby",  
    author:"F.scott fitzgerald"  
};  
book.author="anonymous";  
console.log(book.author);  
output: anonymous
```

The code defines an object book with properties title and author. The author property is then updated to 'anonymous'. When console.log(book.author) is executed,

```
10. student={  
    name:"Tirupathi Reddy",  
    grade:"A",  
};  
student.age="20";  
console.log(student);  
output: { name: 'Tirupathi Reddy', grade: 'A', age: '20' }
```

The code defines an object student with properties name and grade. A new property age is added and set to '20'. When console.log(student) is executed