

# ASSIGNMENT:02

## DAY:02

### JAVA SCRIPT

6) Create an object named student with properties name, age, and grades. Add a method calculateAverage that calculates the average of the grades.

#### SOURCE CODE:

```
JS affan.js  x  Extension: Java Language Support
affan > affan > affan > JS affan.js > ...
1  const student={
2      name:"affan",
3      age:19,
4      grades:[80,85,90,95],
5      calculateAverage:function(){
6          if(this.grades.length===0){
7              return 0;
8          }
9          const sum=this.grades.reduce((acc,grade) => acc + grade,0);
10         return sum/this.grades.length;
11     }
12 };
13 const averagegrade = student.calculateAverage();
14 console.log("average grade:"+ averagegrade);
15 |
```

#### OUTPUT:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
C:\Program Files\nodejs\node.exe .\affan\affan\affan\affan.js
average grade:87.5
```

7) 7. How can you clone an object in JavaScript and also give one example each deep copy, shallow copy, and reference copy

#### SOURCE CODE:

```
JS affan.js  ●
JS affan.js > ...
1  const originalObject = { a: 1, b: { c: 2 }, };
2  const shallowCopy = { ...originalObject };
3  shallowCopy.b.c = 4;
4
5  console.log(originalObject);
6  console.log(shallowCopy); |
```

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### OUTPUT:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\iakbe\OneDrive\Desktop\bano> node affan.js
{ a: 1, b: { c: 4 } }
{ a: 1, b: { c: 4 } }
PS C:\Users\iakbe\OneDrive\Desktop\bano> []
```

8) Write a loop that iterates over an array of numbers and logs whether each number is even or odd, using a ternary operator.

### SOURCE CODE:

```
JS affan.js X
JS affan.js > ...
1 array=[1,2,3,4,5,6,7,8,9,10];
2 for(let i=0;i<array.length;i++){
3     const result=array[i]%2===0?"even":"odd";
4     console.log("Ternanry operatoe:"+i+result)
5 };
```

### OUTPUT:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

Ternanry operatoe:0odd
Ternanry operatoe:1even
Ternanry operatoe:2odd
Ternanry operatoe:3even
Ternanry operatoe:4odd
Ternanry operatoe:5even
Ternanry operatoe:6odd
Ternanry operatoe:7even
Ternanry operatoe:8odd
Ternanry operatoe:9even
```

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9) 9. Describe the differences between the for loop, while loop, and do...while loop in JavaScript. When might you use each?

### SOURCE CODE:

```
JS affan.js X
JS affan.js > ...
1 //Difference between for loop ,while loop,do-while
2 //for loop
3 console.log("for loop")
4 array=[1,2,3,4,5,6];
5 for(let i=0;i<array.length;i++){
6     console.log(i)
7 }
8 //while loop
9 console.log("while loop")
10 j=0;
11 while(j<array.length){
12     console.log(j);
13     j++;
14 }
15 console.log("do while")
16 //do while loop
17 k=0;
18 do{
19     console.log(k);
20     k++;
21 }while(k<array.length)
```

### OUTPUT:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
C:\Program Files\nodejs\node.exe .\affan.js
for loop
0
1
2
3
4
5
while loop
0
5
while loop
0
1
2
3
4
5
do while
0
do while
0
1
2
3
4
5
```

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10) Provide an example of using optional chaining within a loop to access a potentially missing property of an object.

### SOURCE CODE:

```
JS affan.js X
JS affan.js > [?] users > [?] address > [?] city
1  const users = [
2    { name: 'Affan', address: { city: 'karachi' } },
3    { name: 'Khizar', address: { city: 'lahore' } },
4    { name: 'Ahmed' } //
5  ];
6
7  for (const user of users) {
8    const cityName = user.address?.city || 'Unknown City';
9    console.log(user.name+cityName);
10 }
```

### OUTPUT:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
C:\Program Files\nodejs\node.exe .\affan.js
Affankarachi
Khizarlahore
AhmedUnknown City
```