Reduce interview questions

Here are **20 most frequently asked `reduce()` interview questions** with **solutions and outputs** — divided into **Easy (5)**, **Medium (5)**, and **Hard (10)**.
All answers are written in a **beginner-friendly way**.

✅ 5 EASY reduce() Questions

1️⃣ Sum of all numbers in an array

Question

Use **`reduce()`** to calculate the sum:

```
js

const arr = [1, 2, 3, 4];
```

Solution

```
js

const sum = arr.reduce((acc, curr) => acc + curr, 0);
console.log(sum);
```

Output

```

10
```

2️⃣ Find product of all numbers

```
js

const arr = [2, 3, 4];
```

Solution

```
js

const product = arr.reduce((acc, curr) => acc * curr, 1);
console.log(product);
```

Output

```
24
```

3️⃣ Find max value

```js
const arr = [10, 5, 30, 15];
```

Solution

```js
const max = arr.reduce((acc, curr) => acc > curr ? acc : curr);
console.log(max);
```

Output

```
30
```

4️⃣ Count how many times each item appears

```js
const arr = ["a", "b", "a", "c", "b", "a"];
```

Solution

```js
const freq = arr.reduce((acc, curr) => {
  acc[curr] = (acc[curr] || 0) + 1;
  return acc;
}, {});
console.log(freq);
```

Output

```yaml
{ a: 3, b: 2, c: 1 }
```

5️⃣ Convert array of numbers to string

```
js

const arr = [1, 2, 3];
```

Solution

```
js

const str = arr.reduce((acc, curr) => acc + curr.toString(), "");
console.log(str);
```

Output

```
arduino

"123"
```

✅ 5 MEDIUM reduce() Questions

6️⃣ Flatten a 2D array

```
js

const arr = [[1, 2], [3, 4], [5]];
```

Solution

```
js

const flat = arr.reduce((acc, curr) => acc.concat(curr), []);
console.log(flat);
```

Output

```
csharp

[1, 2, 3, 4, 5]
```

7️⃣ Sum of ages of all users

```
js

const users = [
  { name: "A", age: 20 },
  { name: "B", age: 25 },
```

```
  { name: "C", age: 30 }
];
```

Solution

```
js

const totalAge = users.reduce((acc, curr) => acc + curr.age, 0);
console.log(totalAge);
```

Output

```
75
```

8️⃣ Create an object grouped by age

```
js

const users = [
  {name: "A", age: 20},
  {name: "B", age: 25},
  {name: "C", age: 20},
];
```

Solution

```
js

const grouped = users.reduce((acc, curr) => {
  if (!acc[curr.age]) acc[curr.age] = [];
  acc[curr.age].push(curr.name);
  return acc;
}, {});
console.log(grouped);
```

Output

```
css

{ 20: ["A", "C"], 25: ["B"] }
```

9️⃣ Convert array of objects into a single object

```
js

const arr = [
  {id: 1, name: "A"},
  {id: 2, name: "B"}
];
```

Solution

```
js

const obj = arr.reduce((acc, curr) => {
  acc[curr.id] = curr.name;
  return acc;
}, {});
console.log(obj);
```

Output

```
css

{ 1: "A", 2: "B" }
```

🔟 Count total characters in array of strings

```
js

const arr = ["apple", "mango", "hi"];
```

Solution

```
js

const totalChars = arr.reduce((acc, curr) => acc + curr.length, 0);
console.log(totalChars);
```

Output

```


12
```

✅ 10 HARD reduce() Questions

1️⃣1️⃣ Remove duplicates using reduce

```
js

const arr = [1, 2, 2, 3, 4, 4, 5];
```

Solution

```js
const unique = arr.reduce((acc, curr) => {
  if (!acc.includes(curr)) acc.push(curr);
  return acc;
}, []);
console.log(unique);
```

Output

```csharp
[1, 2, 3, 4, 5]
```

1️⃣2️⃣ Find average of numbers

```js
const arr = [10, 20, 30];
```

Solution

```js
const avg = arr.reduce((acc, curr, index, array) => {
  acc += curr;
  if (index === array.length - 1) return acc / array.length;
  return acc;
}, 0);

console.log(avg);
```

Output

```
20
```

1️⃣3️⃣ Convert array of arrays into single object

```js
const arr = [
  ["name", "Vipul"],
  ["age", 31],
  ["role", "Frontend"]
];
```

Solution

```js
const obj = arr.reduce((acc, [key, value]) => {
  acc[key] = value;
  return acc;
}, {});
console.log(obj);
```

Output

```pgsql
{ name: "Vipul", age: 31, role: "Frontend" }
```

1️⃣4️⃣ Group numbers by odd and even

```js
const arr = [1, 2, 3, 4, 5];
```

Solution

```js
const group = arr.reduce((acc, curr) => {
  const key = curr % 2 === 0 ? "even" : "odd";
  acc[key].push(curr);
  return acc;
}, { odd: [], even: [] });

console.log(group);
```

Output

```yaml
{ odd: [1, 3, 5], even: [2, 4] }
```

1️⃣5️⃣ Find longest string

```js
const arr = ["hello", "javascript", "hi"];
```

Solution

```js
const longest = arr.reduce((acc, curr) =>
  curr.length > acc.length ? curr : acc
```

```
);
console.log(longest);
```

Output

```
arduino

"javascript"
```

1️⃣6️⃣ Convert array to nested object

```
js

const arr = ["a", "b", "c"];
```

Solution

```
js

const nested = arr.reduceRight((acc, curr) => ({ [curr]: acc }), {});
console.log(nested);
```

Output

```
css

{ a: { b: { c: {} } } }
```

1️⃣7️⃣ Sum values by category

```
js

const items = [
  { category: "fruit", price: 50 },
  { category: "veg", price: 30 },
  { category: "fruit", price: 20 }
];
```

Solution

```
js

const groupedSum = items.reduce((acc, curr) => {
  acc[curr.category] = (acc[curr.category] || 0) + curr.price;
  return acc;
}, {});
console.log(groupedSum);
```

Output

```yaml
{ fruit: 70, veg: 30 }
```

1️⃣8️⃣ Implement map using reduce

```js
const arr = [1, 2, 3];
```

Solution

```js
const mapped = arr.reduce((acc, curr) => {
  acc.push(curr * 2);
  return acc;
}, []);
console.log(mapped);
```

Output

```csharp
[2, 4, 6]
```

1️⃣9️⃣ Implement filter using reduce

```js
const arr = [1, 2, 3, 4];
```

Solution

```js
const filtered = arr.reduce((acc, curr) => {
  if (curr % 2 === 0) acc.push(curr);
  return acc;
}, []);
console.log(filtered);
```

Output

```csharp
[2, 4]
```

2️⃣0️⃣ Count words in a sentence

```
js

const sentence = "hi my name is vipul malik";
```

Solution

```
js

const wordCount = sentence.split(" ").reduce((acc, curr) => acc + 1, 0);
console.log(wordCount);
```

Output

```
6
```

✅ Want more?

I can provide:

✔️ **30 hard level reduce questions**
✔️ **reduce + map + filter combined questions**
✔️ **real interview coding rounds**
✔️ **explain any solution line by line**

Just tell me!