Episode 19

* map, filter and reduce in javascript

* map function

map function is basically used to transform an array.

example :-

```
const arr = [5,1,3,2,6];
const output = arr.map((x) => x.toString(2));
console.log(output);
```

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▶ (5) ["101", "1", "11", "10", "110"]

* filter function

filter function is basically used to filter.

```
const arr = [5,1,3,2,6];
const output = arr.filter((x) => x > 4);
console.log(output);
```

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▶ (2) [5,6]

* reduce function

reduce function is used at a place where you have to take all the elements of an array and come up with a single value out of them.

ex①
```
const arr = [5,1,3,2,6];
const output = arr.reduce(function(acc, curr){
    acc = acc + curr;
    return acc;
}, 0);
console.log(output);
```

acc ↑ accumulator   curr ↑ current

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ex②
```
const arr = [4, 21, 30, 20, 10];
const output = arr.reduce(function(max, curr){
    if(curr > max){
        max = curr;
    }
    return max;
}, 0);
console.log(output);
```

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* __example of map function :-__

```
const users = [
  {first:"chaitanya", last:"last", age:20},
  {first:"akshay", last:"saini", age:26},
  {first:"kunal", last:"kushwaha", age:20},
];
const output = users.map((x) => x.first + " " +
                                  x.last);
console.log(output);
```

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▶ (3) ["chaitanya tekane", "akshay saini",
        "kunal kushwaha"]

* example of reduce function :-

```
const users = [
  {first:"chaitanya", age:26},
  {first:"akshay", age:75},
  {first:"elon", age:50},
  {first:"deepika", age:26},
];
```

```
const output = users.reduce (function (acc, curr) {
     if (acc [curr. age]) {
         acc [ curr.age] = ++ acc [curr.age];
     } else {
         acc [ curr.age] = 1;
     }
     return acc;
}, {});
console. log (output);
```

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▶ { 26:2, 50:1, 75:1}

* Chaining of filter and map function

```
const users = [
     { first : "chaitanya", age : 26 },
     { first : "donald", age : 75 },
     { first: "elon ", age :50 },
     { { first: "deepika", age : 26 },
];
const output = users.filter ( (x) => x.age < 30)
                       . map ( (x) => x.first );
console.log (output);
```

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▶ (2) ["chaitanya", "deepika"]

[instead of chaining here, we can also
        use reduce function only
    to get same output]