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## Javascript fundamentals

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- Basic syntax
- Variables
- Arrays & Object Literals
- Events
- Functions, loops, conditionals

## Modules

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- ES6 modules, Typescript (Angular)
- Parcel, Webpack & Babel
- Export & Export Default

## Classes

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- Structuring a class
- Constructors
- Methods & properties
- Instantiation
- Extending classes

## Arrow functions

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- scope and "lexical this"

```
setTimeout(() => {  
  console.log("Arrow function");  
}, 1000);
```

## Promises/asynchronous requests

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- Create & receive requests
- Standard .then() and catch() syntax
- Async/await is optional but recommended
- Fetch API for making HTTP requests

```
function createPost(post) {
  return new Promise((resolve, reject) => {
    setTimeout(() => {
      posts.push(post);
      const error = false;
      if(!error) {
        resolve();
      } else {
        reject('Error');
      }
    }, 2000);
  })
}

createPost({ title: "post 3", body: "post 3" })
  .then(getPosts)
  .catch(err => console.log(err));
```

Promise.all:

```
const promise1 = Promise.resolve('Hello World');
const promise2 = 10;
const promise3 = new Promise((resolve, reject) =>
  setTimeout(resolve, 2000, 'Goodbye'));
const promise4 = fetch('https://jsonplaceholder.typicode.com/users')
  .then(res => res.json());

Promise.all([promise1, promise2, promise3, promise 4])
  .then(values =>
    console.log(values)
  );
```

Async/Await:

```
async function init(){
  await createPost({ title: 'Post 3', body: 'Post 3'});
  getPosts();
}
init();
```

Async/Await/Fetch:

```
async function fetchUsers(){
  const res = await fetch('https://jsonplaceholder.typicode.com/users');
  const data = await res.json();
  console.log(data);
}
```

## Destructuring

- `const { name, email } = user;`
- `const { name, email, address: { city } } = user;`

## Concepts of Components & State

- Each component can have it's own data & state of being
- Nested components (Parent & children)

## Spread operator

State is usually immutable, we cannot simply change it, we need to make a copy. The spread operator(...) allows us to do that

```
const userState = {
  name: 'John'
}
const newUserState = {
  ...userState,
  age: 30
}
```

## Higher order array functions

- `forEach()`: iteration/looping

```
companies.forEach(function(company){
  console.log(company);
});
```

- `map()`: manipulating data to create new array

```
const companyNames = companies.map(function(company){
  return company.name + ' ' + company.category;
});
```

OR

```
const companyNames = companies.map(() => company.name + ' ' + company.category);
```

- `filter()`: used to filter out certain pieces of data

```
const test = ages.filter(function(age){
  if(age >= 21){
    return true;
  }
});
```

OR

```
const test = ages.filter(age => age >= 21);
```

- `sort()`: used to sort based on object property

```
const sortedCompanies = companies.sort(function(c1, c2){
  if(c1.start > c2.start) return 1;
  else return -1;
});
```

OR

```
const sortedCompanies = companies.sort((a,b) => (a.start > b.start ? 1 :-1));
```

OR

```
const sortedCompanies = companies.sort((a,b) => (a.start - b.start));
```

- `reduce()`: reduces the array to a single value

```
const agesSum = ages.reduce(function(total, age){  
  return total + age;  
},0);
```

OR

```
const agesSum = ages.reduce((total, age) => total + age, 0);
```