Modular JavaScript

A self-contained piece of code that provides functions and methods that can then be used in other files and by other modules. The code in a module should have a single purpose, and group together functions with distinct functionality.

Benefits:

- **allows a public API to be exposed, while keeping the implementation hidden away inside the module.**
- **to keep code organized in separate, reusable files, which improves code maintainability**
- **helps to make code loosely coupled and interchangeable, meaning you can easily swap one module for another without affecting other parts of a project**

Coupling – keep code as loosely coupled as possible. This allows code system to be highly flexible and prevents single-use cases. Hard-coding references between two pieces of code causes tight coupling because they are now dependent on one another.

Export – make variables/functions available from a module:

```
function variance(array) {
    return sum(array,square)/array.length - square(mean(array)) }
function mean(array) {
    return sum(array) / array.length; }
export {mean, variance};
export const PI = 3.1415926};
```

Import – allows you to use variables/functions from exported module:

```
import { PI } from './pi.js';
import { mean, variance } from './stats.js';
```

Import everything: use * and access a function using *stats* namespace:

```
import * as stats from './stats.js';
stats.mean([2,6,10]);
```

Default Exports – export a single variable, function, object:

```
const PI = 3.145926;  export default PI;
    function square(x) { return x * x;}  export default square;
        const stats = { square(x) { return x * x; }  export default stats;
```

Default Import – import single defaults:

```
import PI from './pi.js';
import square from './square.js';
import stats from './stats.js';
```

Aliases – call an exported value a different name:

```
import sq from './square.js';
sq(8);
```

Node.js Modules

Common JS Module – created using separate file.

Export-

```
module.exports = x => x * x;
```

Import –

```
const square = require('./squareFunction');
```