This example shows how the `sideEffects` flag for library authors works.

The example contains a large library, `big-module`. `big-module` contains multiple child modules: `a`, `b` and `c`. The exports from the child modules are re-exported in the entry module (`index.js`) of the library. A consumer uses **some** of the exports, importing them from the library via `import { a, b } from "big-module"`. According to the EcmaScript spec, all child modules *must* be evaluated because they could contain side effects.

The `"sideEffects": false` flag in `big-module`'s `package.json` indicates that the package's modules have no side effects (on evaluation) and only expose exports. This allows tools like webpack to optimize re-exports. In the case `import { a, b } from "big-module-with-flag"` is rewritten to `import { a } from "big-module-with-flag/a"; import { b } from "big-module-with-flag/b"`.

The example contains two variants of `big-module`. `big-module` has no `sideEffects` flag and `big-module-with-flag` has the `sideEffects` flag. The example client imports `a` and `b` from each of the variants.

After being built by webpack, the output bundle contains `index.js` `a.js` `b.js` `c.js` from `big-module`, but only `a.js` and `b.js` from `big-module-with-flag`.

Advantages:

- Smaller bundles
- Faster boot up

example.js

```
import { a as a1, b as b1 } from "big-module";
import { a as a2, b as b2 } from "big-module-with-flag";

console.log(
    a1,
    b1,
    a2,
    b2
);
```

node_modules/big-module/package.json

```
{
  "name": "big-module"
}
```

node_modules/big-module-with-flag/package.json

```json
{
  "name": "big-module-with-flag",
  "sideEffects": false
}
```

node_modules/big-module(-with-flag)/index.js

```js
export { a } from "./a";
export { b } from "./b";
export { c } from "./c";

console.log("side effect");
```

dist/output.js

```js
/******/ (() => { // webpackBootstrap
/******/        "use strict";
/******/        var __webpack_modules__ = ([
/* 0 */,
/* 1 */
/*!*******************************************!*\
  !*** ./node_modules/big-module/index.js ***!
  \*******************************************/
/*! namespace exports */
/*! export a [provided] [no usage info] [missing usage info prevents renaming] ->
./node_modules/big-module/a.js .a */
/*! export b [provided] [no usage info] [missing usage info prevents renaming] ->
./node_modules/big-module/b.js .b */
/*! export c [provided] [no usage info] [missing usage info prevents renaming] ->
./node_modules/big-module/c.js .c */
/*! other exports [not provided] [no usage info] */
/*! runtime requirements: __webpack_require__, __webpack_exports__,
__webpack_require__.d, __webpack_require__.r, __webpack_require__.* */
/*! Statement (ExpressionStatement) with side effects in source code at 5:0-27 */
/***/ ((__unused_webpack_module, __webpack_exports__, __webpack_require__) => {

__webpack_require__.r(__webpack_exports__);
/* harmony export */ __webpack_require__.d(__webpack_exports__, {
/* harmony export */   "a": () => (/* reexport safe */
_a__WEBPACK_IMPORTED_MODULE_0__.a),
/* harmony export */   "b": () => (/* reexport safe */
_b__WEBPACK_IMPORTED_MODULE_1__.b),
/* harmony export */   "c": () => (/* reexport safe */
_c__WEBPACK_IMPORTED_MODULE_2__.c)
/* harmony export */ });
/* harmony import */ var _a__WEBPACK_IMPORTED_MODULE_0__ = __webpack_require__(/*!
```

```
./a */ 2);
/* harmony import */ var _b__WEBPACK_IMPORTED_MODULE_1__ = __webpack_require__(/*!
./b */ 3);
/* harmony import */ var _c__WEBPACK_IMPORTED_MODULE_2__ = __webpack_require__(/*!
./c */ 4);




console.log("side effect");


/***/ }),
/* 2 */
/*!***************************************!*\
  !*** ./node_modules/big-module/a.js ***!
  \***************************************/
/*! namespace exports */
/*! export a [provided] [no usage info] [missing usage info prevents renaming] */
/*! other exports [not provided] [no usage info] */
/*! runtime requirements: __webpack_require__.r, __webpack_exports__,
__webpack_require__.d, __webpack_require__.* */
/***/ ((__unused_webpack_module, __webpack_exports__, __webpack_require__) => {

__webpack_require__.r(__webpack_exports__);
/* harmony export */ __webpack_require__.d(__webpack_exports__, {
/* harmony export */   "a": () => (/* binding */ a)
/* harmony export */ });
const a = "a";


/***/ }),
/* 3 */
/*!***************************************!*\
  !*** ./node_modules/big-module/b.js ***!
  \***************************************/
/*! namespace exports */
/*! export b [provided] [no usage info] [missing usage info prevents renaming] */
/*! other exports [not provided] [no usage info] */
/*! runtime requirements: __webpack_require__.r, __webpack_exports__,
__webpack_require__.d, __webpack_require__.* */
/***/ ((__unused_webpack_module, __webpack_exports__, __webpack_require__) => {

__webpack_require__.r(__webpack_exports__);
/* harmony export */ __webpack_require__.d(__webpack_exports__, {
/* harmony export */   "b": () => (/* binding */ b)
/* harmony export */ });
const b = "b";



/***/ }),
/* 4 */
```

```
/*!****************************************!*\
  !*** ./node_modules/big-module/c.js ***!
  \****************************************/
/*! namespace exports */
/*! export c [provided] [no usage info] [missing usage info prevents renaming] */
/*! other exports [not provided] [no usage info] */
/*! runtime requirements: __webpack_require__.r, __webpack_exports__,
__webpack_require__.d, __webpack_require__.* */
/***/ ((__unused_webpack_module, __webpack_exports__, __webpack_require__) => {

__webpack_require__.r(__webpack_exports__);
/* harmony export */ __webpack_require__.d(__webpack_exports__, {
/* harmony export */   "c": () => (/* binding */ c)
/* harmony export */ });
const c = "c";


/***/ }),
/* 5 */
/*!**************************************************!*\
  !*** ./node_modules/big-module-with-flag/a.js ***!
  \**************************************************/
/*! namespace exports */
/*! export a [provided] [no usage info] [missing usage info prevents renaming] */
/*! other exports [not provided] [no usage info] */
/*! runtime requirements: __webpack_require__.r, __webpack_exports__,
__webpack_require__.d, __webpack_require__.* */
/***/ ((__unused_webpack_module, __webpack_exports__, __webpack_require__) => {

__webpack_require__.r(__webpack_exports__);
/* harmony export */ __webpack_require__.d(__webpack_exports__, {
/* harmony export */   "a": () => (/* binding */ a)
/* harmony export */ });
const a = "a";


/***/ }),
/* 6 */
/*!**************************************************!*\
  !*** ./node_modules/big-module-with-flag/b.js ***!
  \**************************************************/
/*! namespace exports */
/*! export b [provided] [no usage info] [missing usage info prevents renaming] */
/*! other exports [not provided] [no usage info] */
/*! runtime requirements: __webpack_require__.r, __webpack_exports__,
__webpack_require__.d, __webpack_require__.* */
/***/ ((__unused_webpack_module, __webpack_exports__, __webpack_require__) => {

__webpack_require__.r(__webpack_exports__);
/* harmony export */ __webpack_require__.d(__webpack_exports__, {
/* harmony export */   "b": () => (/* binding */ b)
/* harmony export */ });
```

```
const b = "b";



/***/ })
/******/          ]);
```

▶ /* webpack runtime code */

```
var __webpack_exports__ = {};
// This entry need to be wrapped in an IIFE because it need to be isolated against
other modules in the chunk.
(() => {
/*!*********************!*\
  !*** ./example.js ***!
  \*********************/
/*! namespace exports */
/*! exports [not provided] [no usage info] */
/*! runtime requirements: __webpack_require__, __webpack_require__.r,
__webpack_exports__, __webpack_require__.* */
/*! Statement (ExpressionStatement) with side effects in source code at 4:0-9:2 */
__webpack_require__.r(__webpack_exports__);
/* harmony import */ var big_module__WEBPACK_IMPORTED_MODULE_0__ =
__webpack_require__(/*! big-module */ 1);
/* harmony import */ var big_module_with_flag__WEBPACK_IMPORTED_MODULE_1__ =
__webpack_require__(/*! big-module-with-flag */ 5);
/* harmony import */ var big_module_with_flag__WEBPACK_IMPORTED_MODULE_2__ =
__webpack_require__(/*! big-module-with-flag */ 6);



console.log(
    big_module__WEBPACK_IMPORTED_MODULE_0__.a,
    big_module__WEBPACK_IMPORTED_MODULE_0__.b,
    big_module_with_flag__WEBPACK_IMPORTED_MODULE_1__.a,
    big_module_with_flag__WEBPACK_IMPORTED_MODULE_2__.b
);

})();


/******/ })()
;
```

Info

Unoptimized

```
asset output.js 8.55 KiB [emitted] (name: main)
chunk (runtime: main) output.js (main) 354 bytes (javascript) 670 bytes (runtime)
[entry] [rendered]
```

```
  > ./example.js main
  dependent modules 214 bytes [dependent] 6 modules
  runtime modules 670 bytes 3 modules
  ./example.js 140 bytes [built] [code generated]
    [no exports]
    [used exports unknown]
    entry ./example.js main
webpack 5.51.1 compiled successfully
```

Production mode

```
asset output.js 79 bytes [emitted] [minimized] (name: main)
chunk (runtime: main) output.js (main) 332 bytes [entry] [rendered]
  > ./example.js main
  ./example.js + 5 modules 332 bytes [built] [code generated]
    [no exports]
    [no exports used]
    entry ./example.js main
webpack 5.51.1 compiled successfully
```