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1. yargs

- yargs (http://yargs.js.org/)模块能够解决如何处理命令行参数

1.1 安装

```
cnpm install yargs --save
```

1.2 读取命令行参数

- yargs模块提供了argv对象，用来读取命令行参数

hello.js

```
let argv = require('yargs')
    .alias('n', 'name')
    .demand(['n'])
    .default({ name: 'zhufeng' })
    .describe({ name: '你的姓名' })
    .boolean(['private'])
    .argv;
console.log(process.argv);
console.log(argv);
console.log('hello', argv.name);
console.log(argv._);

```js
node hello.js --private  A B C
[
  'C:\\Program Files\\nodejs\\node.exe',
  'C:\\vipdata\\prepare6\\zhufeng_loader\\5.js',
  '--private',
  'A',
  'B',
  'C'
]
{
  _: [ 'A', 'B', 'C' ],
  private: true,
  name: 'zhufeng',
  n: 'zhufeng',
  '$0': '5.js'
}
hello zhufeng
[ 'A', 'B', 'C' ]
```

```
let argv = require('yargs')
    .option('n',
        {
            alias: 'name',
            demand: true,
            default: 'zhufeng',
            describe: '你的姓名',
            type: 'string',
        }).usage('Usage: hello [options]')
    .example('hello -n zhufeng', 'hello zhufeng')
    .help('h')
    .alias('h', 'help')
    .epilog('copyright 2019')
    .argv
console.log(process.argv);
console.log(argv);
console.log('hello', argv.name);
console.log(argv._);

```js
node hello.js -n jiagou
[
  'C:\\Program Files\\nodejs\\node.exe',
  'C:\\vipdata\\prepare6\\zhufeng_loader\\6.js',
  '-n',
  'jiagou'
]
{ _: [], n: 'jiagou', name: 'jiagou', '$0': '6.js' }
hello jiagou
[]
```

2. Semaphore

- this.semaphore (https://github.com/webpack/webpack/blob/v4.39.3/lib/Compilation.js#L857-L971)
- Semaphore.js (https://github.com/webpack/webpack/blob/94929a59a79bc79cab789804d5592c3ec0605cc4/lib/util/Semaphore.js)
- Semaphore (https://www.npmjs.com/package/semaphore)
- Semaphore(信号量)控制并发访问量

2.1 使用Semaphore

```
let Semaphore = require('semaphore');
let semaphore = new Semaphore(2);
console.time('cost');
semaphore.take(function () {
    setTimeout(() => {
        console.log(1);
        semaphore.leave();
    }, 1000);
});
semaphore.take(function () {
    setTimeout(() => {
        console.log(1);
        semaphore.leave();
    }, 2000);
});
semaphore.take(function () {
    console.log(3);
    semaphore.leave();
    console.timeEnd('cost');
});
```

2.2 实现Semaphore

```
class Semaphore {
    constructor(available) {
        this.available = available;
        this.waiters = [];
        this._continue = this._continue.bind(this);
    }

    take(callback) {
        if (this.available > 0) {
            this.available--;
            callback();
        } else {
            this.waiters.push(callback);
        }
    }

    leave() {
        this.available++;
        if (this.waiters.length > 0) {
            process.nextTick(this._continue);
        }
    }

    _continue() {
        if (this.available > 0) {
            if (this.waiters.length > 0) {
                this.available--;
                const callback = this.waiters.pop();
                callback();
            }
        }
    }
}
```

2.3 webpack中的Semaphore

```
class Semaphore {
    constructor(available) {
        this.available = available;
        this.waiters = [];
        this._continue = this._continue.bind(this);
    }

+    acquire(callback) {
        if (this.available > 0) {
            this.available--;
            callback();
        } else {
            this.waiters.push(callback);
        }
    }

+    release() {
        this.available++;
        if (this.waiters.length > 0) {
            process.nextTick(this._continue);
        }
    }

    _continue() {
        if (this.available > 0) {
            if (this.waiters.length > 0) {
                this.available--;
                const callback = this.waiters.pop();
                callback();
            }
        }
    }
}
```

3. neo-async

- webpack\lib\Compilation.js (https://github.com/webpack/webpack/blob/v4.39.3/lib/Compilation.js#L836)
- neo-async (https://www.npmjs.com/package/neo-async)
- neo-async库和async库类似，都是为异步编程提供一些工具方法，但是会比async库更快

3.1 使用

```
let {forEach} = require('neo-async');
console.time('cost');
let array = [1, 2, 3];
forEach(array, function (num, done) {
    setTimeout(function () {
        console.log(num);
        done();
    }, num * 1000);
}, function (err) {
    console.timeEnd('cost');
});
```

3.2 实现

```
function forEach(array, iterator, callback) {
    let length = array.length;
    function done() {
        if (--length == 0)
            callback();
    }
    array.forEach((item, index) => {
        iterator(item, done);
    });
}
```

4.acorn

4.1 介绍

- astexplorer (https://astexplorer.net/)可以把代码转成语法树
- acorn (https://github.com/acornjs/acorn) A small, fast, JavaScript-based JavaScript parser
- acorn 解析结果符合The Estree Spec (https://github.comb/estree/estree)规范(（这是 Mozilla 的工程师给出的 SpiderMonkey 引擎输出的 JavaScript AST 的规范文档SpiderMonkey (https://developer.mozilla.org/en-US/docs/Mozilla/Projects/SpiderMonkey/Parser_API))

```
const ast = acorn.parse(code, options);
```

4.2 配置项

- ecmaVersion 你要解析的 JavaScript 的 ECMA 版本,默认是 ES7
- sourceType 这个配置项有两个值：module 和 script，默认是 script.主要是严格模式和 import/export 的区别.
- locations 默认值是 false，设置为 true 之后会在 AST 的节点中携带多一个 loc 对象来表示当前的开始和结束的行数和列数。
- onComment 传入一个回调函数，每当解析到代码中的注释时会触发，可以获取当年注释内容，参数列表是：[block, text, start, end],block 表示是否是块注释，text 是注释内容，start 和 end 是注释开始和结束的位置

4.2 查找依赖

```
const acorn = require("acorn")
const walk = require("acorn-walk");
const escodegen = require('escodegen');
const ast = acorn.parse(`
import $ from 'jquery';
let _ = require('lodash');
`, { locations: true, ranges: true, sourceType: 'module', ecmaVersion: 8 });
let resources = [];
walk.simple(ast, {
    CallExpression(node) {
        if (
            node.type === 'CallExpression' &&
            node.callee.type === 'Identifier' &&
            node.callee.name === 'require' &&
            node.arguments.length === 1 &&
            node.arguments[0].type === 'Literal'
        ) {
            const args = node.arguments;
            resources.push({
                module: args[0].value
            })
        }
    },
    ImportDeclaration(node) {
        node.specifiers[0].local.name = 'jQuery';
        resources.push({
            module: node.source.value
        })
    }
})
console.log('resources', resources);
let result = escodegen.generate(ast);
console.log(result);
```