

link: null  
title: 珠峰架构师成长计划  
description: null  
keywords: null  
author: null  
date: null  
publisher: 珠峰架构师成长计划  
stats: paragraph=117 sentences=788, words=4802

## 1. webpack介绍 #

- Webpack是一个前端资源加载/打包工具。它将根据模块的依赖关系进行静态分析，然后将这些模块按照指定的规则生成对应的静态资源。

## 2. 预备知识 #

### 2.1 toStringTag #

- Symbol.toStringTag 是一个内置 symbol，它通常作为对象的属性键使用，对应的属性值应该为字符串类型，这个字符串用来表示该对象的自定义类型标签，通常只有内置的 Object.prototype.toString() 方法会去读取这个标签并把它包含在自己的返回值里。

```
console.log(Object.prototype.toString.call('foo'));  
console.log(Object.prototype.toString.call([1, 2]));  
console.log(Object.prototype.toString.call(3));  
console.log(Object.prototype.toString.call(true));  
console.log(Object.prototype.toString.call(undefined));  
console.log(Object.prototype.toString.call(null));  
let myExports={};  
Object.defineProperty(myExports, Symbol.toStringTag, { value: 'Module' });  
console.log(Object.prototype.toString.call(myExports));
```

### 2.2 Object.create(null) #

- 使用 create 创建的对象，没有任何属性,把它当作一个非常纯净的map来使用，我们可以自己定义 hasOwnProperty、toString 方法,完全不必担心会将原型链上的同名方法覆盖掉
- 在我们使用 for..in 循环的时候会遍历对象原型链上的属性，使用 create(null) 就不必再对属性进行检查了

```
var ns = Object.create(null);  
if (typeof Object.create !== "function") {  
  Object.create = function (proto) {  
    function F() {}  
    F.prototype = proto;  
    return new F();  
  };  
}  
console.log(ns)  
console.log(Object.getPrototypeOf(ns));
```

### 2.3 getter #

- defineProperty (https://developer.mozilla.org/zh-CN/docs/Web/JavaScript/Reference/Global\_Objects/Object/defineProperty) 方法会直接在一个对象上定义一个新属性，或者修改一个对象的现有属性，并返回这个对象。
  - obj 要在其上定义属性的对象。
  - prop 要定义或修改的属性的名称。
  - descriptor 将被定义或修改的属性描述符。

#### 2.3.1 描述符可同时具有的键值 #

configurable enumerable value writable get set 数据描述符 Yes Yes Yes Yes No No 存取描述符 Yes Yes No No Yes Yes

#### 2.3.2 示例 #

```
var ageValue;  
Object.defineProperty(obj, "age", {  
  value: 10,  
  get() {  
    return ageValue;  
  },  
  set(newValue) {  
    ageValue = newValue;  
  },  
  writable: true,  
  enumerable: true,  
  configurable: true  
});
```

## 2. 同步加载 #

```
cnpm i webpack webpack-cli html-webpack-plugin clean-webpack-plugin -D
```

### 2.1 webpack.config.js #

```
const path = require('path');
const HtmlWebpackPlugin = require('html-webpack-plugin');
const { CleanWebpackPlugin } = require('clean-webpack-plugin');
module.exports = {
  mode: 'development',
  devtool: 'none',
  entry: './src/index.js',
  output: {
    path: path.resolve(__dirname, 'dist'),
    filename: 'bundle.js'
  },
  module: {},
  plugins: [
    new CleanWebpackPlugin({ cleanOnceBeforeBuildPatterns: ['**/*'] }),
    new HtmlWebpackPlugin({
      template: './src/index.html',
      filename: 'index.html'
    })
  ],
  devServer: {}
}
```

## 2.2 index.js <#>

src/index.js

```
let title = require('./title.js');
console.log(title);
```

## 2.3 title.js <#>

src/title.js

```
module.exports = "title";
```

## 2.4 打包文件分析 <#>

```

(function(modules) {

  var installedModules = {};

  function __webpack_require__(moduleId) {

    if (installedModules[moduleId]) {
      return installedModules[moduleId].exports;
    }

    var module = (installedModules[moduleId] = {
      i: moduleId,
      l: false,
      exports: {}
    });

    modules[moduleId].call(
      module.exports,
      module,
      module.exports,
      __webpack_require__
    );

    module.l = true;

    return module.exports;
  }

  __webpack_require__.m = modules;

  __webpack_require__.c = installedModules;

  __webpack_require__.d = function(exports, name, getter) {
    if (!__webpack_require__.o(exports, name)) {
      Object.defineProperty(exports, name, { enumerable: true, get: getter });
    }
  };

  __webpack_require__.r = function(exports) {
    if (typeof Symbol !== "undefined" && Symbol.toStringTag) {
      Object.defineProperty(exports, Symbol.toStringTag, { value: "Module" });
    }
    Object.defineProperty(exports, "__esModule", { value: true });
  };

  __webpack_require__.t = function(value, mode) {
    if (mode & 1) value = __webpack_require__(value);
    if (mode & 8) return value;
    if (mode & 4 && typeof value === "object" && value && value.__esModule)
      return value;
    var ns = Object.create(null);
    __webpack_require__.r(ns);
    Object.defineProperty(ns, "default", { enumerable: true, value: value });
    if (mode & 2 && typeof value !== "string")
      for (var key in value)
        __webpack_require__.d(
          ns,
          key,
          function(key) {
            return value[key];
          }.bind(null, key)
        );
    return ns;
  };

  __webpack_require__.n = function(module) {
    var getter =
      module && module.__esModule
        ? function getDefault() {
            return module["default"];
          }
        : function getModuleExports() {
            return module;
          };
    __webpack_require__.d(getter, "a", getter);
    return getter;
  };

  __webpack_require__.o = function(object, property) {
    return Object.prototype.hasOwnProperty.call(object, property);
  };

  __webpack_require__.p = "";

  return __webpack_require__((__webpack_require__.s = "./src/index.js"));
})({
  "./src/index.js": function(module, exports, __webpack_require__) {
    var title = __webpack_require__("./src/title.js");
    console.log(title);
  },
  "./src/title.js": function(module, exports) {
    module.exports = "title";
  }
});

```

## 2.5 实现 <#>

```

(function(modules){
  var installedModules = {};
  function __webpack_require__(moduleId) {
    if(installedModules[moduleId]){
      return installedModules[moduleId];
    }
    var module = installedModules[moduleId] = {
      i:moduleId,
      l:false,
      exports:{}
    }
    modules[moduleId].call(module.exports,module,module.exports,__webpack_require__);
    module.l = true;
    return module.exports;
  }
  return __webpack_require__((__webpack_require__.s = "./src/index.js"));
})({
  "./src/index.js":function(module,exports,__webpack_require__){
    var title = __webpack_require__('./src/title.js');
    console.log(title);
  },
  "./src/title.js":function(module,exports){
    module.exports = "title";
  }
})

```

### 3. harmony #

#### 3.1 common.js加载 common.js #

##### 3.1.1 index.js #

```

let title = require('./title');
console.log(title.name);
console.log(title.age);

```

##### 3.1.2 title.js #

```

exports.name = 'title_name';
exports.age = 'title_age';

```

##### 3.1.3 bundle.js #

```

{
  "./src/index.js":
    (function(module, exports, __webpack_require__) {
      var title = __webpack_require__("./src/title.js");
      console.log(title.name);
      console.log(title.age);
    }),
  "./src/title.js":
    (function(module, exports) {
      exports.name = 'title_name';
      exports.age = 'title_age';
    })
}

```

#### 3.2 common.js加载 ES6 modules #

##### 3.2.1 index.js #

```

let title = require('./title');
console.log(title.name);
console.log(title.age);

```

##### 3.2.2 title.js #

```

exports.name = 'title_name';
exports.age = 'title_age';

```

##### 3.2.3 bundle.js #

```

{
  "./src/index.js":
    (function(module, exports, __webpack_require__) {
      var title = __webpack_require__("./src/title.js");
      console.log(title["default"]);
      console.log(title.age);
    }),
  "./src/title.js":
    (function(module, __webpack_exports__, __webpack_require__) {
      __webpack_require__.r(__webpack_exports__);
      __webpack_require__.d(__webpack_exports__, "age", function() { return age; });
      __webpack_exports__["default"] = 'title_name';
      var age = 'title_age';
    })
}

```

#### 3.3 ES6 modules 加载 ES6 modules #

##### 3.3.1 index.js #

```

import name,{age} from './title';
console.log(name);
console.log(age);

```

##### 3.3.2 title.js #

```

export default name = 'title_name';
export const age = 'title_age';

```

##### 3.3.3 bundle.js #

```
{
  "/src/index.js":
  (function(module, __webpack_exports__, __webpack_require__) {
    __webpack_require__.r(__webpack_exports__);
    var title__WEBPACK_IMPORTED_MODULE_0__ = __webpack_require__("./src/title.js");
    console.log(title__WEBPACK_IMPORTED_MODULE_0__["default"]);
    console.log(title__WEBPACK_IMPORTED_MODULE_0__["age"]);
  )),
  "/src/title.js":
  (function(module, __webpack_exports__, __webpack_require__) {
    __webpack_require__.r(__webpack_exports__);
    __webpack_require__.d(__webpack_exports__, "age", function() { return age; });
    __webpack_exports__["default"] = 'title_name';
    var age = 'title_age';
  })
}
```

### 3.4 ES6 modules 加载 common.js #

#### 3.4.1 index.js #

```
import name,{age} from './title';
console.log(name);
console.log(age);
```

#### 3.4.2 title.js #

```
export default name = 'title_name';
export const age = 'title_age';
```

#### 3.4.3 bundle.js #

```
{
  "/src/index.js":
  (function(module, __webpack_exports__, __webpack_require__) {
    __webpack_require__.r(__webpack_exports__);
    var title__WEBPACK_IMPORTED_MODULE_0__ = __webpack_require__("./src/title.js");
    var title__WEBPACK_IMPORTED_MODULE_0__default = __webpack_require__.n(title__WEBPACK_IMPORTED_MODULE_0__);
    console.log(title__WEBPACK_IMPORTED_MODULE_0__default.a.name);
    console.log(title__WEBPACK_IMPORTED_MODULE_0__default.a.age);
  )),
  "/src/title.js":
  (function(module, __webpack_exports__, __webpack_require__) {
    __webpack_exports__.name = 'title_name';
    __webpack_exports__.age = 'title_age';
  )),
  "/src/title_esm.js":
  (function(module, __webpack_exports__, __webpack_require__) {
    __webpack_require__.r(__webpack_exports__);
    __webpack_exports__.name = 'title_name';
    __webpack_exports__.age = 'title_age';
    __webpack_exports__.default = {name:'default_name',age:'default_age'};
  })
}
```

## 4.异步加载 #

### 4.1 webpack.config.js #

```
const path = require('path');
const HtmlWebpackPlugin = require('html-webpack-plugin');
const { CleanWebpackPlugin } = require('clean-webpack-plugin');
module.exports = {
  mode: 'development',
  devtool: 'none',
  entry: './src/main.js',
  output: {
    path: path.resolve(__dirname, 'dist'),
    filename: '[name].js'
  },
  module: {},
  plugins: [
    new CleanWebpackPlugin({ cleanOnceBeforeBuildPatterns: ['**/*'] }),
    new HtmlWebpackPlugin({
      template: './src/index.html',
      filename: 'index.html',
      chunks: ['main']
    })
  ],
  devServer: {}
}
```

### 4.3 src/main.js #

```
import('./c').then(c => {
  console.log(c)
})
```

### 4.4 src/c.js #

```
export default {
  name: 'zhufeng'
}
```

### 4.5 dist/main.js #

```
(function (modules) {
  function webpackJsonpCallback(data) {
    var chunkIds = data[0];
    var moreModules = data[1];
    var moduleId, chunkId, i = 0, resolves = [];
    for (; i < chunkIds.length; i++) {
      chunkId = chunkIds[i];
      if (Object.prototype.hasOwnProperty.call(installedChunks, chunkId) && installedChunks[chunkId]) {
```

```

        resolves.push(installedChunks[chunkId][0]);
    }
    installedChunks[chunkId] = 0;
}
for (moduleId in moreModules) {
    if (Object.prototype.hasOwnProperty.call(moreModules, moduleId)) {
        modules[moduleId] = moreModules[moduleId];
    }
}
if (parentJsonpFunction) parentJsonpFunction(data);
while (resolves.length) {
    resolves.shift()();
}
};
var installedModules = {};
var installedChunks = {
    "main": 0
};
function jsonpScriptSrc(chunkId) {
    return __webpack_require__.p + "" + ({ "c": "c" }[chunkId] || chunkId) + ".js"
}
function __webpack_require__(moduleId) {
    if (installedModules[moduleId]) {
        return installedModules[moduleId].exports;
    }
    var module = installedModules[moduleId] = {
        i: moduleId,
        l: false,
        exports: {}
    };
    modules[moduleId].call(module.exports, module, module.exports, __webpack_require__);
    module.l = true;
    return module.exports;
}
__webpack_require__.e = function requireEnsure(chunkId) {
    var promises = [];
    var installedChunkData = installedChunks[chunkId];
    if (installedChunkData !== 0) {
        if (installedChunkData) {
            promises.push(installedChunkData[2]);
        } else {
            var promise = new Promise(function (resolve, reject) {
                installedChunkData = installedChunks[chunkId] = [resolve, reject];
            });
            promises.push(installedChunkData[2] = promise);
            var script = document.createElement('script');
            var onScriptComplete;
            script.charset = 'utf-8';
            script.timeout = 120;
            if (__webpack_require__.nc) {
                script.setAttribute("nonce", __webpack_require__.nc);
            }
            script.src = jsonpScriptSrc(chunkId);
            var error = new Error();
            onScriptComplete = function (event) {
                script.onerror = script.onload = null;
                clearTimeout(timeout);
                var chunk = installedChunks[chunkId];
                if (chunk !== 0) {
                    if (chunk) {
                        var errorType = event && (event.type === 'load' ? 'missing' : event.type);
                        var realSrc = event && event.target && event.target.src;
                        error.message = 'Loading chunk ' + chunkId + ' failed.\n(' + errorType + ': ' + realSrc + ')';
                        error.name = 'ChunkLoadError';
                        error.type = errorType;
                        error.request = realSrc;
                        chunk[1](error);
                    }
                    installedChunks[chunkId] = undefined;
                }
            };
            var timeout = setTimeout(function () {
                onScriptComplete({ type: 'timeout', target: script });
            }, 120000);
            script.onerror = script.onload = onScriptComplete;
            document.head.appendChild(script);
        }
    }
    return Promise.all(promises);
};
__webpack_require__.m = modules;
__webpack_require__.c = installedModules;
__webpack_require__.d = function (exports, name, getter) {
    if (!__webpack_require__.o(exports, name)) {
        Object.defineProperty(exports, name, { enumerable: true, get: getter });
    }
};
__webpack_require__.r = function (exports) {
    if (typeof Symbol !== 'undefined' && Symbol.toStringTag) {
        Object.defineProperty(exports, Symbol.toStringTag, { value: 'Module' });
    }
    Object.defineProperty(exports, '__esModule', { value: true });
};
__webpack_require__.t = function (value, mode) {
    if (mode & 1) value = __webpack_require__(value);
    if (mode & 8) return value;
    if ((mode & 4) && typeof value === 'object' && value && value.__esModule) return value;
    var ns = Object.create(null);
    __webpack_require__.r(ns);
    Object.defineProperty(ns, 'default', { enumerable: true, value: value });
    if (mode & 2 && typeof value !== 'string') for (var key in value) __webpack_require__.d(ns, key, function (key) { return value[key]; }.bind(null, key));
    return ns;
};
__webpack_require__.n = function (module) {

```

```

var getter = module && module.__esModule ?
  function getDefault() { return module['default']; } :
  function getModuleExports() { return module; };
__webpack_require__.d(getter, 'a', getter);
return getter;
};
__webpack_require__.o = function (object, property) { return Object.prototype.hasOwnProperty.call(object, property); };
__webpack_require__.p = "";
__webpack_require__.oe = function (err) { console.error(err); throw err; };
var jsonpArray = window["webpackJsonp"] = window["webpackJsonp"] || [];
var oldJsonpFunction = jsonpArray.push.bind(jsonpArray);
jsonpArray.push = webpackJsonpCallback;
jsonpArray = jsonpArray.slice();
for (var i = 0; i < jsonpArray.length; i++) webpackJsonpCallback(jsonpArray[i]);
var parentJsonpFunction = oldJsonpFunction;
return __webpack_require__ (__webpack_require__.s = "./src/main.js");
})();
({
  "./src/main.js":
    (function (module, exports, __webpack_require__) {
      __webpack_require__.e("c").then(__webpack_require__.bind(null, "./src/c.js")).then(c => {
        console.log(c)
      })
    })
})
));

```

#### 4.6 dist/c.js #

```

(window["webpackJsonp"] = window["webpackJsonp"] || []).push([["c"], {
  "./src/c.js":
    (function (module, __webpack_exports__, __webpack_require__) {
      "use strict";
      __webpack_require__.r(__webpack_exports__);
      __webpack_exports__["default"] = ({
        name: 'zhufeng'
      });
    })
  ]]);

```

#### 4.7 实现 #

```

(function (modules) {
  function webpackJsonpCallback(data) {
    var chunkIds = data[0];
    var moreModules = data[1];
    var moduleId, chunkId, i = 0, resolves = [];
    for (; i < chunkIds.length; i++) {
      chunkId = chunkIds[i];
      if (installedChunks[chunkId]) {
        resolves.push(installedChunks[chunkId][0]);
      }
      installedChunks[chunkId] = 0;
    }
    for (moduleId in moreModules) {
      modules[moduleId] = moreModules[moduleId];
    }
    while (resolves.length) {
      resolves.shift()();
    }
  }

  var installedModules = {};
  var installedChunks = { main: 0 };
  __webpack_require__.p = "";
  function jsonpScriptSrc(chunkId) {
    return __webpack_require__.p + "" + chunkId + ".bundle.js";
  }

  function __webpack_require__(moduleId) {
    if (installedModules[moduleId]) {
      return installedModules[moduleId].exports;
    }
    var module = (installedModules[moduleId] = { i: moduleId, l: false, exports: {} });
    modules[moduleId].call(module.exports, module, module.exports, __webpack_require__);
    module.l = true;
    return module.exports;
  }

  __webpack_require__.t = function (value, mode) {
    value = __webpack_require__(value);
    var ns = Object.create(null);
    Object.defineProperty(ns, "__esModule", { value: true });
    Object.defineProperty(ns, "default", { enumerable: true, value: value });
    return ns;
  };

  __webpack_require__.e = function requireEnsure(chunkId) {
    var promises = [];
    var installedChunkData = installedChunks[chunkId];
    var promise = new Promise(function (resolve, reject) {
      installedChunkData = installedChunks[chunkId] = [resolve, reject];
    });
    promises.push((installedChunkData[2] = promise));
    var script = document.createElement("script");
    script.src = jsonpScriptSrc(chunkId);
    document.head.appendChild(script);
    return Promise.all(promises);
  }

  var jsonpArray = (window["webpackJsonp"] = window["webpackJsonp"] || []);
  jsonpArray.push(webpackJsonpCallback);
  return __webpack_require__((__webpack_require__.s = "./src/index.js"));
})(() {
  "./src/main.js":
  (function (module, exports, __webpack_require__) {
    __webpack_require__.e("c").then(__webpack_require__.bind(null, "./src/c.js")).then(c => {
      console.log(c)
    })
  })
});

```

## 5.异步加载 #

### 5.1 src/index.html #

```

<!--W3C//DTD HTML 4.0 Transitional//EN-->
<html>
<head>
  <title>importtitle</title>
</head>
<body>
<button id="main1-loadC1">main1中加载c1模块</button>
<button id="main1-loadC2">main1中加载c2模块</button>
<button id="loadMain2">main2.js文件</button>
<button id="main2-loadC1">main2中加载c1模块</button>
<button id="main2-loadC2">main2中加载c2模块</button>
</body>
</html>

```

### 5.2 webpack.config.js #



```

const path = require('path');
const HtmlWebpackPlugin = require('html-webpack-plugin');
const { CleanWebpackPlugin } = require('clean-webpack-plugin');
module.exports = {
  mode: 'development',
  devtool: 'none',
  entry: {
    main1: './src/main1.js',
    main2: './src/main2.js'
  },
  output: {
    path: path.resolve(__dirname, 'dist'),
    filename: '[name].js'
  },
  module: {},
  plugins: [
    new CleanWebpackPlugin({ cleanOnceBeforeBuildPatterns: ['**/*'] }),
    new HtmlWebpackPlugin({
      template: './src/index.html',
      filename: 'index.html',
      chunks: ['main1']
    })
  ],
  devServer: {}
}

```

### 5.3 src\main1.js #

```

document.getElementById('main1-loadC1').addEventListener('click', () => {
  import('./c1').then(c1 => {
    console.log(c1.default)
  })
});
document.getElementById('main1-loadC2').addEventListener('click', () => {
  import('./c2').then(c1 => {
    console.log(c1.default)
  })
});
document.getElementById('loadMain2').addEventListener('click', () => {
  let script = document.createElement('script');
  script.src = 'main2.js';
  document.body.appendChild(script);
});

```

### 5.4 src\main2.js #

```

document.getElementById('main2-loadC1').addEventListener('click', () => {
  import('./c1').then(c1 => {
    console.log(c1.default)
  })
});
document.getElementById('main2-loadC2').addEventListener('click', () => {
  import('./c2').then(c1 => {
    console.log(c1.default)
  })
});

```

### 5.5 src\c1.js #

```

export default {
  name: 'c1'
}

```

### 5.6 src\c2.js #

```

export default {
  name: 'c2'
}

```

### 5.7 dist\main1.js #

```

(function (modules) {
  function webpackJsonpCallback(data) {
    var chunkIds = data[0];
    var moreModules = data[1];
    var moduleId, chunkId, i = 0, resolves = [];
    for (; i < chunkIds.length; i++) {
      chunkId = chunkIds[i];
      if (Object.prototype.hasOwnProperty.call(installedChunks, chunkId) && installedChunks[chunkId]) {
        resolves.push(installedChunks[chunkId][0]);
      }
      installedChunks[chunkId] = 0;
    }
    for (moduleId in moreModules) {
      if (Object.prototype.hasOwnProperty.call(moreModules, moduleId)) {
        modules[moduleId] = moreModules[moduleId];
      }
    }
    if (parentJsonpFunction) parentJsonpFunction(data);
    while (resolves.length) {
      resolves.shift()();
    }
  };
  var installedModules = {};
  var installedChunks = {
    "main1": 0
  };
  function jsonpScriptSrc(chunkId) {
    return __webpack_require__._p + "" + ({ "c1": "c1", "c2": "c2" }[chunkId] || chunkId) + ".js"
  }
  function __webpack_require__(moduleId) {
    if (installedModules[moduleId]) {
      return installedModules[moduleId].exports;
    }
    var module = installedModules[moduleId] = {

```

```

        i: moduleId,
        l: false,
        exports: {}
    });
    modules[moduleId].call(module.exports, module, module.exports, __webpack_require__);
    module.l = true;
    return module.exports;
}

__webpack_require__.e = function requireEnsure(chunkId) {
    var promises = [];
    var installedChunkData = installedChunks[chunkId];
    if (installedChunkData !== 0) {
        if (installedChunkData) {
            promises.push(installedChunkData[2]);
        } else {
            var promise = new Promise(function (resolve, reject) {
                installedChunkData = installedChunks[chunkId] = [resolve, reject];
            });
            promises.push(installedChunkData[2] = promise);
            var script = document.createElement('script');
            var onScriptComplete;
            script.charset = 'utf-8';
            script.timeout = 120;
            if (__webpack_require__.nc) {
                script.setAttribute("nonce", __webpack_require__.nc);
            }
            script.src = jsonpScriptSrc(chunkId);
            var error = new Error();
            onScriptComplete = function (event) {
                script.onerror = script.onload = null;
                clearTimeout(timeout);
                var chunk = installedChunks[chunkId];
                if (chunk !== 0) {
                    if (chunk) {
                        var errorType = event.type === 'load' ? 'missing' : event.type;
                        var realSrc = event.target && event.target.src;
                        error.message = 'Loading chunk ' + chunkId + ' failed.\n(' + errorType + ': ' + realSrc + ')';
                        error.name = 'ChunkLoadError';
                        error.type = errorType;
                        error.request = realSrc;
                        chunk[1](error);
                    }
                    installedChunks[chunkId] = undefined;
                }
            };
            var timeout = setTimeout(function () {
                onScriptComplete({ type: 'timeout', target: script });
            }, 120000);
            script.onerror = script.onload = onScriptComplete;
            document.head.appendChild(script);
        }
    }
    return Promise.all(promises);
};

__webpack_require__.m = modules;
__webpack_require__.c = installedModules;
__webpack_require__.d = function (exports, name, getter) {
    if (!__webpack_require__.o(exports, name)) {
        Object.defineProperty(exports, name, { enumerable: true, get: getter });
    }
};

__webpack_require__.r = function (exports) {
    if (typeof Symbol !== 'undefined' && Symbol.toStringTag) {
        Object.defineProperty(exports, Symbol.toStringTag, { value: 'Module' });
    }
    Object.defineProperty(exports, '__esModule', { value: true });
};

__webpack_require__.t = function (value, mode) {
    if (mode & 1) value = __webpack_require__(value);
    if (mode & 8) return value;
    if ((mode & 4) && typeof value === 'object' && value && value.__esModule) return value;
    var ns = Object.create(null);
    __webpack_require__.r(ns);
    Object.defineProperty(ns, 'default', { enumerable: true, value: value });
    if (mode & 2 && typeof value !== 'string') for (var key in value) __webpack_require__.d(ns, key, function (key) { return value[key]; }.bind(null, key));
    return ns;
};

__webpack_require__.n = function (module) {
    var getter = module && module.__esModule ?
        function getDefault() { return module['default']; } :
        function getModuleExports() { return module; };
    __webpack_require__.d(getter, 'a', getter);
    return getter;
};

__webpack_require__.o = function (object, property) { return Object.prototype.hasOwnProperty.call(object, property); };
__webpack_require__.p = "";
__webpack_require__.oe = function (err) { console.error(err); throw err; };
var jsonpArray = window["webpackJsonp"] = window["webpackJsonp"] || [];
var oldJsonpFunction = jsonpArray.push.bind(jsonpArray);
jsonpArray.push = webpackJsonpCallback;
jsonpArray = jsonpArray.slice();
for (var i = 0; i < jsonpArray.length; i++) webpackJsonpCallback(jsonpArray[i]);
var parentJsonpFunction = oldJsonpFunction;
return __webpack_require__(__webpack_require__.s = "./src/main1.js");
})

({
    " ./src/main1.js":
    (function (module, exports, __webpack_require__) {
        document.getElementById('main1-loadC1').addEventListener('click', () => {
            __webpack_require__.e("c1").then(__webpack_require__.bind(null, "./src/c1.js")).then(c1 => {
                console.log(c1.default)
            })
        });
        document.getElementById('main1-loadC2').addEventListener('click', () => {

```

```

    __webpack_require___.e("c2").then(__webpack_require__.bind(null, "./src/c2.js")).then(c1 => {
      console.log(c1.default)
    })
  });
  document.getElementById('loadMain2').addEventListener('click', () => {
    let script = document.createElement('script');
    script.src = 'main2.js';
    document.body.appendChild(script);
  });
});
});
});

```

## 5.8 dist/main2.js #

```

(function (modules) {
  function webpackJsonpCallback(data) {
    var chunkIds = data[0];
    var moreModules = data[1];
    var moduleId, chunkId, i = 0, resolves = [];
    for (; i < chunkIds.length; i++) {
      chunkId = chunkIds[i];
      if (Object.prototype.hasOwnProperty.call(installedChunks, chunkId) && installedChunks[chunkId]) {
        resolves.push(installedChunks[chunkId][0]);
      }
      installedChunks[chunkId] = 0;
    }
    for (moduleId in moreModules) {
      if (Object.prototype.hasOwnProperty.call(moreModules, moduleId)) {
        modules[moduleId] = moreModules[moduleId];
      }
    }
    if (parentJsonpFunction) parentJsonpFunction(data);
    while (resolves.length) {
      resolves.shift()();
    }
  };
  var installedModules = {};
  var installedChunks = {
    "main2": 0
  };
  function jsonpScriptSrc(chunkId) {
    return __webpack_require___.p + "" + ({ "c1": "c1", "c2": "c2" }[chunkId] || chunkId) + ".js"
  }
  function __webpack_require__(moduleId) {
    if (installedModules[moduleId]) {
      return installedModules[moduleId].exports;
    }
    var module = installedModules[moduleId] = {
      i: moduleId,
      l: false,
      exports: {}
    };
    modules[moduleId].call(module.exports, module, module.exports, __webpack_require__);
    module.l = true;
    return module.exports;
  }
  __webpack_require___.e = function requireEnsure(chunkId) {
    var promises = [];
    var installedChunkData = installedChunks[chunkId];
    if (installedChunkData !== 0) {
      if (installedChunkData) {
        promises.push(installedChunkData[2]);
      } else {
        var promise = new Promise(function (resolve, reject) {
          installedChunkData = installedChunks[chunkId] = [resolve, reject];
        });
        promises.push(installedChunkData[2] = promise);
        var script = document.createElement('script');
        var onScriptComplete;
        script.charset = 'utf-8';
        script.timeout = 120;
        if (__webpack_require___.nc) {
          script.setAttribute("nonce", __webpack_require___.nc);
        }
        script.src = jsonpScriptSrc(chunkId);
        var error = new Error();
        onScriptComplete = function (event) {
          script.onerror = script.onload = null;
          clearTimeout(timeout);
          var chunk = installedChunks[chunkId];
          if (chunk !== 0) {
            if (chunk) {
              var errorType = event && (event.type === 'load' ? 'missing' : event.type);
              var realSrc = event && event.target && event.target.src;
              error.message = 'Loading chunk ' + chunkId + ' failed.\n(' + errorType + ': ' + realSrc + ')';
              error.name = 'ChunkLoadError';
              error.type = errorType;
              error.request = realSrc;
              chunk[1](error);
            }
            installedChunks[chunkId] = undefined;
          }
        };
        var timeout = setTimeout(function () {
          onScriptComplete({ type: 'timeout', target: script });
        }, 120000);
        script.onerror = script.onload = onScriptComplete;
        document.head.appendChild(script);
      }
    }
    return Promise.all(promises);
  };
  __webpack_require___.m = modules;
  __webpack_require___.c = installedModules;

```

```

__webpack_require__._d = function (exports, name, getter) {
  if (!__webpack_require__._o(exports, name)) {
    Object.defineProperty(exports, name, { enumerable: true, get: getter });
  }
};

__webpack_require__._r = function (exports) {
  if (typeof Symbol !== 'undefined' && Symbol.toStringTag) {
    Object.defineProperty(exports, Symbol.toStringTag, { value: 'Module' });
  }
  Object.defineProperty(exports, '__esModule', { value: true });
};

__webpack_require__._t = function (value, mode) {
  if (mode & 1) value = __webpack_require__(value);
  if (mode & 8) return value;
  if ((mode & 4) && typeof value === 'object' && value.__esModule) return value;
  var ns = Object.create(null);
  __webpack_require__._r(ns);
  Object.defineProperty(ns, 'default', { enumerable: true, value: value });
  if (mode & 2 && typeof value !== 'string') for (var key in value) __webpack_require__._d(ns, key, function (key) { return value[key]; }.bind(null, key));
  return ns;
};

__webpack_require__._n = function (module) {
  var getter = module && module.__esModule ?
    function getDefault() { return module['default']; } :
    function getModuleExports() { return module; };
  __webpack_require__._d(getter, 'a', getter);
  return getter;
};

__webpack_require__._o = function (object, property) { return Object.prototype.hasOwnProperty.call(object, property); };
__webpack_require__._p = "";
__webpack_require__._oe = function (err) { console.error(err); throw err; };
var jsonpArray = window["webpackJsonp"] = window["webpackJsonp"] || [];
var oldJsonpFunction = jsonpArray.push.bind(jsonpArray);
jsonpArray.push = webpackJsonpCallback;
jsonpArray = jsonpArray.slice();
for (var i = 0; i < jsonpArray.length; i++) webpackJsonpCallback(jsonpArray[i]);
var parentJsonpFunction = oldJsonpFunction;
return __webpack_require__(_webpack_require__._s = "./src/main2.js");
})();

({
  "._src/main2.js":
    (function (module, exports, __webpack_require__) {
      document.getElementById('main2-loadC1').addEventListener('click', () => {
        __webpack_require__._e("c1").then(__webpack_require__._bind(null, "./src/c1.js")).then(c1 => {
          console.log(c1.default)
        })
      });
      document.getElementById('main2-loadC2').addEventListener('click', () => {
        __webpack_require__._e("c2").then(__webpack_require__._bind(null, "./src/c2.js")).then(c1 => {
          console.log(c1.default)
        })
      });
    })
  });
})();

```

### 5.9 distc1.js #

```

(window["webpackJsonp"] = window["webpackJsonp"] || []).push([[["c1"], {
  "._src/c1.js":
    (function (module, __webpack_exports__, __webpack_require__) {
      "use strict";
      __webpack_require__._r(__webpack_exports__);
      __webpack_exports__["default"] = ({
        name: 'c1'
      });
    })
  ]]);

```

### 5.10 distc2.js #

```

(window["webpackJsonp"] = window["webpackJsonp"] || []).push([[["c2"], {
  "._src/c2.js":
    (function (module, __webpack_exports__, __webpack_require__) {
      "use strict";
      __webpack_require__._r(__webpack_exports__);
      __webpack_exports__["default"] = ({
        name: 'c2'
      });
    })
  ]]);

```

### 5.11 实现 #

```

(function (modules) {
  function webpackJsonpCallback(data) {
    var chunkIds = data[0];
    var moreModules = data[1];
    var moduleId, chunkId, i = 0, resolves = [];
    for (; i < chunkIds.length; i++) {
      chunkId = chunkIds[i];
      if (installedChunks[chunkId]) {
        resolves.push(installedChunks[chunkId][0]);
      }
      installedChunks[chunkId] = 0;
    }
    for (moduleId in moreModules) {
      modules[moduleId] = moreModules[moduleId];
    }
    if (parentJsonpFunction) parentJsonpFunction(data);
    while (resolves.length) {
      resolves.shift()();
    }
  }

  var installedModules = {};
  var installedChunks = { main: 0 };
  __webpack_require__._p = "";
  function jsonpScriptSrc(chunkId) {
    return __webpack_require__._p + "" + chunkId + ".js";
  }
  function __webpack_require__(moduleId) {
    if (installedModules[moduleId]) {
      return installedModules[moduleId].exports;
    }
    var module = (installedModules[moduleId] = { i: moduleId, l: false, exports: {} });
    modules[moduleId].call(module.exports, module, module.exports, __webpack_require__);
    module.l = true;
    return module.exports;
  }

  __webpack_require__.r = function (exports) {
    if (typeof Symbol !== 'undefined' && Symbol.toStringTag) {
      Object.defineProperty(exports, Symbol.toStringTag, { value: 'Module' });
    }
    Object.defineProperty(exports, '__esModule', { value: true });
  };

  __webpack_require__.t = function (value, mode) {
    value = __webpack_require__(value);
    var ns = Object.create(null);
    Object.defineProperty(ns, '__esModule', { value: true });
    Object.defineProperty(ns, 'default', { enumerable: true, value: value });
    return ns;
  };

  __webpack_require__.e = function requireEnsure(chunkId) {
    var promises = [];
    var installedChunkData = installedChunks[chunkId];
    var promise = new Promise(function (resolve, reject) {
      installedChunkData = installedChunks[chunkId] = [resolve, reject];
    });
    promises.push((installedChunkData[2] = promise));
    var script = document.createElement("script");
    script.src = jsonpScriptSrc(chunkId);
    document.head.appendChild(script);
    return Promise.all(promises);
  }

  var jsonpArray = (window["webpackJsonp"] = window["webpackJsonp"] || []);
  var oldJsonpFunction = jsonpArray.push.bind(jsonpArray);
  jsonpArray.push = webpackJsonpCallback;
  jsonpArray = jsonpArray.slice();
  for (var i = 0; i < jsonpArray.length; i++) webpackJsonpCallback(jsonpArray[i]);
  var parentJsonpFunction = oldJsonpFunction;
  return __webpack_require__(__webpack_require__.s = "./src/main1.js");
})(
  (
    {
      "./src/main1.js":
        (function (module, exports, __webpack_require__) {
          document.getElementById('main1-loadC1').addEventListener('click', () => {
            __webpack_require__.e("c1").then(__webpack_require__.bind(null, "./src/c1.js")).then(c1 => {
              console.log(c1.default)
            })
          });
          document.getElementById('main1-loadC2').addEventListener('click', () => {
            __webpack_require__.e("c2").then(__webpack_require__.bind(null, "./src/c2.js")).then(c1 => {
              console.log(c1.default)
            })
          });
          document.getElementById('loadMain2').addEventListener('click', () => {
            let script = document.createElement('script');
            script.src = 'main2.js';
            document.body.appendChild(script);
          });
        })
    }
  );
);

```