目录

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第一节

训练环境设置、编码技巧和 Code Style

工欲善其事，必先利其器

电脑设置

- Google

- Mac: iTerm2 + zsh (oh my zsh)
  Windows: Microsoft new terminal: (https://github.com/microsoft/terminal)

- VSCode; Java: IntelliJ; Python: Pycharm

- LeetCode plugin (VSCode & IntelliJ)

- https://vscodethemes.com/

- 骚操作：
  https://juejin.im/entry/587e0f2f570c352201113e14
  https://juejin.im/post/5ce1365151882525ff28ed47

```javascript
Vue.config.productionTip = false

Vue.use(Vuex)

Vue.toast = Vue.prototype.$toast = (msg, type = 'success') => {
  Vue.prototype.$message({
    showClose: true,
    message: msg,
    type: type
  })
}

sync(store, router)

/* eslint-disable no-new */
new Vue({
  el: '#app',
  router,
  store,
  components: { App },
  template: '<App/>'
})
```

资源管理器

JS build.js ×

synthwave84-noglow.css ×   {} sett

> 打开的编辑器

∨ CLASSINVITATIONAL

∨ build

  JS build.js

  JS check-versions.js

  JS dev-client.js

  JS dev-server.js

  JS utils.js

  JS vue-loader.conf.js

  JS webpack.base.conf.js

  JS webpack.dev.conf.js

  JS webpack.prod.conf.js

∨ config

  JS dev.env.js

  JS index.js

  JS prod.env.js

> dist

> node_modules

> src

∨ static

  > audio

  > images

> 大纲

```js
 5  var ora = require('ora')
 6  var rm = require('rimraf')
 7  var path = require('path')
 8  var chalk = require('chalk')
 9  var webpack = require('webpack')
10  var config = require('../config')
11  var webpackConfig = require('./
    webpack.prod.conf')
12
13  var spinner = ora('building for
    production...')
14  spinner.start()
15
16  rm(path.join(config.build.assetsRoot,
    config.build.assetsSubDirectory), err => {
17    if (err) throw err
18    webpack(webpackConfig, function (err,
      stats) {
19      spinner.stop()
20      if (err) throw err
21      process.stdout.write(stats.toString({
22        colors: true,
23        modules: false,
24        children: false,
25        chunks: false,
26        chunkModules: false
27      }) + '\n\n')
28
```

```css
15    .monaco-workbench
      .activitybar>.content
      .monaco-action-bar .badge
      .badge-content {
16      background: linear-gradient(to
        bottom, ⬜#fff951 25%, 🟪#fc28a8);
17    }
18
19    /* Active tab neon */
20    .monaco-workbench
      .part.editor>.content
      .editor-group-container>.title
      .tabs-container>.tab.sizing-fit.active
      {
21      box-shadow: inset 0 -5px 25px
        ⬛#fc28a825;
22      position: relative;
23    }
24
25    /* Active tab stripe */
26    .monaco-workbench
      .part.editor>.content
      .editor-group-container>.title
      .tabs-container>.tab.sizing-fit.
    active::after {
27      content: '';
28      position: absolute;
29      bottom: -1px;
```
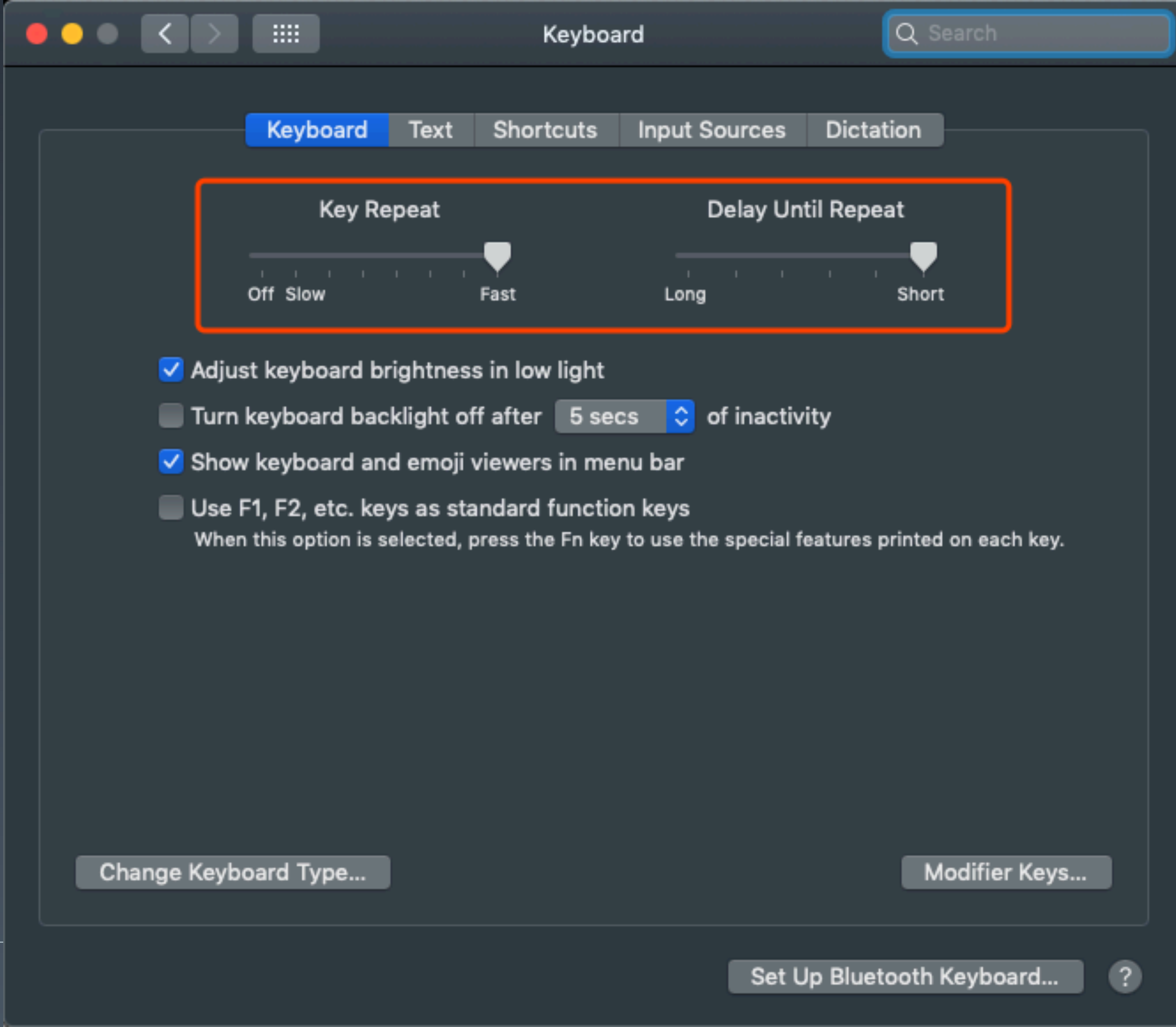
Search

Keyboard Text Shortcuts Input Sources Dictation

Key Repeat   Delay Until Repeat

Off Slow   Fast   Long   Short

☑ Adjust keyboard brightness in low light

☐ Turn keyboard backlight off after 5 secs ⇕ of inactivity

☑ Show keyboard and emoji viewers in menu bar

☐ Use F1, F2, etc. keys as standard function keys
When this option is selected, press the Fn key to use the special features printed on each key.

Change Keyboard Type...   Modifier Keys...

Set Up Bluetooth Keyboard... ?

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Code Style

Java、Python、…

• Google code style

• Facebook

• Airbnb

LeetCode

- leetcode-cn.com 和 题解

- leetcode.com 和 Discuss board 题解肯定要看国际站

指法和小操作

- home, end（行头、行尾）
- Word 单词、选单词、选整行
- IDE 的自动补全
- Top tips for <IDE-name>

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自顶向下的编程方式

- https://markhneedham.com/blog/2008/09/15/clean-code-book-review/

- https://leetcode-cn.com/problems/valid-palindrome/

第二节

时间复杂度、空间复杂度

Big O notation

O(1)：Constant Complexity 常数复杂度

O(log n)：Logarithmic Complexity 对数复杂度

O(n)：Linear Complexity 线性时间复杂度

O(n^2): N square Complexity 平方

O(n^3): N square Complexity 立方

O(2^n): Exponential Growth 指数

O(n!): Factorial 阶乘

注意：只看最高复杂度的运算

Big O notation

O(1)
```
int n = 1000;

System.out.println("Hey - your input is: " + n);
```

O(?)
```
int n = 1000;
System.out.println("Hey - your input is: " + n);
System.out.println("Hmm.. I'm doing more stuff with: " + n);
System.out.println("And more: " + n);
```

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Big O notation

```
O(N)        for (int i = 1; i <= n; i++) {
                    System.out.println("Hey - I'm busy looking at: " + i);
            }


O(N^2)     for (int i = 1; i <= n; i++) {
                for (int j = 1; j <=n; j++) {
                    System.out.println("Hey - I'm busy looking at: " + i + " and " +
            j);
                }
            }
```
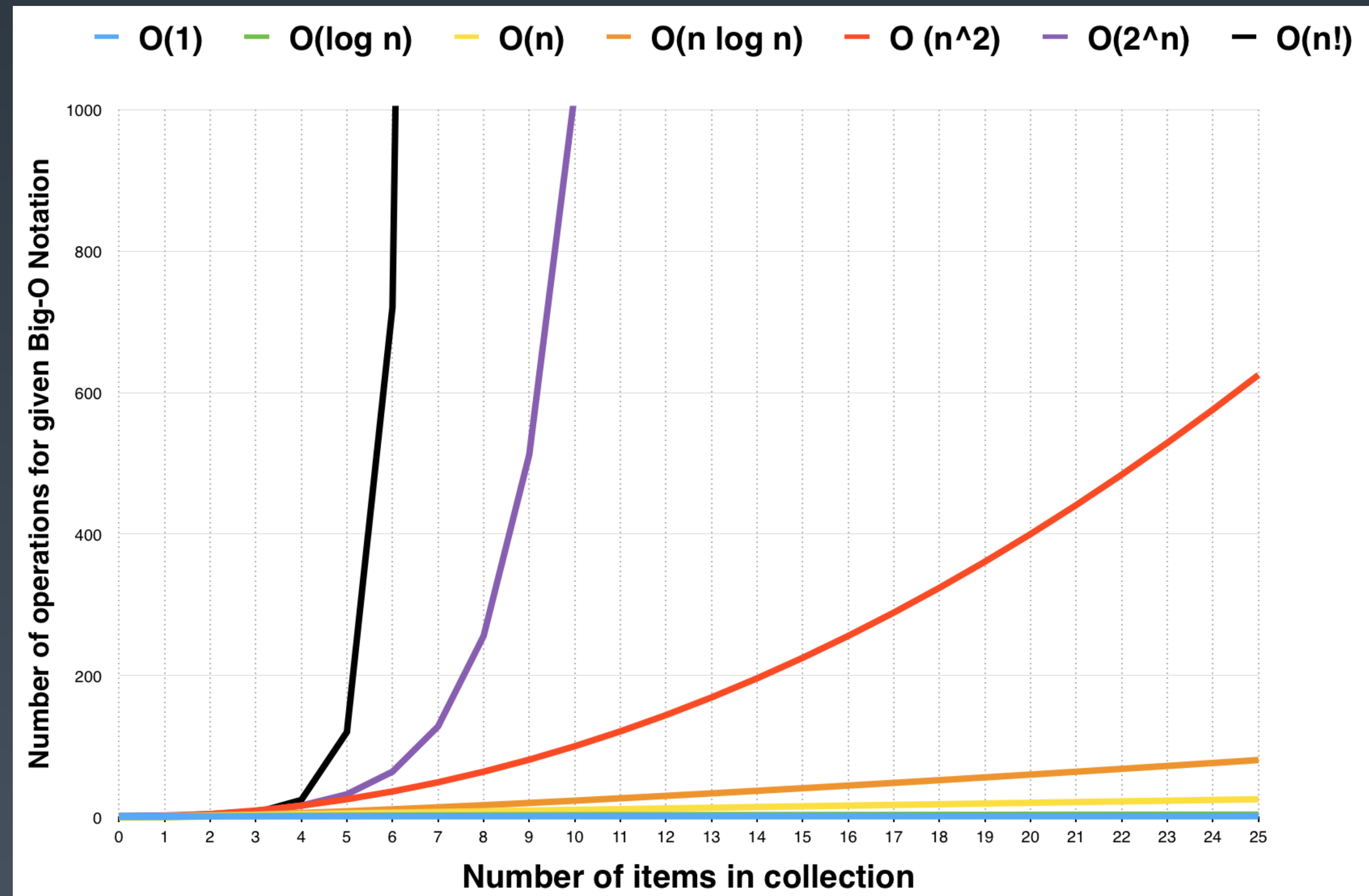
Big O notation

O(log(n))

```
for (int i = 1; i < n; i = i * 2) {
        System.out.println("Hey - I'm busy looking at: " + i);
}
```

O(k^n)

```
int fib(int n) {
      if (n <= 2) return n;
      return fib(n - 1) + fib(n - 2);
}
```

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时间复杂度曲线

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计算：1 + 2 + 3 + ... + n

- 方法一：从1到n的循环累加

```
y = 0
for i = 1 to n:
    y += i
```

- 方法二：求和公式 sum = n(n+1)/2
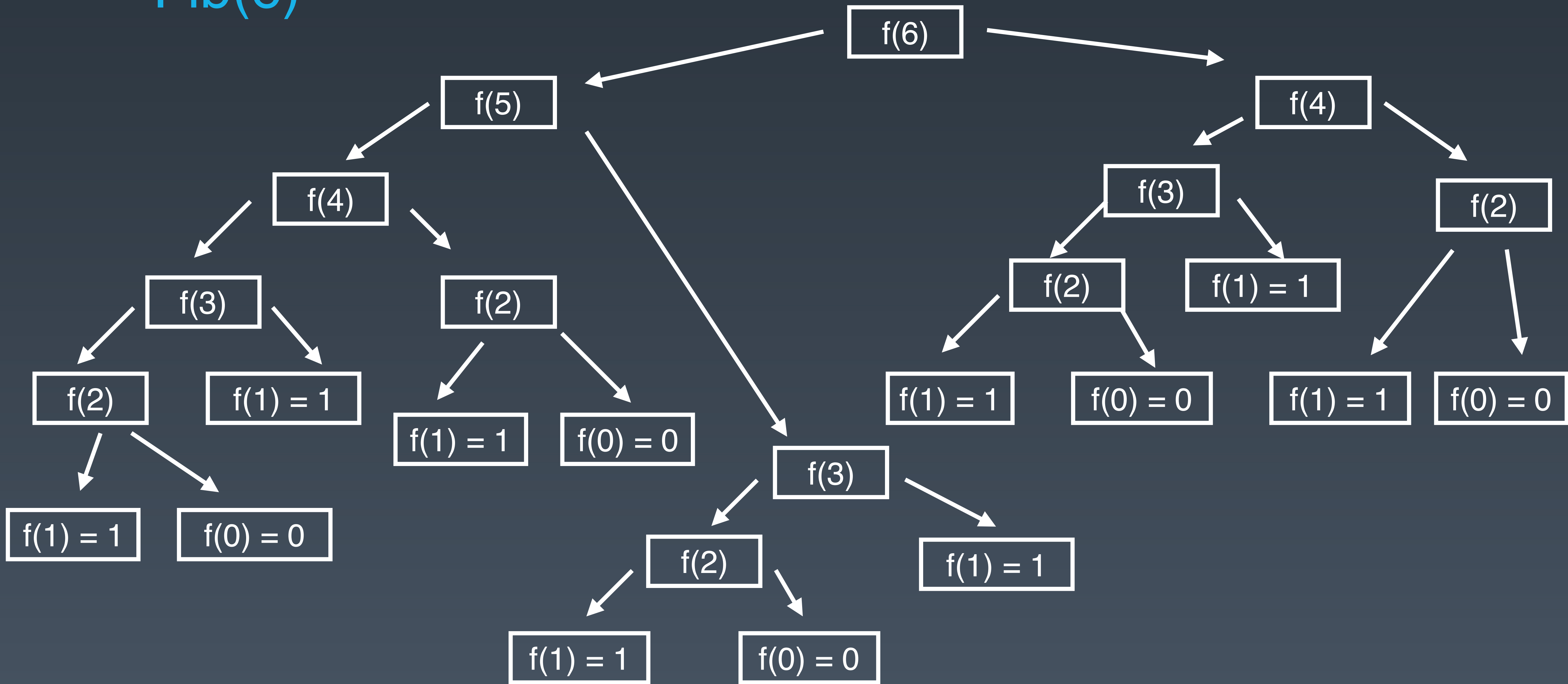
```
y = n * (n + 1) / 2
```

更复杂的情况：递归

Fib: 0, 1, 1, 2, 3, 5, 8, 13, 21, …

- F(n) = F(n - 1) + F(n - 2)

- 面试 （直接用递归）

```
int fib(int n) {
    if (n <= 2) return n;
    return fib(n - 1) + fib(n - 2);
}
```

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Master Theorem

Application to common algorithms [edit]

Algorithm	Recurrence relationship	Run time	Comment
Binary search	$T(n) = T\left(\dfrac{n}{2}\right) + O(1)$	$O(\log n)$	Apply Master theorem case $c = \log_b a$, where $a = 1, b = 2, c = 0, k = 0$[5]
Binary tree traversal	$T(n) = 2T\left(\dfrac{n}{2}\right) + O(1)$	$O(n)$	Apply Master theorem case $c < \log_b a$ where $a = 2, b = 2, c = 0$[5]
Optimal sorted matrix search	$T(n) = 2T\left(\dfrac{n}{2}\right) + O(\log n)$	$O(n)$	Apply the Akra–Bazzi theorem for $p = 1$ and $g(u) = \log(u)$ to get $\Theta(2n - \log n)$
Merge sort	$T(n) = 2T\left(\dfrac{n}{2}\right) + O(n)$	$O(n \log n)$	Apply Master theorem case $c = \log_b a$, where $a = 2, b = 2, c = 1, k = 0$

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思考题

二叉树遍历 - 前序、中序、后序：时间复杂度是多少?

图的遍历：时间复杂度是多少?

搜索算法：DFS、BFS 时间复杂度是多少?

二分查找：时间复杂度是多少?

思考题

二叉树遍历 - 前序、中序、后序：O(N)

图的遍历：O(N)

搜索算法：DFS、BFS - O(N)

二分查找：O(logN)

小结

- 常用工具配置

- 基本功和编程指法

- 常见的时间、空间复杂度

THANKS! | G 极客大学