算法

liuyubobobo

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为什么要学习算法?

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因为算法无处不在

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wiring-blink
.pioenvs
lib
readme.txt
src
main.cpp
.clang_complete
.gcc-flags.json
.gitignore
.travis.yml
platformio.ini
README.rst
main.cpp
/*
* Blink
* Turns on an LED on for one second,
* then off for one second, repeatedly.
*/
#include "Arduino.h"
void setup()
{
Serial.b
begin(const uint32_t dwBaudRate)
begin(const uint32_t dwBaudRate, const UARTClass::UARTMode…
void
// init
pinMode
// test linter
uint8_t i;
call_undefined();
}
void loop()
{
// turn the LED on (HIGH is the voltage
digitalWrite(LED_BUILTIN, HIGH);
// wait for a second
delay(1000);
// turn the LED off by making the voltage
GCC warning unused variable 'i' [-Wunused-variable] at line 15 col 11 in src/main.cpp
GCC error 'call_undefined' was not declared in this scope at line 16 col 18 in src/main.cpp
PlatformIO: Build
File 2
Project 2
2 Issues
src/main.cpp*
10:11
LF
UTF-8
C++
develop
+5, -1
platformio.ini
; Project Configuration File
; Docs: http://docs.platformio.org/en/lates
[env:uno]
platform = atmelavr
framework = arduino
board = uno
[env:nodemcu]
platform = espressif
platform = teensy
framework = arduino
board = teensy31
[env:lpmsp430g2553]
platform = timsp430
framework = energia
board = lpmsp430g2553
build_flags = -D LED_BUILTIN=RED_LED

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algorithm

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algorithm

/ˈalgərɪð(ə)m/

noun

a process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer.

"a basic **algorithm for** division"

Translations, word origin, and more definitions

Feedback

Algorithm - Wikipedia, the free encyclopedia

https://en.wikipedia.org/wiki/**Algorithm**

In mathematics and computer science, an **algorithm** (ˈ/ˈælgərɪðəm/ AL-gə-ri-dhəm) is a self-contained step-by-step set of operations to be performed. **Algorithms** perform calculation, data processing, and/or automated reasoning tasks.

List of algorithms · Algorithm engineering · Category:Algorithms · Sorting algorithm

What is an algorithm and why should you care? | Intro to Algorithms ...

https://www.khanacademy.org/.../**algorithms**/...**algorithms**/.../what...

what is an **algorithm** one definition might be; a setup steps to accomplish a task you might have an **algorithm** ...

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片段：Zootopia

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片段：权力的游戏

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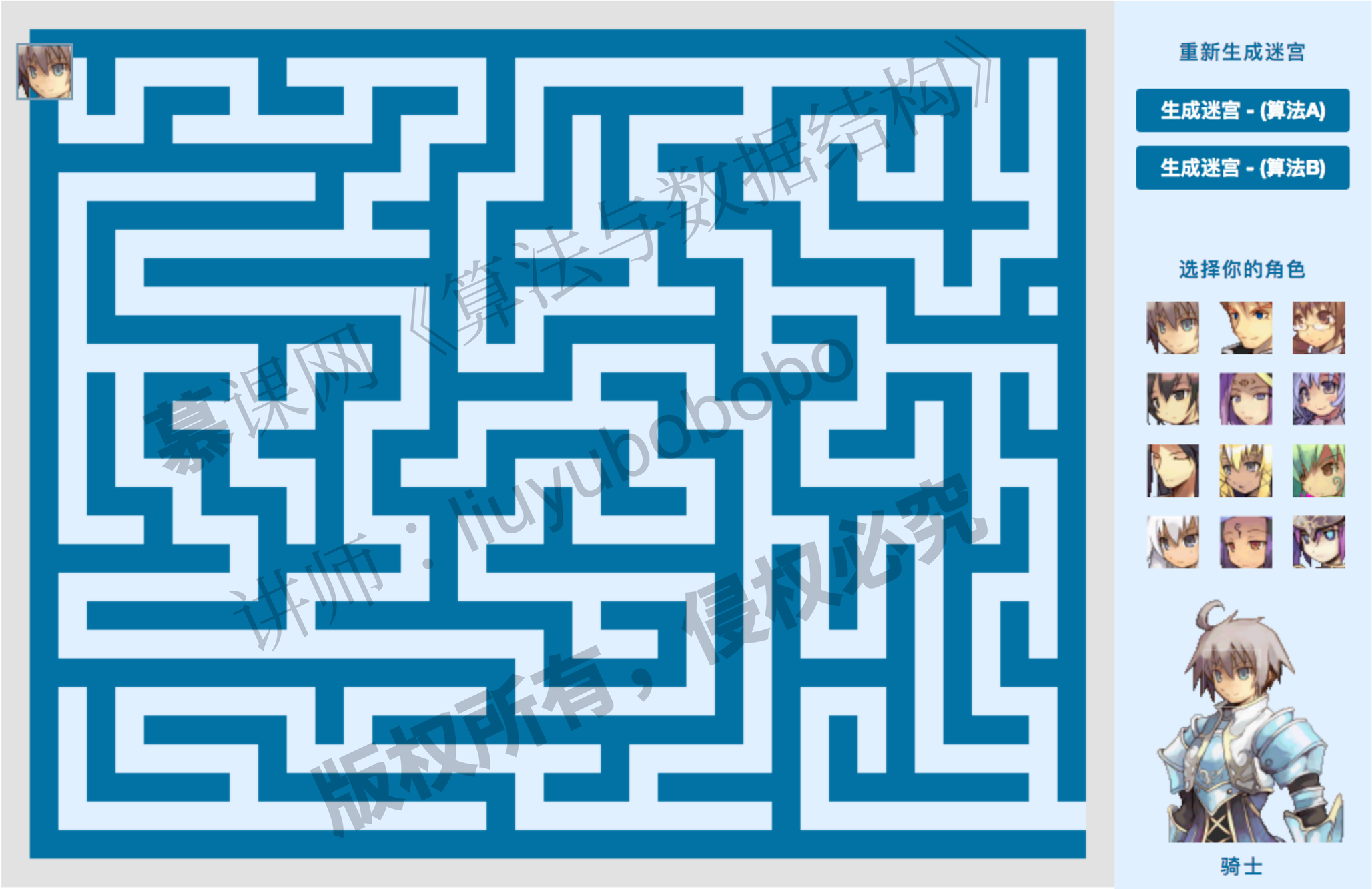

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操作：迷宫生成

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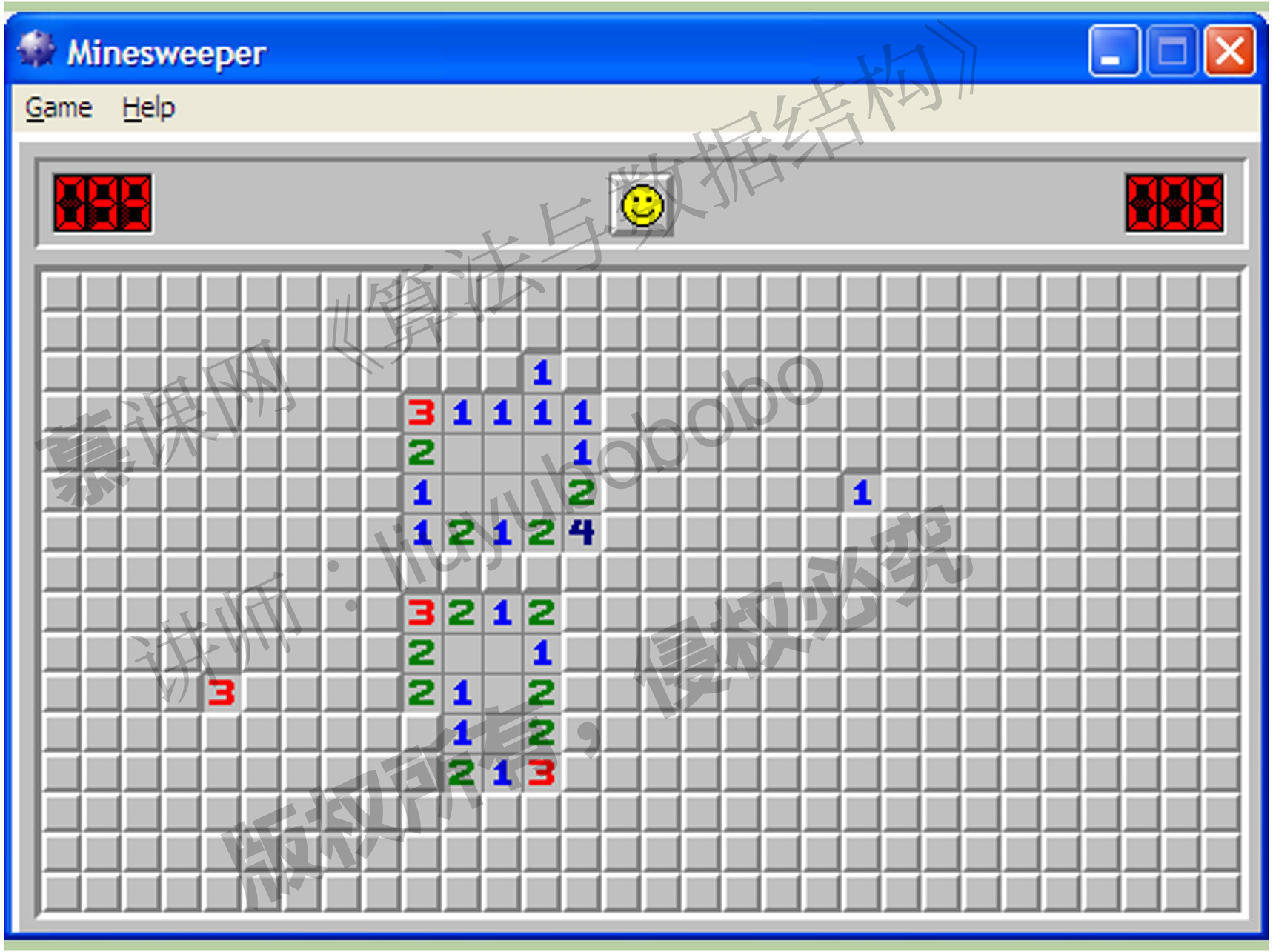

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操作:算法解决一个Puzzle类游戏
(暂时搁浅)

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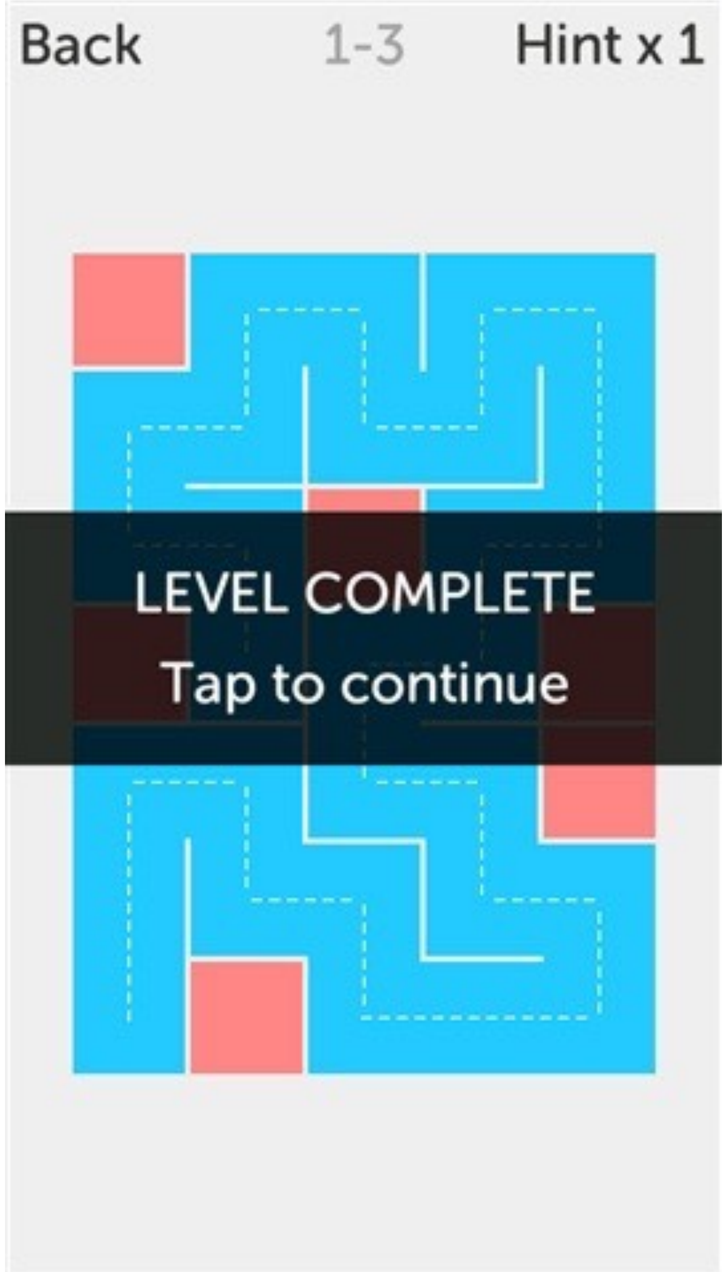
Level 1-2
0
6
bobobo
Score
0
MENU



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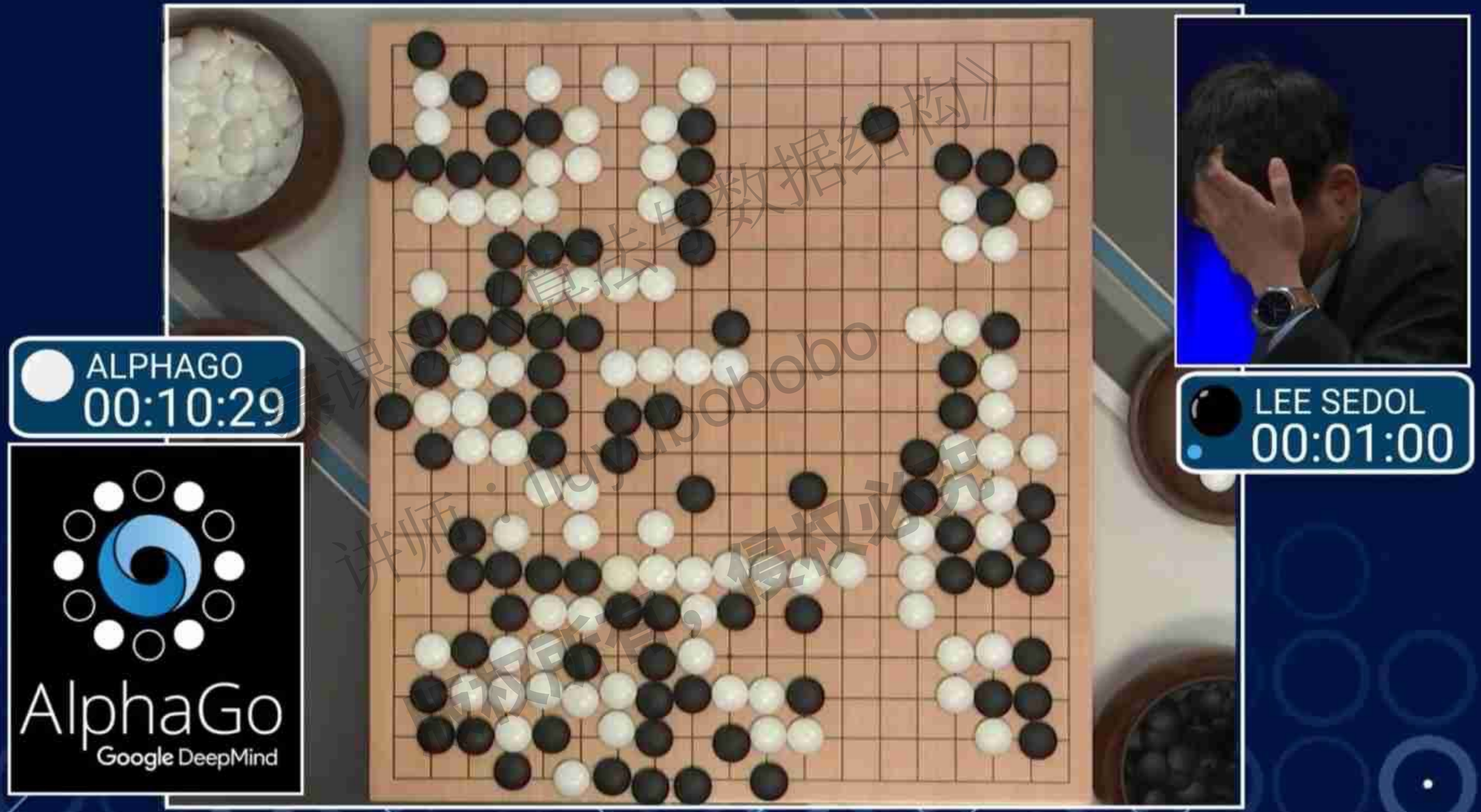

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Demo from the Disney Research

THE Science BEHIND THE Magic

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片段：live texture

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INTERNET
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SEARCH
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LEARNING
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GOVERNMENT
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BILLION
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WELL
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USED
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AMOUNT
ALGORITHMS
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INSIGHT
FRAMEWORK
SHARED
CAPACITY
ANNOUNCED
SOURCES
RELATED
NEEDED
RESULTS
VARIETY
MARKET
FACTOR
RATE
TIMES
IMPLEMENTATION
STATISTICS
WOULD
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USERS
PRIVATE
TOOLS
INCLUDE
DETERMINE
HYPOTHESIS
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CENTER
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BETWEEN
SYSTEMS
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ECONOMIC
TIME
INTERNATIONAL
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CAPABILITIES
COMPLEX
COST
ARCHITECTURE
USES
FLOW
CRITIQUE
MANY
STATE
NOW
HANDLE
PROJECT
BECOMES
PRIVACY
STRUCTURE
COMPANIES
SET
LESS
PAST
YEARS
BASED

性能优化

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Keep favorite apps in memory

Background updates

Refreshed information

Instant launch

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片段：iwatch 优化 — Auto Launch

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我们每天都在接触算法

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学好算法，才能创造出更有意义的东西

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课程简介

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学习要求

语言：C++

拥有自己的编译环境

算法其实是和语言无关的

以后争取支持更多语言：Java, Python, Javascript, Swift…

课程Github: https://github.com/liuyubobobo/Play-with-Algorithms

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学习要求

需要掌握最基础的语言知识

了解数组，链表，堆，栈等线性结构

对基本算法知识有常识性了解：如递归、遍历、算法复杂度

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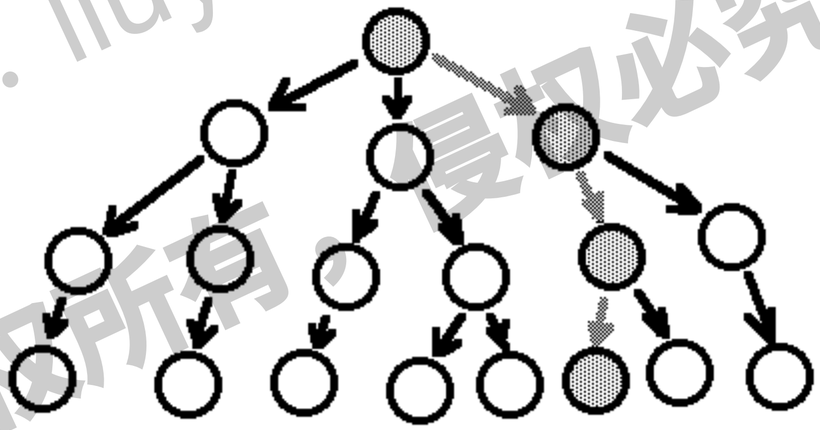
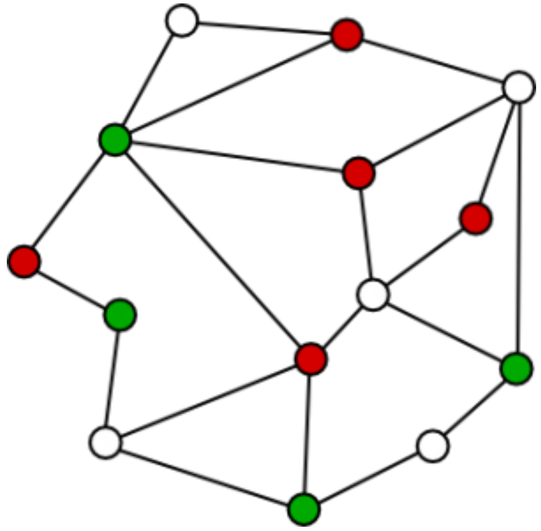
学习路径

线性(排序) → 树形结构 → 图形结构





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请后期根据以后课程的动画展示，
选择一个示例放在这页。谢谢！

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白板编程

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数据结构的重要性

“ I will, in fact, claim that the difference between a bad programmer and a good one is whether he considers his code or his data structures more important. Bad programmers worry about the code. Good programmers worry about data structures and their relationships. ”

— Linus Torvalds (creator of Linux)

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算法 = 数据结构?

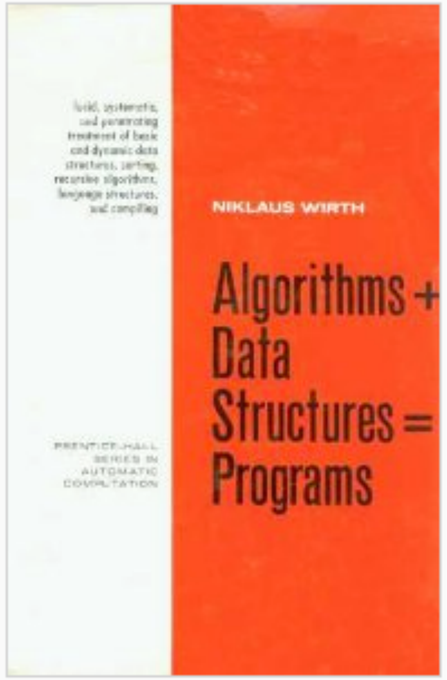
Algorithms + Data Structures = Programs

From Wikipedia, the free encyclopedia

Algorithms + Data Structures = Programs[1] is a 1976 book written by Niklaus Wirth covering some of the fundamental topics of computer programming, particularly that algorithms and data structures are inherently related. For example, if one has a sorted list one will use a search algorithm optimal for sorted lists.

The book was one of the most influential computer science books of the time and, like Wirth's other work, was extensively used in education.[2]

The Turbo Pascal compiler written by Anders Hejlsberg was largely inspired by the "Tiny Pascal" compiler in Niklaus Wirth's book.



Book cover

Chapter outline [edit]

- Chapter 1 - Fundamental Data Structures
- Chapter 2 - Sorting
- Chapter 3 - Recursive Algorithms
- Chapter 4 - Dynamic Information Structures
- Chapter 5 - Language Structures and Compilers
- Appendix A - the ASCII character set
- Appendix B - Pascal syntax diagrams

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无法覆盖所有的数据结构和算法

堆：斐波那契堆?

树：线段树?

图：网络流?

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算法思想？

分治算法 - 归并排序，快速排序...

贪心算法 - 最小生成树...

动态规化 - 最短路径 ...

递归搜索 - 树形结构...

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面试问题

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每个细分领域都是算法

图形学

图像学

机器学习

人工智能

数据挖掘

操作系统

编译原理

网络安全

虚拟现实

高性能计算

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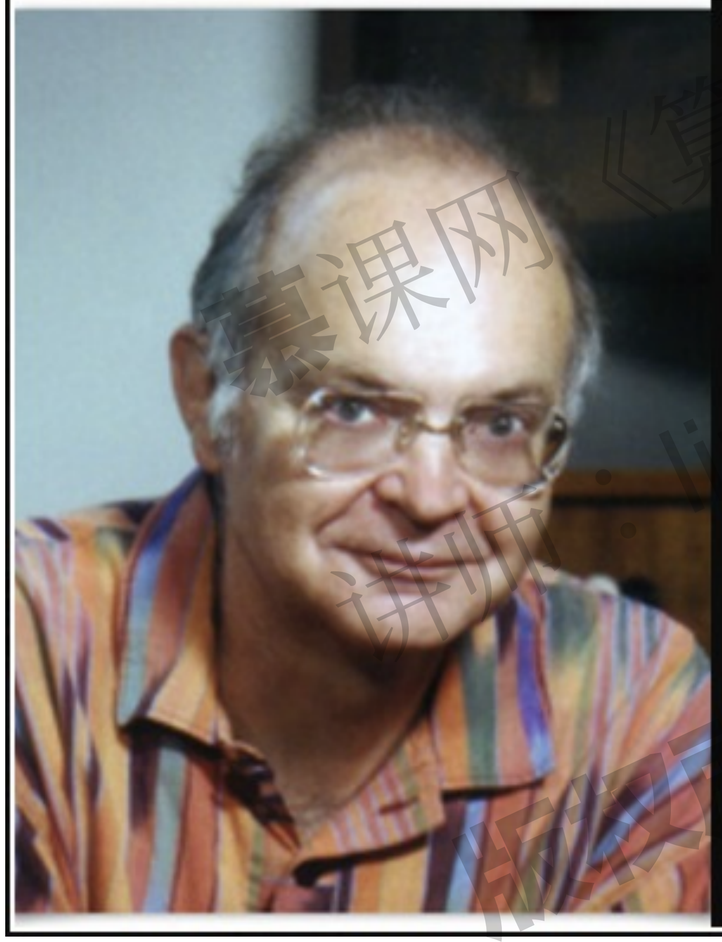
让我们一起体会算法之美



Computer programming is an art, because it applies accumulated knowledge to the world, because it requires skill and ingenuity, and especially because it produces objects of beauty. A programmer who subconsciously views himself as an artist will enjoy what he does and will do it better.

— *Donald Knuth* —

AZ QUOTES

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