

1-11

1.

- 算法: the recipe of doing things
- 程序: the valid syntactically language

2. Language

- a. machine language: binary, microprocessor understand
- b. high-level language: Java,
- c. compiler: convert from 2 \rightarrow 1

3. compiler: Eclipse

- source code/file: what you write in Java
- object code/file: low-level 0&1 + libraries
- executable file or application

4. Java

- source file \rightarrow (compile) \rightarrow class file (intermediate language)
+ other class files \rightarrow (linker) \rightarrow JAR archive \rightarrow (JVM) \rightarrow 某系统下执行

5. class

- encapsulation of behavior and data
- superclass/subclass
- classes are templates of objects (an instance of class)

6. acm program Hierarchy

- program \rightarrow JApplet \rightarrow Applet (can run on web page, a lightweight application)

7. variable

- name: start with letters/underscore character + numbers/letters/underscore;
no reserved word;
should be descriptive
- type:
primitive type: int/double/boolean/char
- value

8. operator

- division: $5/2=2$; $5/2.0=2.5$
- order precedent: parentheses $() \rightarrow *, /, \% \rightarrow +, - \rightarrow$
from left to right

9.constant

- private:only within class
- static: class的每个object实例都共享同一个static的内容，没有不同版本
- final: 不能再赋别的值
- private static final double PI=3.14

10.relational operations

- boolean comparisons: !, &&, || (in precedent order)
- short circuit evaluation: p=(x!=0) && ((y/x)==0)

11. statement blocks语句块/compound statement 复合语句: {}中的内容

- variable's scope: within the block it is declared
- switch statement:

```
switch(day){
    case 0 :
        break;
    default:
        break;
}
```

12.cast类型强转

- 可以省略，当没有丢失信息时: int→double
- 不能省略，当truncate一部分信息时: double→int

13.while loop

- indefinite loop: 不确定循环多少次,用while loop
- loop and a half: 至少循环一次时，用while (true)，内部用if break跳出；最好不要使用多个break
- for loop: used for definite iteration
- i叫做index variable

14.sentinel哨兵，标记

15. information hiding

- 信息封装在方法内部
- 不需要知道具体执行细节，只要从外部调用就好:getter,setter

16. Method

- generality—
- receiver.name(arguments):方法send message 给object (receiver)
- syntax: visibility type name (parameters) {}
 public/private return value

17.variable

- local variable: declared in method
- instance variable: declared in class; visible in entire object; state; **ivar**

·class/static variable:shared by all objects of one class: 类的所有实例共用！！！！，通常和final一起定义
constant常量

18.Object

- when passing an object as a parameter, you are actually passing the object itself,the address
- when passing an primitive type variable , you are actually passing the reference/copy of the variable

19.javadoc

- comments: `/** */`
- special tags(inside comments): `@param @result`
- 添加toString () 方法
- export生成javadoc

20.Class

- subclass 子类: 不能access private elements of superclass
- superclass 父类
- super()代指父类构造方法, call the constructor of the super class
- override: 重写父类方法

21.Interface

- implement xxxInterface