代码6

GitHub地址：https://github.com/HuaZhouyang/Course\_JavaProgramming

———————————————————————————————————————

## Unit 9:

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

LinearEquation.java:

package Unit\_9;

import java.util.Scanner;

/\*\*

\* 9.11

\*/

public class LinearEquation {

private final long a, b, c, d, e, f, denominator;

public LinearEquation(long a, long b, long c, long d, long e, long f) {

this.a = a;

this.b = b;

this.c = c;

this.d = d;

this.e = e;

this.f = f;

denominator = a \* d - b \* c;

}

public long getA() {

return a;

}

public long getB() {

return b;

}

public long getC() {

return c;

}

public long getD() {

return d;

}

public long getE() {

return e;

}

public long getF() {

return f;

}

public boolean isSolvable() {

return denominator != 0;

}

public double getX() {

return (e \* d - b \* f) \* 1.0 / denominator;

}

public double getY() {

return (a \* f - e \* c) \* 1.0 / denominator;

}

}

class LinearEquationTest {

public static void main(String[] args) {

long a, b, c, d, e, f;

Scanner sc = new Scanner(System.in);

System.out.println("Please enter nums:");

a = sc.nextLong();

b = sc.nextLong();

c = sc.nextLong();

d = sc.nextLong();

e = sc.nextLong();

f = sc.nextLong();

LinearEquation le = new LinearEquation(a, b, c, d, e, f);

boolean solvable = le.isSolvable();

if (solvable) {

System.out.println(le.getX());

System.out.println(le.getY());

} else {

System.out.println("The equation has no solution.");

}

}

}

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

QuadraticEquation.java:

package Unit\_9;

import java.util.Scanner;

/\*\*

\* 9.10

\*/

public class QuadraticEquation {

private final long a, b, c, discriminant;

public QuadraticEquation(long a, long b, long c) {

this.a = a;

this.b = b;

this.c = c;

discriminant = b \* b - 4 \* a \* c;

}

public long getA() {

return a;

}

public long getB() {

return b;

}

public long getC() {

return c;

}

public long getDiscriminant() {

return discriminant;

}

public double getRoot1() {

if (discriminant < 0) return 0;

return (-b + Math.sqrt(discriminant) / 2 / a);

}

public double getRoot2() {

if (discriminant < 0) return 0;

return (-b - Math.sqrt(discriminant) / 2 / a);

}

}

class QuadraticEquationTest {

public static void main(String[] args) {

long a, b, c;

Scanner sc = new Scanner(System.in);

System.out.println("Please enter a, b, and c:");

a = sc.nextLong();

b = sc.nextLong();

c = sc.nextLong();

QuadraticEquation qe = new QuadraticEquation(a, b, c);

long disc = qe.getDiscriminant();

if (disc > 0) {

System.out.println(qe.getRoot1());

System.out.println(qe.getRoot2());

} else if (disc == 0) {

System.out.println(qe.getRoot1());

} else {

System.out.println("The equation has no roots.");

}

}

}

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

StopWatch.java:

package Unit\_9;

import java.util.Date;

import java.util.Random;

/\*\*

\* 9.6

\*/

public class StopWatch {

private long startTime;

private long endTime;

public StopWatch() {

startTime = new Date().getTime();

}

public void start() {

startTime = new Date().getTime();

}

public void stop() {

endTime = new Date().getTime();

}

public long getElapsedTime() {

return (endTime - startTime);

}

}

class StopWatchTest {

public static void main(String[] args) {

int[] arr = new int[100000];

Random r = new Random();

for (int i = 0; i < 100000; i++) {

arr[i] = r.nextInt(1000);

}

StopWatch sw = new StopWatch();

selectSort(arr);

sw.stop();

System.out.println(sw.getElapsedTime());

}

private static void selectSort(int[] arr) {

for(int i = 0; i < arr.length-1; i++) {

int min = i;

for (int j = i + 1; j < arr.length; j++) {

if (arr[j] < arr[min]) {

min = j;

}

}

if (min != i) {

swap(arr, i, min);

}

}

}

private static void swap(int[] arr,int a,int b){

int temp = arr[a];

arr[a] = arr[b];

arr[b] = temp;

}

}

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

UsingDateClass.java:

package Unit\_9;

import java.util.Date;

/\*\*

\* 9.3

\*/

public class UsingDateClass {

public static void main(String[] args) {

Date date = new Date();

for (long i = 10000; i <= 100000000000L; i \*= 10) {

date.setTime(i);

System.out.println(date.toString());

}

}

}

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

UsingGregorianCalendarClass.java:

package Unit\_9;

import java.util.GregorianCalendar;

/\*\*

\* 9.5

\*/

public class UsingGregorianCalendarClass {

public static void main(String[] args) {

GregorianCalendar cal = new GregorianCalendar();

// task 1

System.out.println(cal.get(GregorianCalendar.YEAR));

System.out.println(cal.get(GregorianCalendar.MONTH) + 1);

System.out.println(cal.get(GregorianCalendar.DAY\_OF\_MONTH));

// task 2

cal.setTimeInMillis(1234567898765L);

System.out.println(cal.get(GregorianCalendar.YEAR));

System.out.println(cal.get(GregorianCalendar.MONTH) + 1);

System.out.println(cal.get(GregorianCalendar.DAY\_OF\_MONTH));

}

}

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

UsingRandomClass.java:

package Unit\_9;

import java.util.Random;

/\*\*

\* 9.4

\*/

public class UsingRandomClass {

public static void main(String[] args) {

Random rand = new Random(1000);

for (int i = 0; i < 50; i++) {

System.out.println(rand.nextInt(100));

}

}

}