オブジェクト指向プログラミング演習No.4 & No.5

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**1.**

**ソースコード**

import java.util.Scanner;

class Day{

private int year;

private int month;

private int date;

Day(int year, int month, int date){

this.year = year;

this.month = month;

this.date = date;

}

int getYear() {return year;}

int getMonth() {return month;}

int getDate() {return date;}

void setYear(int year) {this.year = year;}

void setMonth(int month) {this.month = month;}

void setDate(int date) {this.date = date;}

void set(int year, int month, int date) {

this.year = year;

this.month = month;

this.date = date;

}

int dayOfWeek(){

int y = year;

int m = month;

if (m == 1 || m == 2){

y--;

m += 12;

}

return (y + y / 4 -y / 100 + y/ 400 + (13 \* m + 8) / 5 + date) % 7;

}

}

class DayTester{

public static void main(String[] args){

Scanner stdIn = new Scanner(System.in);

String[] wd = {"日","月", "火", "水", "木", "金", "土"};

System.out.println("誕生日を西暦で入力せよ");

System.out.print("年:"); int y = stdIn.nextInt();

System.out.print("月:"); int m = stdIn.nextInt();

System.out.print("日:"); int d = stdIn.nextInt();

Day birthday = new Day(y, m, d);

Day homework1 = new Day(500, 1, 1);

Day homework2 = new Day(1000, 1, 1);

Day homework3 = new Day(2000, 1, 1);

System.out.println("あなたの誕生日" + birthday.getYear() + "年" + birthday.getMonth() + "月" + birthday.getDate() + "日は" + wd[birthday.dayOfWeek()] + "曜日です");

System.out.println(homework1.getYear() + "年" + homework1.getMonth() + "月" + homework1.getDate() + "日は" + wd[homework1.dayOfWeek()] + "曜日です");

System.out.println(homework2.getYear() + "年" + homework2.getMonth() + "月" + homework2.getDate() + "日は" + wd[homework2.dayOfWeek()] + "曜日です");

System.out.println(homework3.getYear() + "年" + homework3.getMonth() + "月" + homework3.getDate() + "日は" + wd[homework3.dayOfWeek()] + "曜日です");

}

}

**実行結果**

gotouwatarusMBP:homework gotouwataru$ java DayTester

誕生日を西暦で入力せよ

年:1999

月:1

日:8

あなたの誕生日1999年1月8日は金曜日です

500年1月1日は金曜日です

1000年1月1日は水曜日です

2000年1月1日は土曜日です

**2.**

**ソースコード**

import java.util.Scanner;

class DayAssign{

public static void main(String[] args){

Scanner stdIn = new Scanner(System.in);

String[] wd = {"日","月", "火", "水", "木", "金", "土"};

System.out.println("誕生日を西暦で入力せよ");

System.out.print("年:"); int y = stdIn.nextInt();

System.out.print("月:"); int m = stdIn.nextInt();

System.out.print("日:"); int d = stdIn.nextInt();

Day birthday = new Day(y, m, d);

System.out.println("あなたの誕生日" + birthday.getYear() + "年" + birthday.getMonth() + "月" + birthday.getDate() + "日は" + wd[birthday.dayOfWeek()] + "曜日です");

Day xDay = new Day(y, m, d);

System.out.println("xDay = " + xDay.getYear() + "年" + xDay.getMonth() + "月" + xDay.getDate() + "日は(" + wd[xDay.dayOfWeek()] + ")");

xDay.set(2100, 12, 31);

System.out.println("birthday = " + birthday.getYear() + "年" + birthday.getMonth() + "月" + birthday.getDate() + "日は(" + wd[birthday.dayOfWeek()] + ")");

System.out.println("xDay = " + xDay.getYear() + "年" + xDay.getMonth() + "月" + xDay.getDate() + "日は(" + wd[xDay.dayOfWeek()] + ")");

}

}

**実行結果**

gotouwatarusMBP:homework gotouwataru$ java DayAssign

誕生日を西暦で入力せよ

年:1999

月:1

日:8

あなたの誕生日1999年1月8日は金曜日です

xDay = 1999年1月8日は(金)

birthday = 1999年1月8日は(金)

xDay = 2100年12月31日は(金)

**3**

**ソースコード**

import java.util.Scanner;

class DayComparator3{

static boolean compDay(Day d1, Day d2){

return d1.getYear() == d2.getYear() && d1.getMonth() == d2.getMonth() && d1.getDate() == d2.getDate();

}

static boolean compDayOfWeek(Day d1, Day d2){

String[] wd = {"日","月", "火", "水", "木", "金", "土"};

return wd[d1.dayOfWeek()] == wd[d2.dayOfWeek()];

}

public static void main(String[] args){

Scanner stdIn = new Scanner(System.in);

int y, m, d;

System.out.println("日付１を入力せよ");

System.out.print("年:"); y = stdIn.nextInt();

System.out.print("月:"); m = stdIn.nextInt();

System.out.print("日:"); d = stdIn.nextInt();

Day day1 = new Day(y, m, d);

System.out.println("日付2を入力せよ");

System.out.print("年:"); y = stdIn.nextInt();

System.out.print("月:"); m = stdIn.nextInt();

System.out.print("日:"); d = stdIn.nextInt();

Day day2 = new Day(y, m, d);

if (compDay(day1, day2)){

System.out.println("等しいです");

} else {

System.out.println("等しくないです");

}

if (compDayOfWeek(day1, day2)){

System.out.println("同じ曜日です");

} else {

System.out.println("同じ曜日ではないです");

}

}

}

**実行結果**

gotouwatarusMBP:homework gotouwataru$ java DayComparator3

日付１を入力せよ

年: 1

月:1

日:1

日付2を入力せよ

年:1

月:1

日:8

等しくないです

同じ曜日です

**4**

**ソースコード**

class Account

{

private String name;

private String no;

private long balance;

private Day launchDay;

Account(String name, String no, long balance, Day launchDay)

{

this.name = name;

this.no = no;

this.balance = balance;

this.launchDay = new Day(launchDay);

}

public String getName(){

return name;

}

public String getNo(){

return no;

}

public long getBalance(){

return balance;

}

public Day getLaunchDay(){

return new Day(launchDay);

}

void deposit(long k){

balance += k;

}

void withdraw(long k){

balance -= k;

}

}

class AccountTester

{

public static void main(String[] args)

{

Account adachi = new Account("足立太郎", "123456", 1000, new Day(2010, 10,15));

Day dp = adachi.getLaunchDay();

Account nakata = new Account("中田次郎", "654321", 200, new Day(2011, 1,27));

Day pp = nakata.getLaunchDay();

System.out.println("＝＝＝足立太郎の口座＝＝＝");

System.out.println("口座名義：" + adachi.getName());

System.out.println("口座番号：" + adachi.getNo());

System.out.println("預金残高：" + adachi.getBalance());

System.out.println("開設日：" + dp);

System.out.println("＝＝＝中田次郎の口座＝＝＝");

System.out.println("口座名義：" + nakata.getName());

System.out.println("口座番号：" + nakata.getNo());

System.out.println("預金残高：" + nakata.getBalance());

System.out.println("開設日：" + pp);

}

}

**実行結果**

gotouwatarusMBP:homework gotouwataru$ java AccountTester

＝＝＝足立太郎の口座＝＝＝

口座名義：足立太郎

口座番号：123456

預金残高：1000

開設日：2010年10月15日(金)

＝＝＝中田次郎の口座＝＝＝

口座名義：中田次郎

口座番号：654321

預金残高：200

開設日：2011年01月27日(木)