**JAVA编程进阶上机报告**

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Lab 1：计算机销售系统的设计

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# 实验要求

**需求描述：**

某计算机组装公司主要销售各类组装计算机，计算机一般由CPU、内存、主板、硬盘等组件构成。具体组件信息如下：

|  |  |  |
| --- | --- | --- |
| 组件名 | 组件品牌 | 组件属性 |
| CPU | Intel、AMD | Name，coreNum核心，price |
| 内存 | Samsung, Kingston | Name, volume大小, price |
| 硬盘 | Seagate, WestDigitals | Name, volume, price |
| 主板 | Asus、Gigabyte | Name，speed速度, price |

每个组件都有自己的工作方式，简单起见，每个组件的工作内容为打印“组件名+work”。

**实现功能：**

具体要求：

1. 针对每个组件的每个品牌，设计一个类，并画成整体的类图
2. 设计计算机类（Computer.java），由上述四类组件组装而成，包括计算机的名称、计算机的描述（包括各个组件名）以及总价格等
3. 设计计算机销售主类（ComputerStore.java），包括3个由不同组件组装在一起的计算机实例，可实现计算机商品一览表，可展示每台计算机的描述、价格、工作等。
4. 设计时基于抽象类和接口，要尽可能的实现高内聚、低耦合。

# 源代码

**package** cpu;

**import** main.Zujian;

**public** **class** CPU **implements** Zujian {

**public** String name;

**public** String coreNum;

**public** **int** price;

**public** CPU() {

**super**();

}

**public** CPU(String name, String coreNum, **int** price) {

**super**();

**this**.name = name;

**this**.coreNum = coreNum;

**this**.price = price;

}

@Override

**public** String toString() {

**return** "CPU [name=" + name + ", coreNum=" + coreNum + ", price=" + price + "]";

}

**public** **void** work() {

System.***out***.println(name+"work");

};

}

**package** cpu;

**public** **class** AMDCPU **extends** CPU {

**public** AMDCPU() {

**super**();

}

**public** AMDCPU(String name, String coreNum, **int** price) {

**super**(name,coreNum,price);

}

}

**package** cpu;

**public** **class** IntelCPU **extends** CPU {

**public** IntelCPU() {

**super**();

}

**public** IntelCPU(String name, String coreNum, **int** price) {

**super**(name,coreNum,price);

}

}

**package** disk;

**import** main.Zujian;

**public** **class** Disk **implements** Zujian {

**public** String name;

**public** **int** volume;

**public** **int** price;

**public** Disk() {

**super**();

}

**public** Disk(String name, **int** volume, **int** price) {

**super**();

**this**.name = name;

**this**.volume = volume;

**this**.price = price;

}

@Override

**public** String toString() {

**return** "Disk [name=" + name + ", volume=" + volume + ", price=" + price + "]";

}

**public** **void** work() {

System.***out***.println(name+"work");

};

}

**package** disk;

**public** **class** SeagateDisk **extends** Disk {

**public** SeagateDisk() {

**super**();

}

**public** SeagateDisk(String name, **int** volume, **int** price) {

**super**(name,volume,price);

}

}

**package** disk;

**public** **class** WestDigitalsDisk **extends** Disk {

**public** WestDigitalsDisk() {

**super**();

}

**public** WestDigitalsDisk(String name, **int** volume, **int** price) {

**super**(name,volume,price);

}

}

**package** memory;

**import** main.Zujian;

**public** **class** Memory **implements** Zujian {

**public** String name;

**public** **int** volume;

**public** **int** price;

**public** Memory() {

**super**();

}

**public** Memory(String name, **int** volume, **int** price) {

**super**();

**this**.name = name;

**this**.volume = volume;

**this**.price = price;

}

@Override

**public** String toString() {

**return** "Memory [name=" + name + ", volume=" + volume + ", price=" + price + "]";

}

**public** **void** work() {

System.***out***.println(name+"work");

};

}

**package** memory;

**public** **class** SumsungMemory **extends** Memory {

**public** SumsungMemory() {

**super**();

}

**public** SumsungMemory(String name, **int** volume, **int** price) {

**super**(name,volume,price);

}

}

**package** memory;

**public** **class** KingstonMemory **extends** Memory {

**public** KingstonMemory() {

**super**();

}

**public** KingstonMemory(String name, **int** volume, **int** price) {

**super**(name,volume,price);

}

}

**package** board;

**import** main.Zujian;

**public** **class** Board **implements** Zujian {

**public** String name;

**public** String speed;

**public** **int** price;

**public** Board() {

**super**();

}

**public** Board(String name, String speed, **int** price) {

**super**();

**this**.name = name;

**this**.speed = speed;

**this**.price = price;

}

@Override

**public** String toString() {

**return** "Board [name=" + name + ", speed=" + speed + ", price=" + price + "]";

}

**public** **void** work() {

System.***out***.println(name+"work");

};

}

**package** board;

**public** **class** GigabyteBoard **extends** Board {

**public** GigabyteBoard() {

**super**();

}

**public** GigabyteBoard(String name, String speed, **int** price) {

**super**(name,speed,price);

}

}

**package** board;

**public** **class** AsusBoard **extends** Board {

**public** AsusBoard() {

**super**();

}

**public** AsusBoard(String name, String speed, **int** price) {

**super**(name,speed,price);

}

}

**package** main;

**public** **interface** Zujian {

**public** **void** work();

}

package main;

import board.Board;

import cpu.CPU;

import disk.Disk;

import memory.Memory;

public class Computer{

public String name;

public CPU cpu;

public Memory memory;

public Disk disk;

public Board board;

public Computer() {

super();

}

public Computer(String name, CPU cpu, Memory memory, Disk disk, Board board) {

super();

this.name = name;

this.cpu = cpu;

this.memory = memory;

this.disk = disk;

this.board = board;

}

//计算机描述

public void computerDescription() {

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

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

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

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

}

public int sumPrice() {

return cpu.price+memory.price+disk.price+board.price;

}

}

**package** main;

**public** **class** ComputerStore {

**public** Computer computer1;

**public** Computer computer2;

**public** Computer computer3;

**public** ComputerStore() {

**super**();

}

**public** ComputerStore(Computer computer1, Computer computer2, Computer computer3) {

**super**();

**this**.computer1 = computer1;

**this**.computer2 = computer2;

**this**.computer3 = computer3;

}

//计算机商品一览表

**public** **void** ListOfComputerMerchandise() {

System.***out***.println("-----计算机商品一览表-----");

System.***out***.println("Computer name:"+computer1.name);

computer1.computerDescription();//计算机的描述

System.***out***.println("总价格为："+computer1.sumPrice());//价格

computer1.cpu.work();//工作

computer1.memory.work();

computer1.disk.work();

computer1.board.work();

System.***out***.println("---------------------");

System.***out***.println("Computer name:"+computer2.name);

computer2.computerDescription();//计算机的描述

System.***out***.println("总价格为："+computer2.sumPrice());//价格

computer2.cpu.work();//工作

computer2.memory.work();

computer2.disk.work();

computer2.board.work();

System.***out***.println("---------------------");

System.***out***.println("Computer name:"+computer3.name);

computer3.computerDescription();//计算机的描述

System.***out***.println("总价格为："+computer3.sumPrice());//价格

computer3.cpu.work();//工作

computer3.memory.work();

computer3.disk.work();

computer3.board.work();

}

}

package main;

import board.AsusBoard;

import board.Board;

import board.GigabyteBoard;

import cpu.AMDCPU;

import cpu.CPU;

import cpu.IntelCPU;

import disk.Disk;

import disk.SeagateDisk;

import disk.WestDigitalsDisk;

import memory.KingstonMemory;

import memory.Memory;

import memory.SumsungMemory;

public class Main {

public static void main(String[] args) {

CPU cpu1 = new IntelCPU("Intel", "i5", 1000);

CPU cpu2 = new IntelCPU("Intel", "i7", 1500);

CPU cpu3 = new AMDCPU("AMD", "R7", 1500);

CPU cpu4 = new AMDCPU("AMD", "R6", 1000);

Memory memory1 = new KingstonMemory("KingstonV1", 16, 1000);

Memory memory2 = new KingstonMemory("KingstonV2", 32, 2000);

Memory memory3 = new SumsungMemory("SumsungV1", 16, 1000);

Memory memory4 = new SumsungMemory("SumsungV2", 32, 2000);

Disk disk1 = new SeagateDisk("SegateDisk", 500, 1000);

Disk disk2 = new SeagateDisk("SegateDisk", 1000, 2000);

Disk disk3 = new WestDigitalsDisk("WestDigitals", 1000, 2000);

Disk disk4 = new WestDigitalsDisk("WestDigitals", 500, 1000);

Board board1 = new GigabyteBoard("GigabyteV1", "30Mbps", 1000);

Board board2 = new GigabyteBoard("GigabyteV1", "60Mbps", 3000);

Board board3 = new AsusBoard("AsusV1", "60Mbps", 3000);

Board board4 = new AsusBoard("AsusV1", "60Mbps", 3000);

Computer computer1 = new Computer("第一款",cpu1,memory1,disk1,board1);

Computer computer2 = new Computer("第二款",cpu2,memory2,disk2,board2);

Computer computer3 = new Computer("第三款",cpu3,memory3,disk3,board3);

Computer computer4 = new Computer("第四款",cpu4,memory4,disk4,board4);

ComputerStore computerStore = new ComputerStore(computer1,computer2,computer3);

computerStore.ListOfComputerMerchandise();

// CPU cpu = new CPU("Intel酷睿i5",6,1199);

// Memory neicun1 = new Memory("三星DDR4",4,168);

// Memory neicun2 = new Memory("三星DDR4",8,293);

// Memory neicun3 = new Memory("三星DDR4",16,548);

// Disk yinpan = new Disk("海康威视C2000 PRO",512,599);

// Board zhuban = new Board("华硕B360主板",360,1999);

//

// Computer computer1 = new Computer("初级笔记本",cpu,neicun1,yinpan,zhuban);

// Computer computer2 = new Computer("中级用笔记本",cpu,neicun2,yinpan,zhuban);

// Computer computer3 = new Computer("高级用笔记本",cpu,neicun3,yinpan,zhuban);

//

// ComputerStore computerStore = new ComputerStore(computer1,computer2,computer3);

//

//

// computerStore.ListOfComputerMerchandise();

}

}

# 运行结果

