# 实验四：抽象工厂模式

# 工厂类的编码实现

**public** **abstract** **class** AbstractFactory {

**public** **static** AbstractFactory getFactory(String name) {

**switch**(name) {

**case** "Apple" :**return** **new** AppleFactory();

**case** "Huawei" :**return** **new** HuaweiFactory();

**case** "Xiaomi" :**return** **new** XiaomiFactory();

}

**return** **null**;

}

**public** **abstract** Phone createPhone() ;

**public** **abstract** Computer createComputer();

**public** **abstract** Video createVideo() ;

}

**public** **class** AppleFactory **extends** AbstractFactory{

**public** Phone createPhone() {

**return** **new** ApplePhone();

}

**public** Computer createComputer() {

**return** **new** AppleComputer();

}

**public** Video createVideo() {

**return** **new** AppleVideo();

}

}

**public** **class** HuaweiFactory **extends** AbstractFactory{

**public** Phone createPhone() {

**return** **new** HuaweiPhone();

}

**public** Computer createComputer() {

**return** **new** HuaweiComputer();

}

**public** Video createVideo() {

**return** **new** HuaweiVideo();

}

}

**public** **class** HuaweiFactory **extends** AbstractFactory{

**public** Phone createPhone() {

**return** **new** HuaweiPhone();

}

**public** Computer createComputer() {

**return** **new** HuaweiComputer();

}

**public** Video createVideo() {

**return** **new** HuaweiVideo();

}

}

# 品牌类的基本实现

**public** **interface** Apple {

String ***brand*** = "apple";

**public** **interface** Huawei {

String ***brand*** = "Hueawei";

}

**public** **interface** Xiaomi {

String ***brand*** = "Xiaomi";

}

# 设备类的基本实现

**public** **abstract** **class** FactoryDevice {

**public** **abstract** **void** product() ;

}

**public** **abstract** **class** Computer **extends** FactoryDevice{

**public** **final** String device = "电脑";

}

**public** **abstract** **class** Phone **extends** FactoryDevice{

**public** **final** String device = "手机";

}

**public** **abstract** **class** Video **extends** FactoryDevice {

**public** **final** String device = "电视";

}

# 具体类的基本实现

**public** **class** AppleComputer **extends** Computer **implements** Apple{

**public** **void** product() {

System.***out***.println("生产:" + ***brand*** + **super**.device);

}

}

**public** **class** ApplePhone **extends** Phone **implements** Apple {

**public** **void** product() {

System.***out***.println("生产" + ***brand*** + **super**.device);

}

}

**public** **class** AppleVideo **extends** Video **implements** Apple{

**public** **void** product() {

System.***out***.println("生产" + ***brand*** + **super**.device);

}

}

**public** **class** HuaweiComputer **extends** Computer **implements** Huawei{

**public** **void** product() {

System.***out***.println("生产" + ***brand*** + **super**.device);

}

}

**public** **class** HuaweiPhone **extends** Phone **implements** Huawei{

**public** **void** product() {

System.***out***.println("生产" + ***brand*** + **super**.device);

}

}

**public** **class** HuaweiVideo **extends** Video **implements** Huawei{

**public** **void** product() {

System.***out***.println("生产" + ***brand*** + **super**.device);

}

}

**public** **class** XiaomiComputer **extends** Computer **implements** Xiaomi{

**public** **void** product() {

System.***out***.println("生产" + ***brand*** + **super**.device);

}

}

**public** **class** XiaomiPhone **extends** Phone **implements** Xiaomi{

**public** **void** product() {

System.***out***.println("生产" + ***brand*** + **super**.device);

}

}

**public** **class** XiaomiVideo **extends** Video **implements** Xiaomi{

**public** **void** product() {

System.***out***.println("生产" + ***brand*** + **super**.device);

}

}

# 客户端类的基本实现

**public** **class** AbstractFactoryClient {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

System.***out***.println("请选择工厂所属品牌：");

System.***out***.println("(1)苹果\t(2)华为\t(3)小米");

Scanner s1=**new** Scanner(System.***in***);

**int** i = s1.nextInt();

**switch**(i){

**case** 1:

AbstractFactory factory1 = AbstractFactory.*getFactory*("Apple");

Phone phone1 = factory1.createPhone();

Computer computer1 = factory1.createComputer();

Video video1 = factory1.createVideo();

phone1.product();

computer1.product();

video1.product();

**break**;

**case** 2:

AbstractFactory factory2 = AbstractFactory.*getFactory*("Huawei");

Phone phone2 = factory2.createPhone();

Computer computer2 = factory2.createComputer();

Video video2 = factory2.createVideo();

phone2.product();

computer2.product();

video2.product();

**break**;

**case** 3:

AbstractFactory factory3 = AbstractFactory.*getFactory*("Xiaomi");

Phone phone3 = factory3.createPhone();

Computer computer3 = factory3.createComputer();

Video video3 = factory3.createVideo();

phone3.product();

computer3.product();

video3.product();

**break**;

**default**:

System.***out***.println("输入有误！");

**break**;

}

s1.close();

}

}

# 