

Aufgabe 2 (30 Punkte)

OperatingSystem (5 Punkte)

```
public enum OperatingSystem { // 0.5
    WINDOWS('W'), // 0.25
    ANDROID('A'), // 0.25
    MACOS('M'), // 0.25
    IOS('I'), // 0.25
    LINUX('L'); // 0.25

    private char name; // 0.25

    OperatingSystem(char name) { // 0.5
        this.name = name; // 0.25
    }

    public char getName() { // 0.5
        return name; // 0.25
    }

    public boolean isMobile() { // 0.5
        return this == OperatingSystem.ANDROID || this == OperatingSystem.IOS; // 1
    }
}
```

Device (5 Punkte)

```
public abstract class Device { // 0.5

    private static final ArrayList<Device> allDevices = new ArrayList<>(); // 0.25
    protected final OperatingSystem os; // 0.25

    public Device(OperatingSystem os) { // 0.5
        this.os = os; // 0.25
        Device.allDevices.add(this); // 1.25
    }

    public abstract boolean isSecure(); // 0.5
    public abstract String toString(); // 0.5

    public static ArrayList<Device> getAllDevices() { // 0.5
        return Device.allDevices; // 0.5
    }
}
```

Phone (6.5 Punkte)

```
public class Phone extends Device { // 0.5
    private boolean encrypted; // 0.25

    public Phone(OperatingSystem os, boolean encrypted) { // 0.5
        super(os); // 0.5
        this.encrypted = encrypted; // 0.25
    }
}
```

```

public boolean isSecure() { // 0.5
    return encrypted || os == OperatingSystem.IOS; // 1
}

public String toString() { // 0.5
    return "Phone [encrypted="+ encrypted +"] [isSecure=" + isSecure() + "]; // 2.5
}
}

```

Laptop (6.5 Punkte)

```

public class Laptop extends Device { // 0.5
    private static int MINIMUM_VERSION = 22; // 0.25
    private int version; // 0.25

    public Laptop(OperatingSystem os, int version) { // 0.5
        super(os); // 0.5
        this.version = version; // 0.25
    }

    public boolean isSecure() { // 0.5
        return os != OperatingSystem.WINDOWS || version > Laptop.MINIMUM_VERSION; // 0.75
    }

    public String toString() { // 0.5
        return "Laptop [version="+ version +"] [isSecure=" + isSecure() + "]; // 2.5
    }
}

```

ExamTask02 (7 Punkte)

```

public class ExamTask02 { // 0.5
    public static void main(String[] args) { // 0.5
        new Phone(OperatingSystem.ANDROID, false); // 0.5
        new Phone(OperatingSystem.IOS, false); // 0.5
        new Laptop(OperatingSystem.LINUX, 11); // 0.5
        new Laptop(OperatingSystem.WINDOWS, 11); // 0.5
        int securePhones = 0; // 0.5
        int secureLaptops = 0; // 0.5
        for (Device device : Device.getAllDevices()) { // 0.5
            if (device.isSecure()) { // 0.5
                if (device instanceof Laptop) { // 0.5
                    secureLaptops++; // 0.5
                } else {
                    securePhones++; // 0.5
                }
            }
        }
        System.out.println("Laptops: " + secureLaptops + "Phones: " + securePhones); // 0.5
    }
}

```