

Design Pattern

Filter

```
public class Laptop {
    private String company, operatingSystem;
    private int bits;

    public Laptop(String company, String operatingSystem, int bits) {
        this.company = company;
        this.operatingSystem = operatingSystem;
        this.bits = bits;
    }

    public String getCompany() {
        return this.company;
    }

    public String getOperatingSystem() {
        return this.operatingSystem;
    }

    public int getBits() {
        return this.bits;
    }
}

import java.util.List;

public interface IFilter {
    List<Laptop> filterObjects(List<Laptop> laptops);
}

import java.util.ArrayList;
import java.util.List;

public class HclFilter implements IFilter {
    public List<Laptop> filterObjects(List<Laptop> laptops) {
        List<Laptop> hclLaptops = new ArrayList<>();

        for (int i = 0; i < laptops.size(); i++)
            if (laptops.get(i).getCompany().equalsIgnoreCase("hcl"))
                hclLaptops.add(laptops.get(i));

        return hclLaptops;
    }
}
```

```

import java.util.ArrayList;
import java.util.List;

public class WindowsOperatingSystemFilter implements IFilter {
    public List<Laptop> filterObjects(List<Laptop> laptops) {
        List<Laptop> windowsOperatingSystemLaptops = new ArrayList<>();

        for (int i = 0; i < laptops.size(); i++)
            if (laptops.get(i).getOperatingSystem()
                .equalsIgnoreCase("windows"))
                windowsOperatingSystemLaptops.add(laptops.get(i));

        return windowsOperatingSystemLaptops;
    }
}

import java.util.ArrayList;
import java.util.List;

public class Application {
    public static void main(String... args) {
        List<Laptop> allLaptops = new ArrayList<>();

        allLaptops.add(new Laptop("hcl", "windows", 32));
        allLaptops.add(new Laptop("hcl", "linux", 32));
        allLaptops.add(new Laptop("hcl", "solaries", 64));
        allLaptops.add(new Laptop("dell", "windows", 32));
        allLaptops.add(new Laptop("dell", "linux", 32));
        allLaptops.add(new Laptop("dell", "solaries", 64));

        IFilter hclLaptops = new HclFilter();
        IFilter windowsOperatingSystemLaptops =
            new WindowsOperatingSystemFilter();

        List<Laptop> filteredLaptops = hclLaptops
            .filterObjects(allLaptops);
        System.out.print("\n--- HCL");

        for (int i = 0; i < filteredLaptops.size(); i++)
            System.out.print("\n " + filteredLaptops.get(i).getCompany() +
                "\t " + filteredLaptops.get(i).getOperatingSystem());

        filteredLaptops = windowsOperatingSystemLaptops
            .filterObjects(allLaptops);

        System.out.println();

        System.out.print("\n--- Windows Operating System");

        for (int i = 0; i < filteredLaptops.size(); i++)
            System.out.print("\n " + filteredLaptops.get(i).getCompany() +
                "\t " + filteredLaptops.get(i)
                    .getOperatingSystem());
    }
}

```