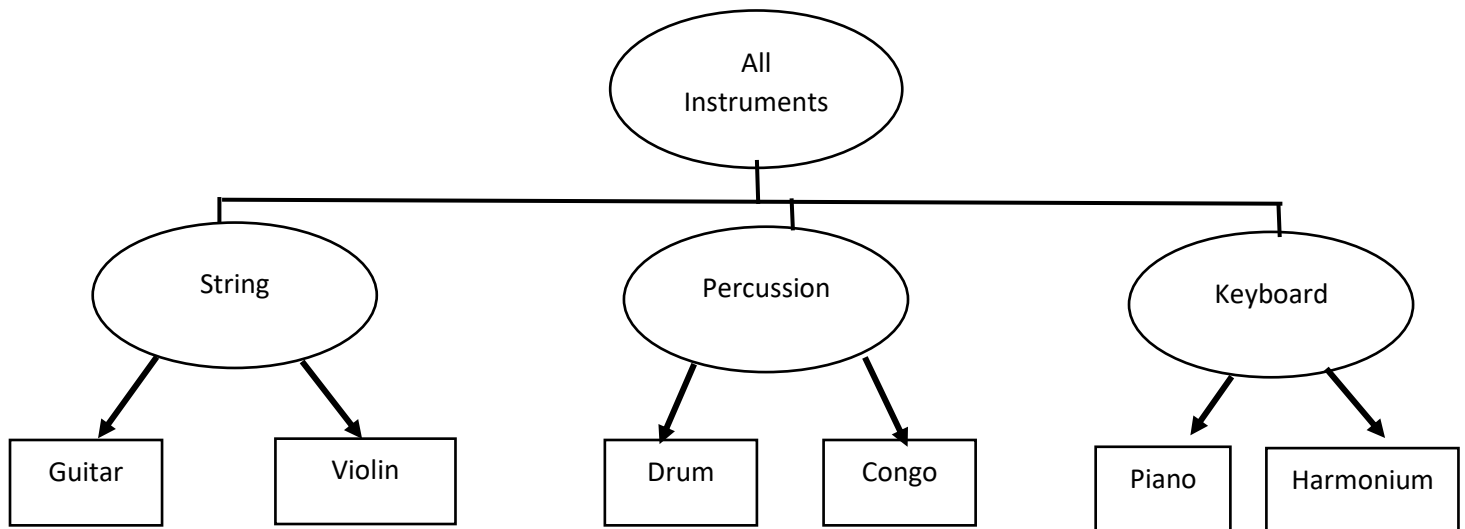# LAB ASSIGNMENT 8

COMPOSITE DESIGN PATTERN

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DIV-2 G4

DIAGRAM:

CODE:

❖ **Inside compositeDP package: -**
• Music_Shop.java //main file

```java
package compositeDP;

public class Music_Shop {
    public static void main(String[] args) {

        Component st1 = new Leaf("Guitar",7000);
        Component st2 = new Leaf("Violin",8500);
        Component pr1 = new Leaf("Drum",8000);
        Component pr2 = new Leaf("Congo",5550);
        Component key1 = new Leaf("Piano",6500);
        Component key2 = new Leaf("Harmonium",7450);

        Composite string = new Composite("STRING");
        Composite percussion = new Composite("PERCUSSION");
        Composite keyboard = new Composite("KEYBOARD");
        Composite allInstruments = new Composite("All_Instruments");
```

```java
        string.addComponent(st1);
        string.addComponent(st2);
        percussion.addComponent(pr1);
        percussion.addComponent(pr2);
        keyboard.addComponent(key1);
        keyboard.addComponent(key2);

        allInstruments.addComponent(string);
        allInstruments.addComponent(percussion);
        allInstruments.addComponent(keyboard);

        allInstruments.showPrice();
        //string.showPrice();
        //percussion.showPrice();
        //keyboard.showPrice();


    }
}
```

- Instrument_Shop.java

```java
package compositeDP;
import java.util.ArrayList;
import java.util.List;

interface Component{
    void showPrice();
}

class Leaf implements Component{
    int price;
    String name;

    public Leaf(String name , int price) {
        this.price = price;
        this.name = name;
    }

    @Override
    public void showPrice() {
        System.out.println(name + " : " + price + '\n');
    }
}
```

```java
class Composite implements Component{

    String name;
    List<Component> items = new ArrayList<>();

    public Composite(String name) {
        this.name = name;
    }

    public void addComponent(Component com){
        items.add(com);
    }

    @Override
    public void showPrice() {
        System.out.println(name);
        for (Component c : items){
            c.showPrice();
        }
    }
}
```

OUTPUT:

```
"C:\Users\Shruti Mishra\.jdks\openjdk-18.0.2.1\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ
All_Instruments
STRING
Guitar : 7000

Violin : 8500

PERCUSSION
Drum : 8000

Congo : 5550

KEYBOARD
Piano : 6500

Harmonium : 7450
```