

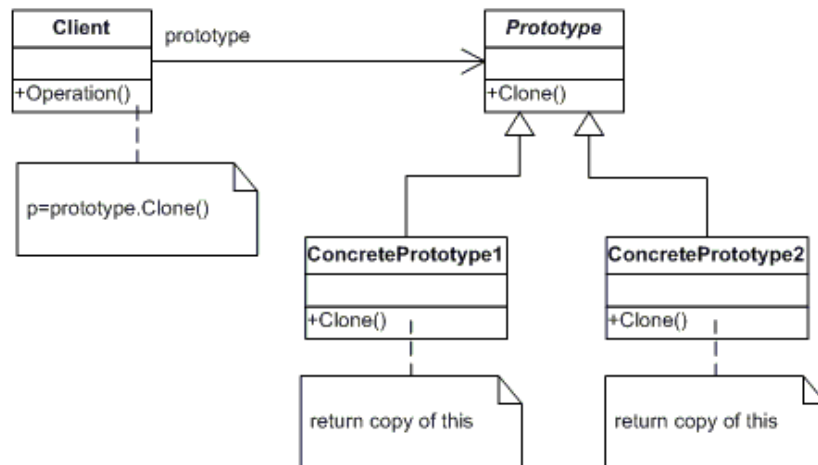
LAB ASSIGNMENT 6  
PROTOTYPE FACTORY DESIGN

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DIAGRAM:



CODE:

❖ Inside prototype package: -

- Main.java //main file

```
package prototype;

public class Main{

    public static void main(String[] args) throws CloneNotSupportedException {

        InstrumentShop obj1 = new InstrumentShop();
        obj1.setShopname("MusicGaze Instruments");
        obj1.LoadData();

        InstrumentShop obj2 = obj1.clone();
        obj2.getInstrument().remove(1);
        obj2.setShopname("Saraswati Instruments");

        System.out.println(obj1);
        System.out.println(obj2);
    }
}
```

- InstrumentItem.java

```
package prototype;

public class InstrumentItem {
    private int Iid;
    private String Iname;

    //for Instrument-ID
    public int getIid() {
        return Iid;
    }
    public void setIid(int Iid) {
        this.Iid = Iid;
    }

    //for Instrument-Name
    public String getIname() {
        return Iname;
    }
    public void setIname(String iname) {
        Iname = iname;
    }

    @Override
    public String toString() {
        return "Instrument [Iid=" + Iid + ", Iname=" + Iname + "]";
    }
}
```

- InstrumentShop.java

```
package prototype;

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

public class InstrumentShop {

    private String shopname;
    List < InstrumentItem > items = new ArrayList<>();

    //for Shopname
    public String getShopname() {
        return shopname;
    }
}
```

```

    public void setShopname(String shopname) {
        this.shopname = shopname;
    }

    //for Instrument
    public List < InstrumentItem > getInstrument() {
        return items;
    }

    public void setInstrument(List < InstrumentItem > items) {
        this.items = items;
    }

    public void LoadData() {
        for (int i = 1; i <= 5; i++) {
            InstrumentItem Iobj = new InstrumentItem();
            Iobj.setIid(i);
            Iobj.setIname("Instrument" + i);
            getInstrument().add(Iobj);
        }
    }

    @Override
    public String toString() {
        return "InstrumentShop [shopname=" + shopname + ", instrument=" +
items + " ]";
    }

    @Override
    protected InstrumentShop clone() throws CloneNotSupportedException {
        //code to achieve deep cloning instead of shallow cloning
        InstrumentShop ishop = new InstrumentShop();
        for (InstrumentItem Iobj: this.getInstrument()) {
            ishop.getInstrument().add(Iobj);
        }
        return ishop;
    }
}

```

## OUTPUT:

```

InstrumentShop [shopname=MusicGaze Instruments, instrument=[Instrument [Iid=1, Iname=Instrument1], Instrument [Iid=2, Iname=Instrument2], I
nstrument [Iid=3, Iname=Instrument3], Instrument [Iid=4, Iname=Instrument4], Instrument [Iid=5, Iname=Instrument5]]]
InstrumentShop [shopname=Saraswati Instruments, instrument=[Instrument [Iid=1, Iname=Instrument1], Instrument [Iid=3, Iname=Instrument3], I
nstrument [Iid=4, Iname=Instrument4], Instrument [Iid=5, Iname=Instrument5]]]
PS A:\CSE SEM 4\8. DP LAB\Class work\Prototype DP Jan 25>

```