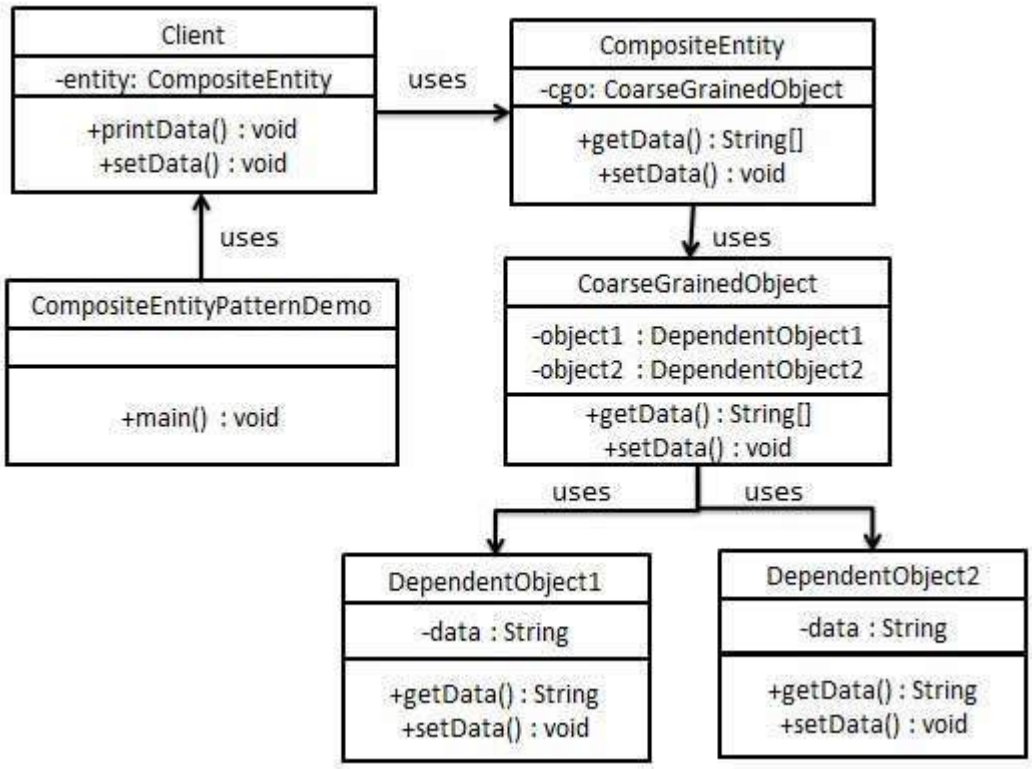
Design Patterns - Composite Entity Pattern

Composite Entity pattern is used in EJB persistence mechanism. A Composite entity is an EJB entity bean which represents a graph of objects. When a composite entity is updated, internally dependent objects beans get updated automatically as being managed by EJB entity bean. Following are the participants in Composite Entity Bean.

- **Composite Entity** - It is primary entity bean. It can be coarse grained or can contain a coarse grained object to be used for persistence purpose.
- **Coarse-Grained Object** - This object contains dependent objects. It has its own life cycle and also manages life cycle of dependent objects.
- **Dependent Object** - Dependent object is an object which depends on coarse grained object for its persistence lifecycle.
- **Strategies** - Strategies represents how to implement a Composite Entity.

Implementation

We are going to create *CompositeEntity* object acting as CompositeEntity. *CoarseGrainedObject* will be a class which contains dependent objects. *CompositeEntityPatternDemo*, our demo class will use *Client* class to demonstrate use of Composite Entity pattern.



Step 1

Create Dependent Objects.

DependentObject1.java

```
public class DependentObject1 {

   private String data;

   public void setData(String data){
      this.data = data;
   }

   public String getData(){
      return data;
   }
}
```

DependentObject2.java

```
public class DependentObject2 {

   private String data;

   public void setData(String data){
      this.data = data;
   }

   public String getData(){
      return data;
   }
}
```

Step 2

Create Coarse Grained Object.

CoarseGrainedObject.java

```
public class CoarseGrainedObject {
   DependentObject1 do1 = new DependentObject1();
   DependentObject2 do2 = new DependentObject2();

   public void setData(String data1, String data2){
      do1.setData(data1);
      do2.setData(data2);
```

```
   }

   public String[] getData(){
      return new String[] {do1.getData(),do2.getData()};
   }
}
```

Step 3

Create Composite Entity.

CompositeEntity.java

```
public class CompositeEntity {
   private CoarseGrainedObject cgo = new CoarseGrainedObject();

   public void setData(String data1, String data2){
      cgo.setData(data1, data2);
   }

   public String[] getData(){
      return cgo.getData();
   }
}
```

Step 4

Create Client class to use Composite Entity.

Client.java

```
public class Client {
   private CompositeEntity compositeEntity = new CompositeEntity();

   public void printData(){

      for (int i = 0; i < compositeEntity.getData().length; i++) {
         System.out.println("Data: " + compositeEntity.getData()[i]);
      }
   }

   public void setData(String data1, String data2){
      compositeEntity.setData(data1, data2);
   }
}
```

Step 5

Use the *Client* to demonstrate Composite Entity design pattern usage.

CompositeEntityPatternDemo.java

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

      Client client = new Client();
      client.setData("Test", "Data");
      client.printData();
      client.setData("Second Test", "Data1");
      client.printData();
   }
}
```

Step 6

Verify the output.

```
Data: Test
Data: Data
Data: Second Test
Data: Data1
```