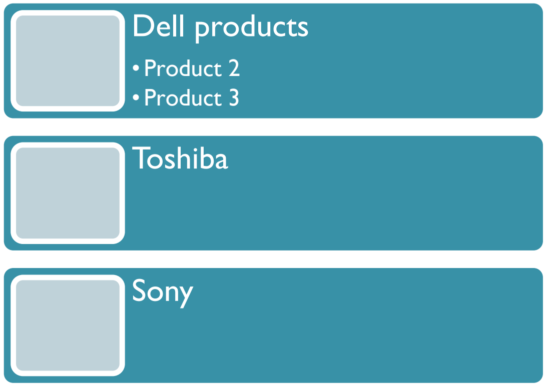
ISYG100 : Application Engineering and Development

Lab 4 : How to implement Multi-Party Relationships?

The problem

- Best Buy wants to build a web application to make it easy for their customers to browse and lean more about all their products

Combined product offerings



Dell products

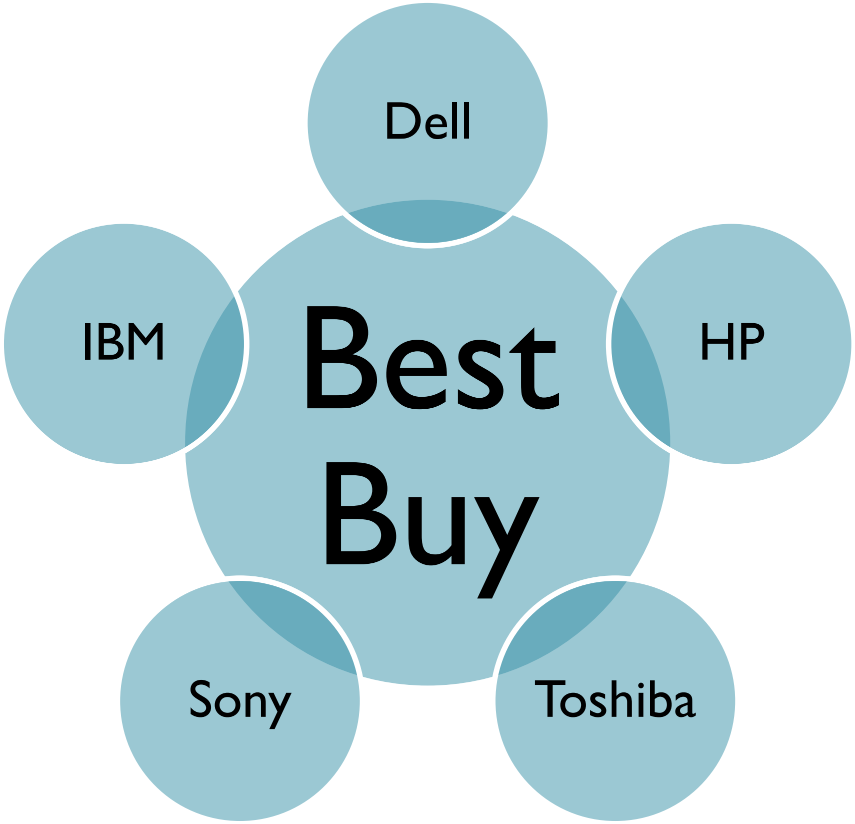
- Product 2
- Product 3

Toshiba

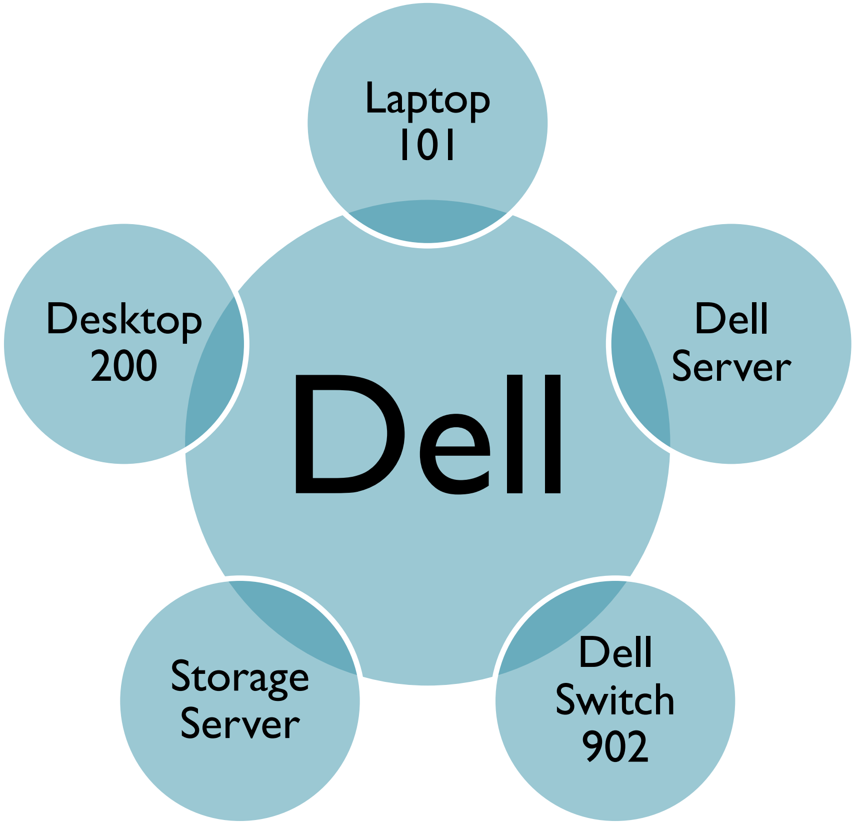
Sony

Who are the players?

Best Buy sells products from multiple suppliers

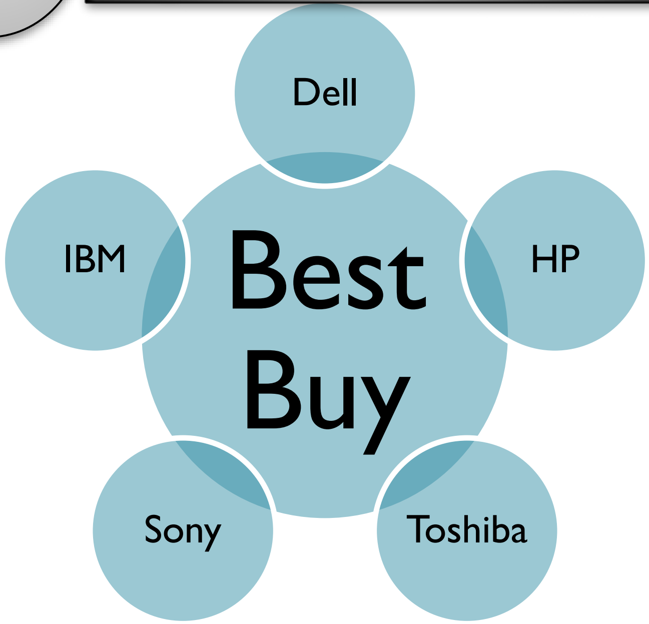


Best Buy wants each supplier to manage their own catalog of products



Best Buy will register each supplier first and from then on each supplier must keep its product catalog up to date.

1 Register Suppliers



Best Buy

Dell

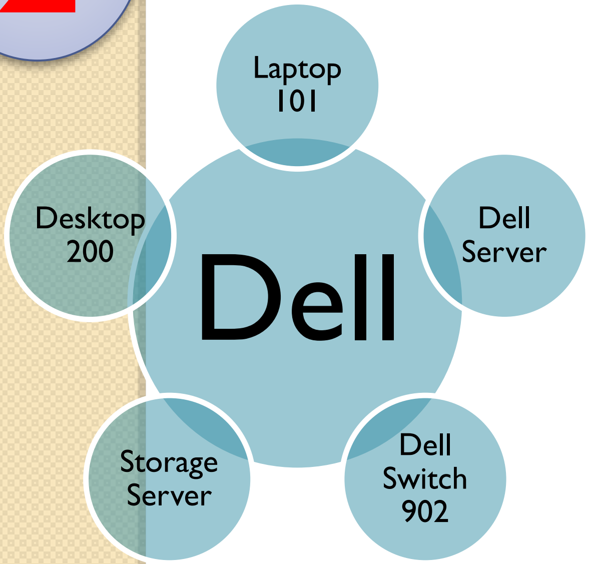
HP

Toshiba

Sony

IBM

2 Manage Own Product Catalog



Dell

Laptop 101

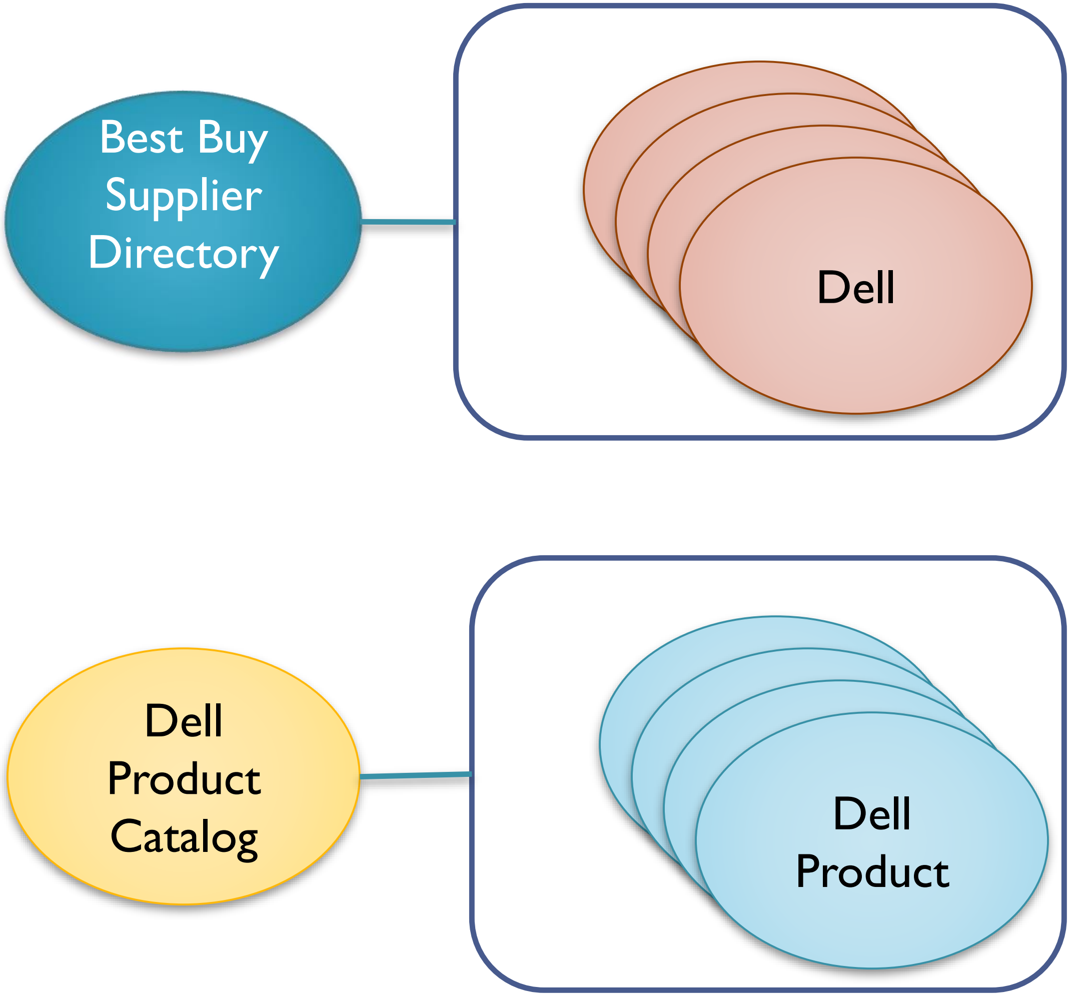
Dell Server

Dell Switch 902

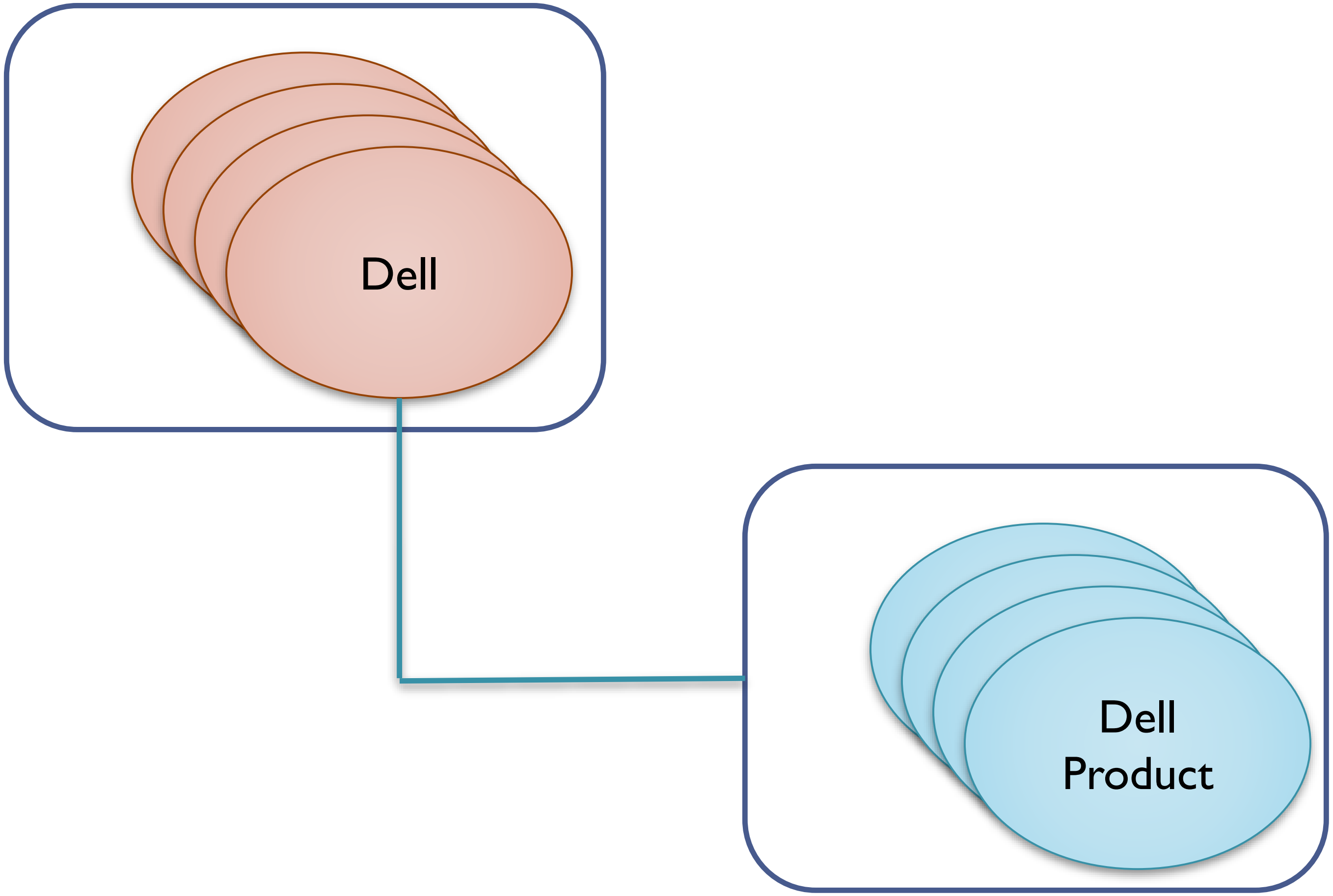
Storage Server

Desktop 200

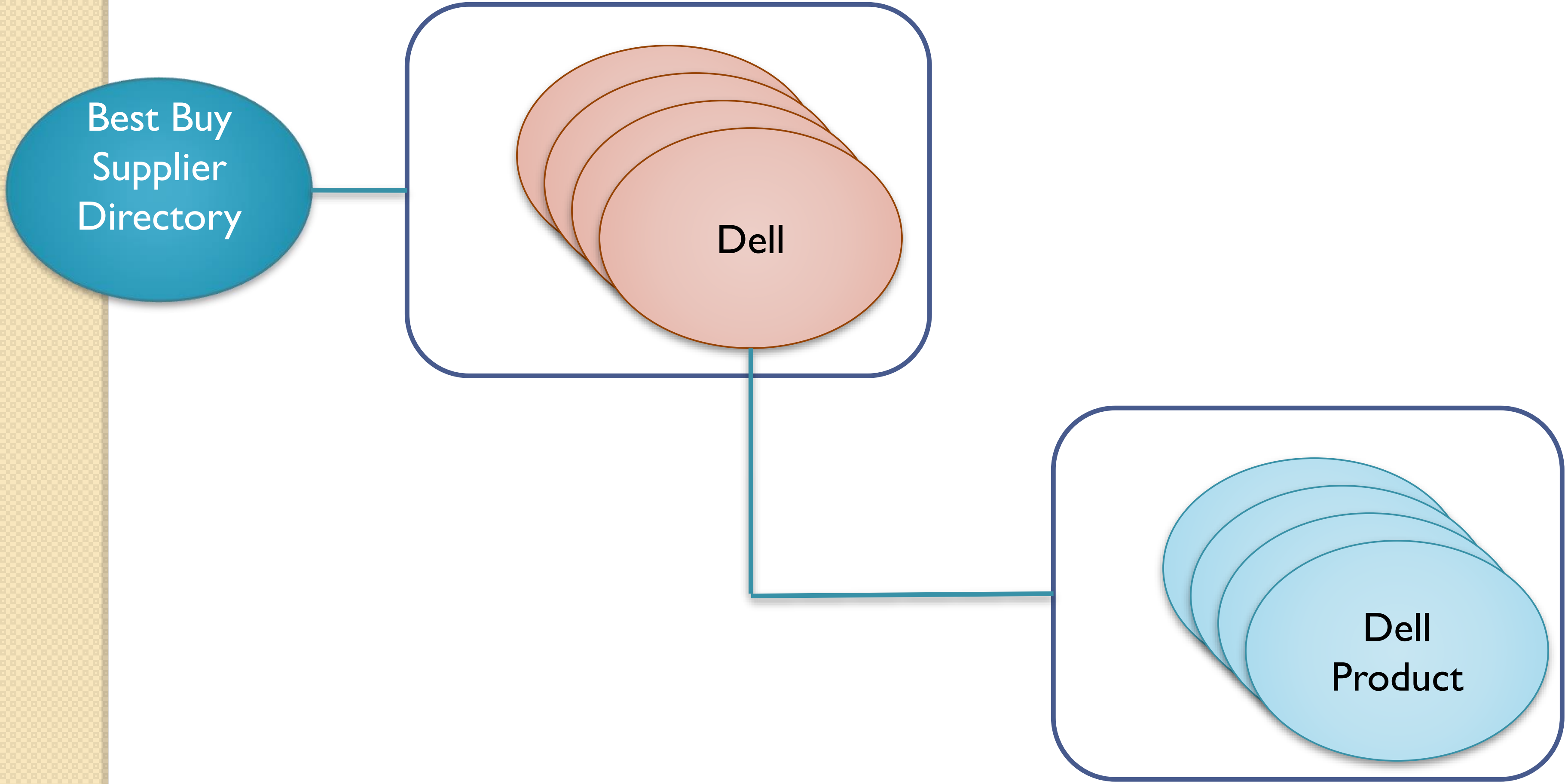
What do we know so far?



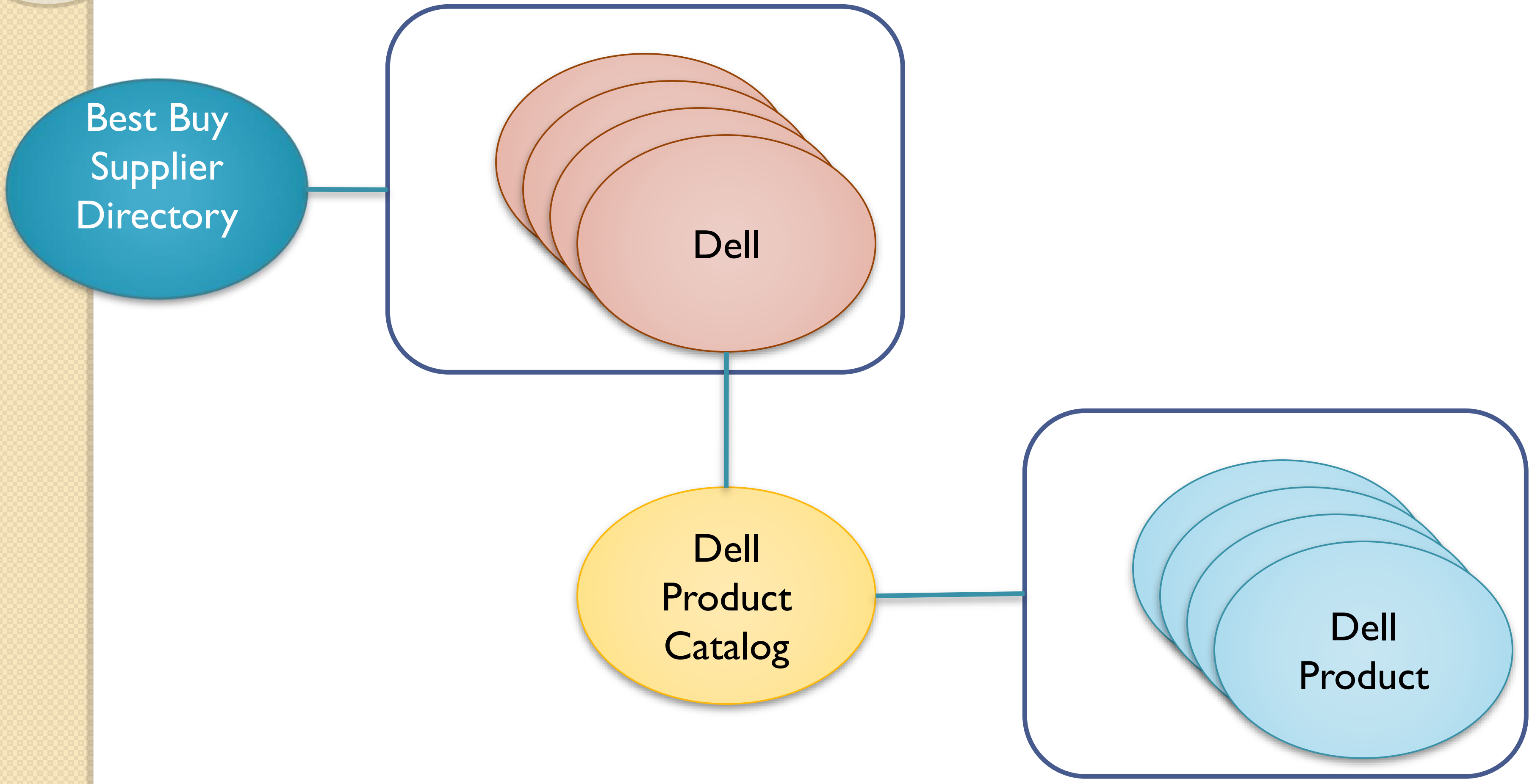
Each supplier offers many products



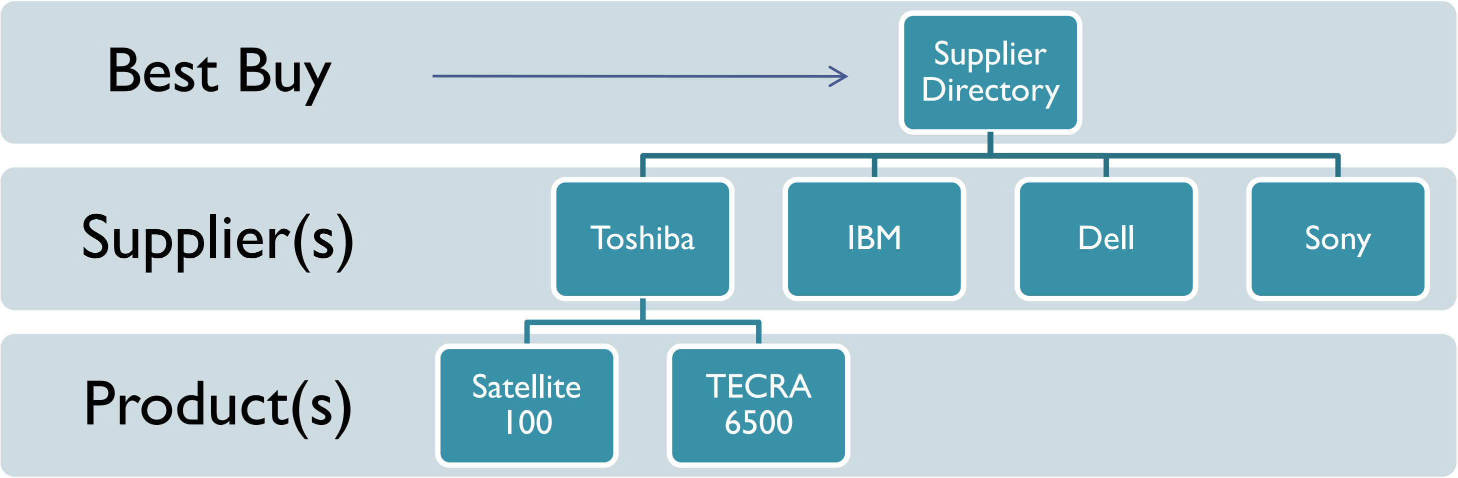
Best Buy has many suppliers
Each supplier offers many products



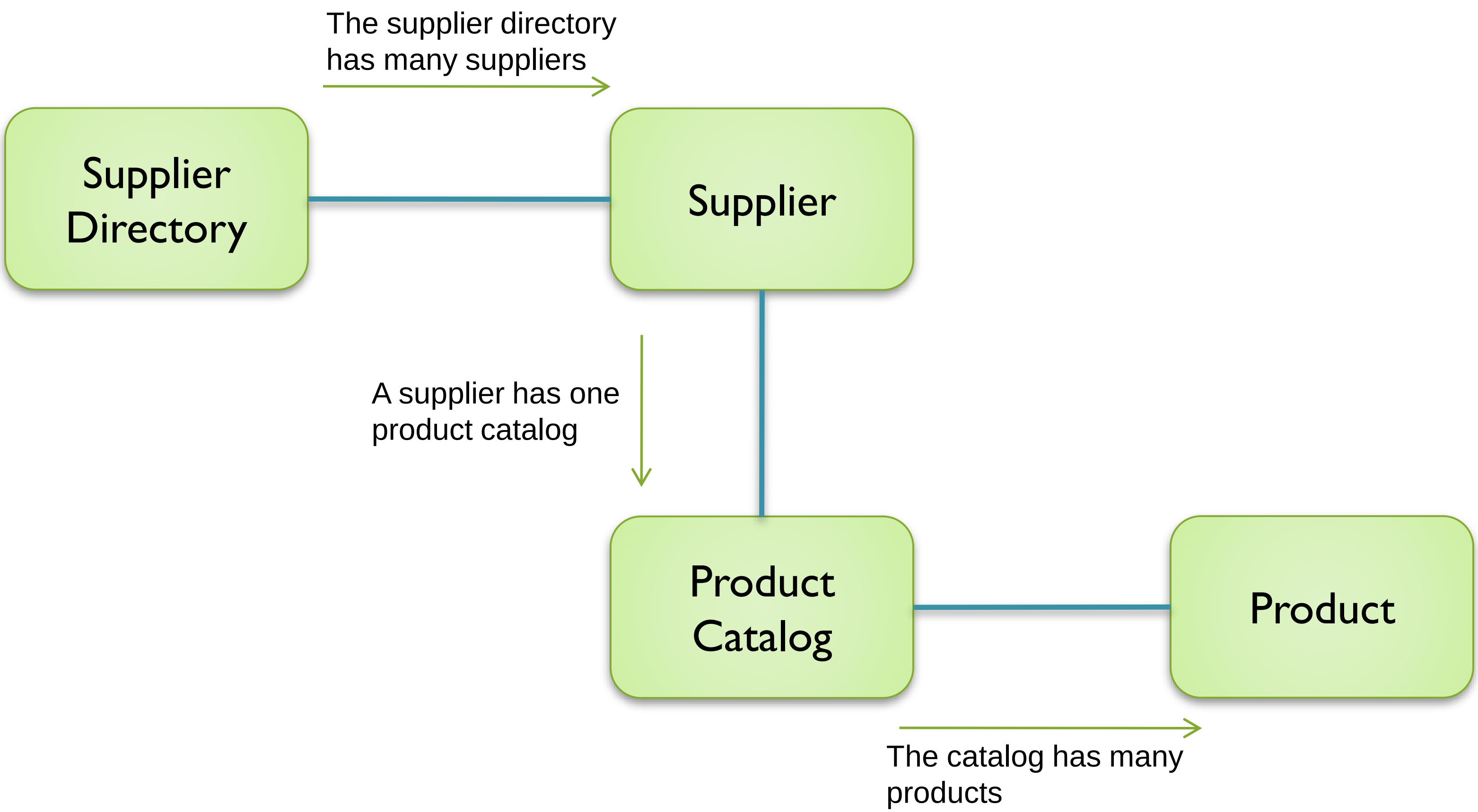
Suppliers represented as a directoy
Products represented as a catalog



Hierarchy Structure



The Business Model



Supplier Directory

Supplier

Product Catalog

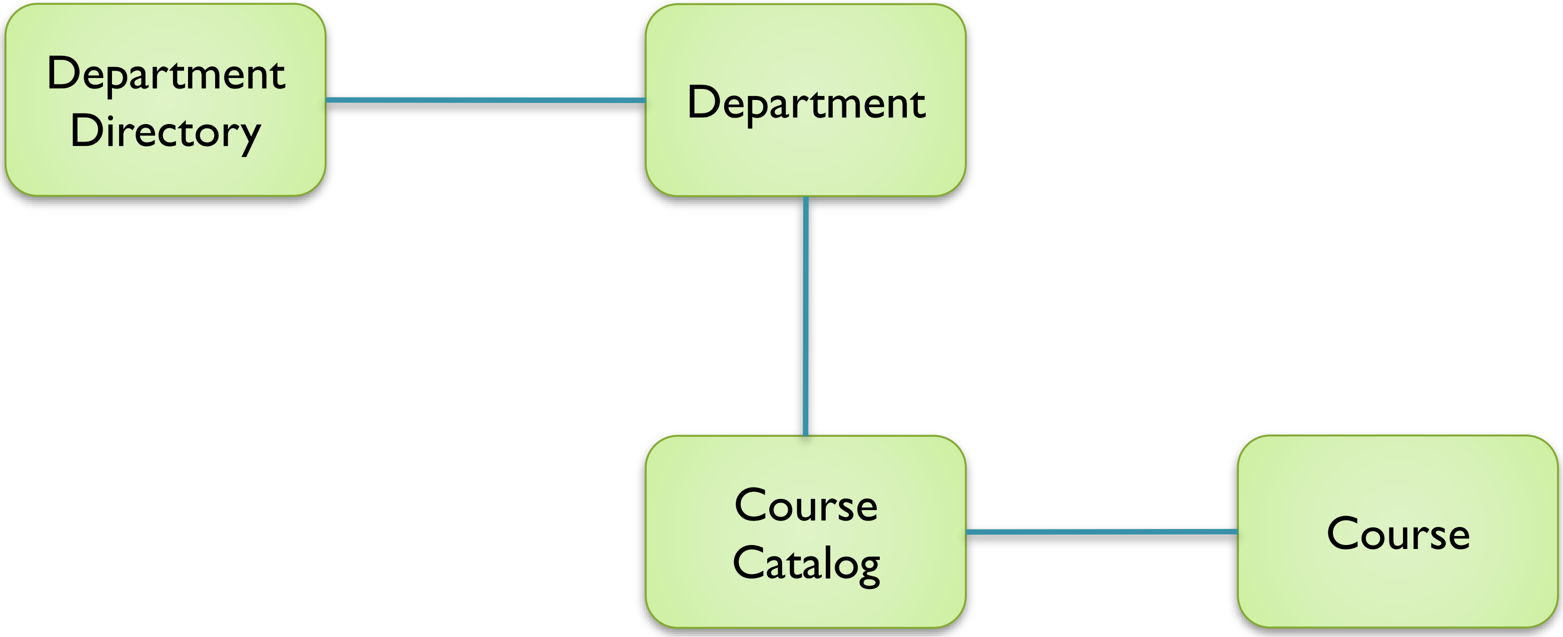
Product

The supplier directory has many suppliers

A supplier has one product catalog

The catalog has many products

Other patterns



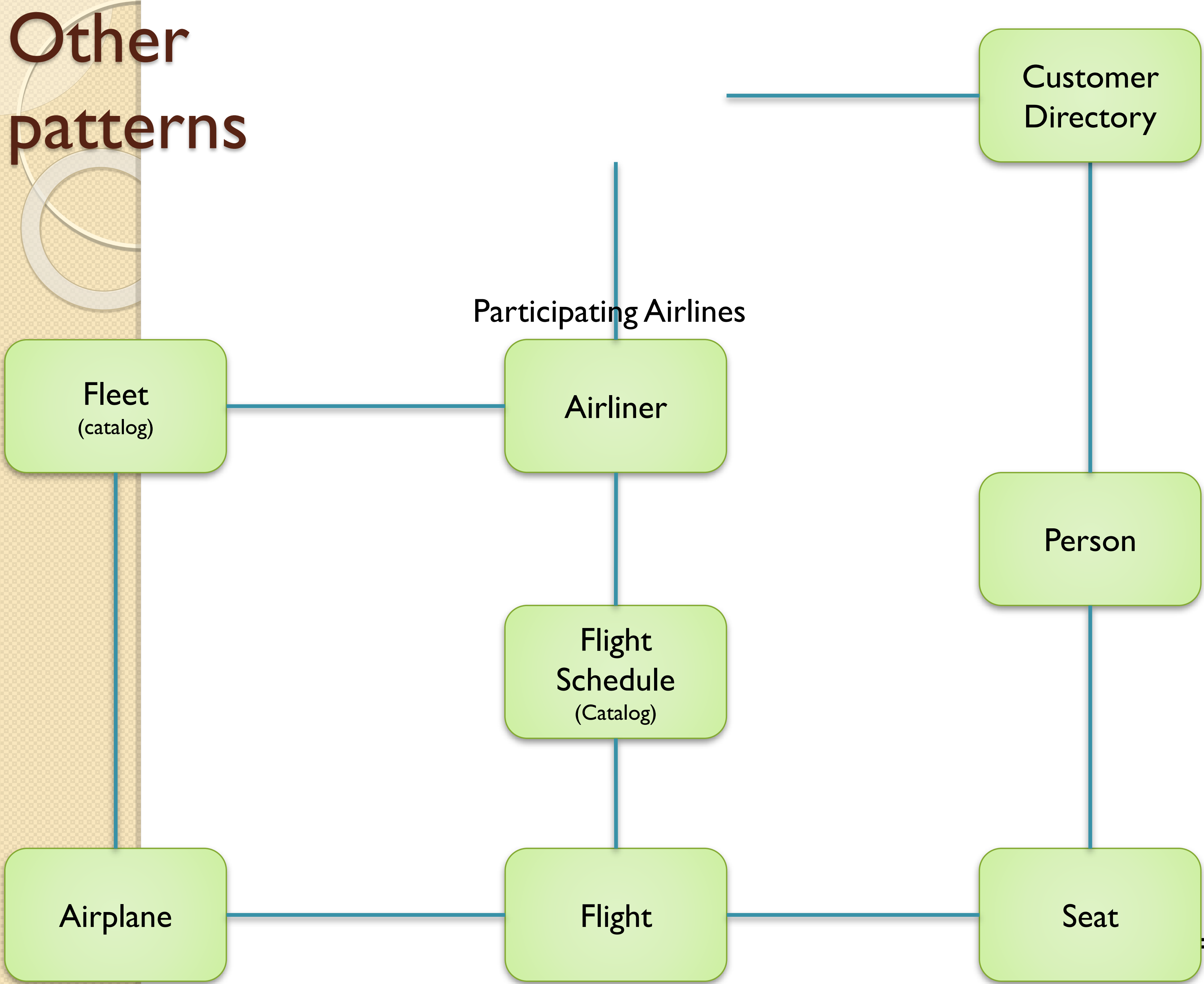
Department Directory

Department

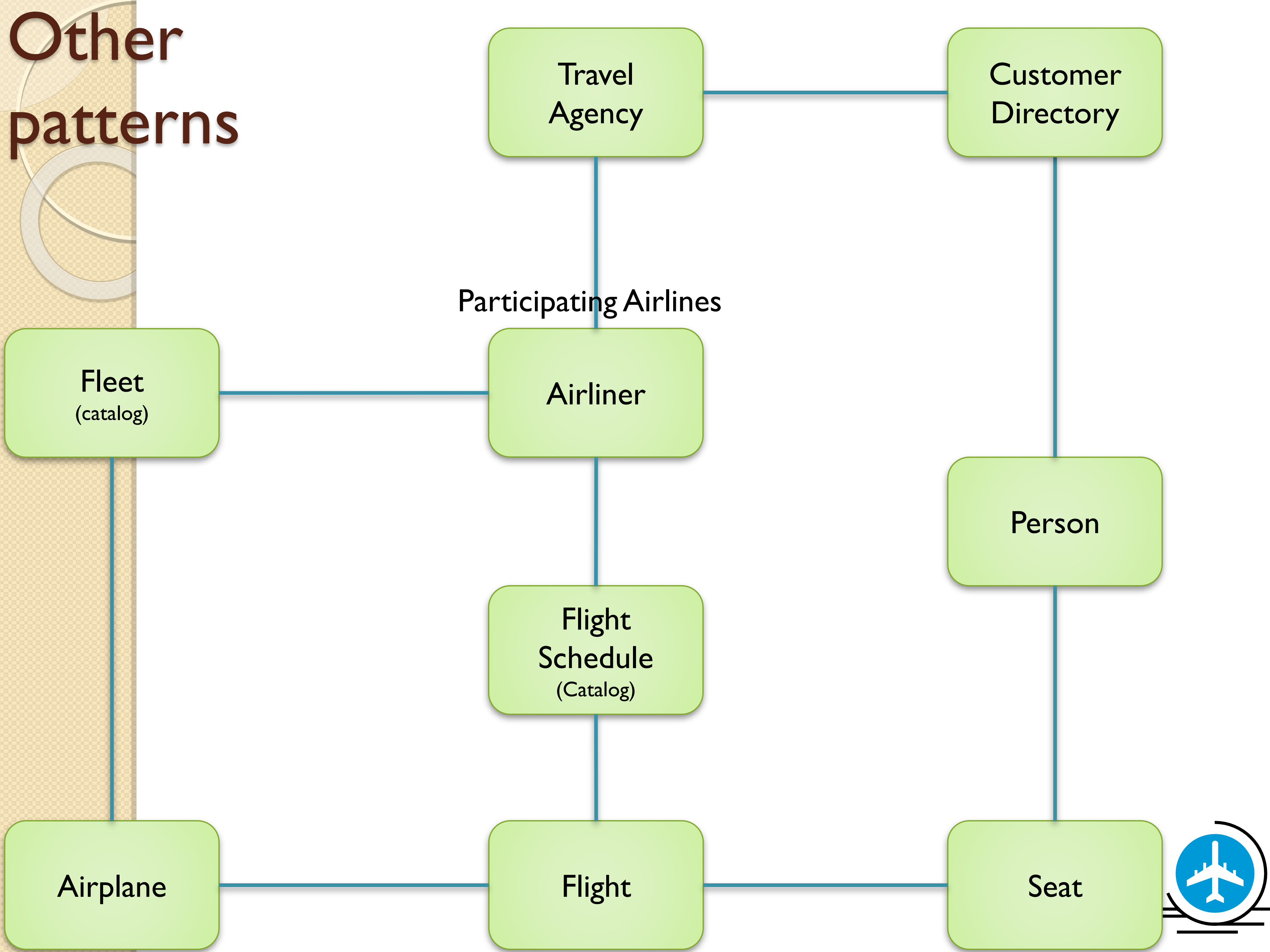
Course Catalog

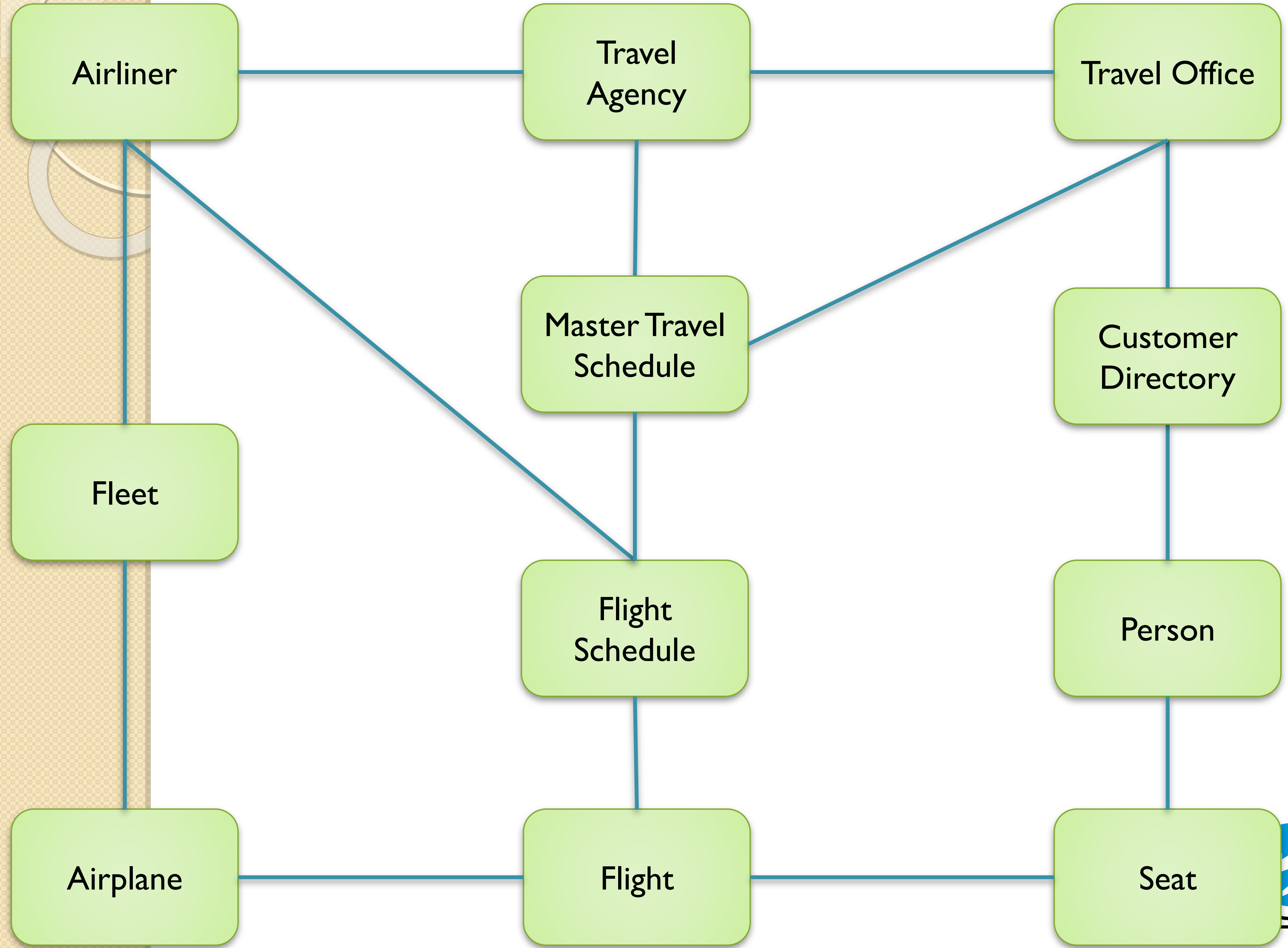
Course

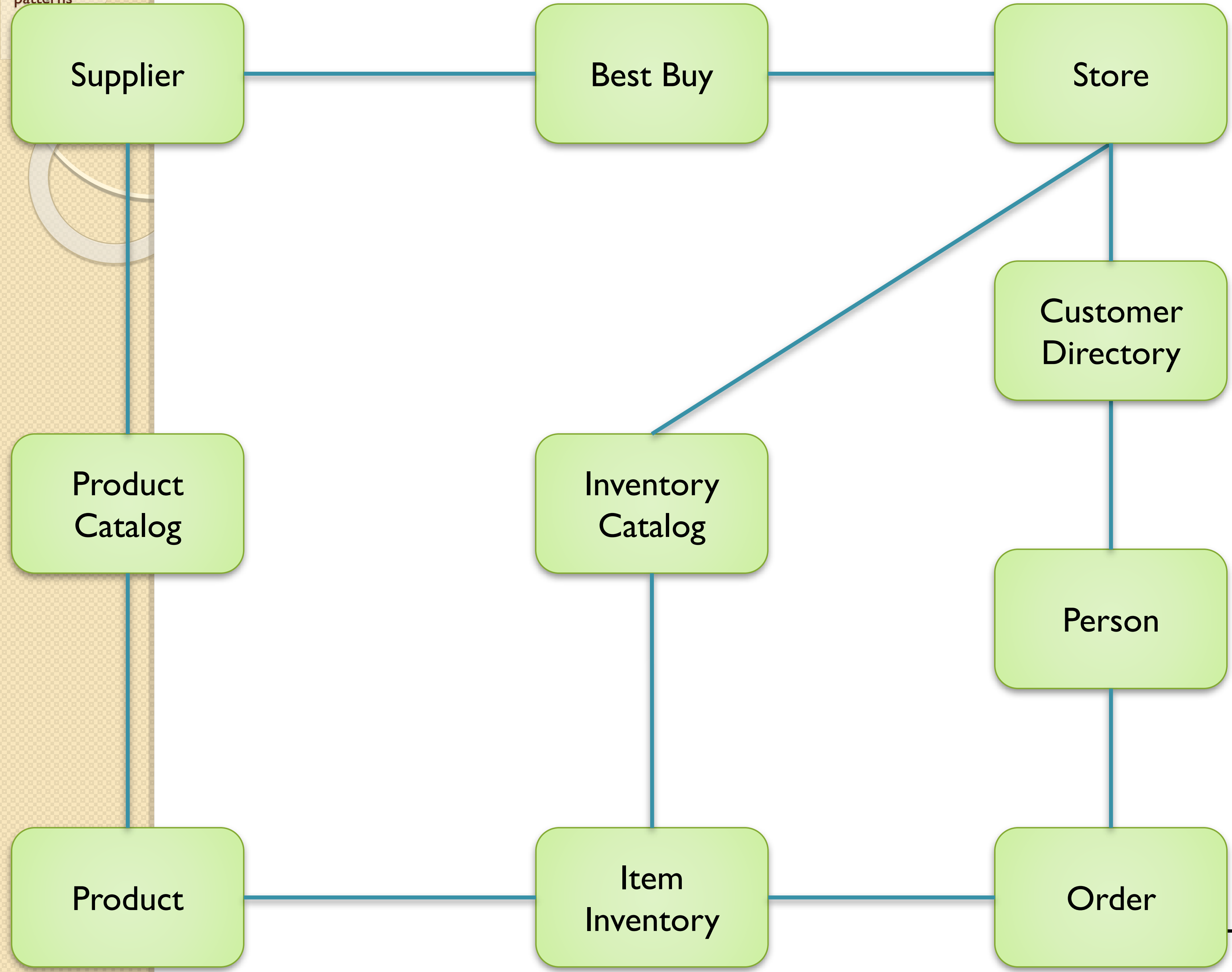
Other patterns



Other patterns




Airliner
Travel Agency
Travel Office
Master Travel Schedule
Customer Directory
Fleet
Flight Schedule
Person
Airplane
Flight
Seat


Supplier
Best Buy
Store
Customer Directory
Product Catalog
Inventory Catalog
Person
Product
Item Inventory
Order

- Crew
- Airplane crew
- Departure time
- Destination
- Next Maintenance date
- Model and serial numbers
- Seat status
- Find fight to location (e.g., london)
- Passenger Capacity
- Fuel Capacity
- Find cheap flight to London (on xmas eve please)
- Schedule a tour around the world (including a 2 day stop in Disneyland)
- From destination
- All the company’s airplanes that need maintenance soon
- Cancel my travel plan
- Who are the top 10 best travellers
- Create promotion for a exotics trip to South Africa

Java Implementation

Define Supplier Directory Class

under the Business.Supplier package

```
class SupplierDirectory{
private ArrayList<Supplier> supplierlist; // a
   reference varaible that keeps all
                                           // suppliers in one place
 public SupplierDirectory() {

        supplierlist = new ArrayList(); // make sure to
   create the arraylist and assign
                                                // it to the reference
   variable
                                                // the arraylist will be
   created immediately as
                                                // you create the
   supplier directory
```

Define Supplier Class

under the Business.Supplier package

```
class Supplier{
Private ProductCatalog  productcatalog; // a
   reference variable that keeps track
                                                      // of the product catalog
   object

public Supplier () {



          productcatalog = new ProductCatalog() ;
// make sure to create the productcatalog object and save it in the
   productcatalog reference variable
}


}
```

Define ProductCatalog Class

under the Business.Supplier.ProductCatalog package

```
class ProductCatalog{
private ArrayList<Product> productlist; // a
   reference variable that keeps track
                                              // of the products in one
   place

public ProductCatalog() {


          productlist = new ArrayList();
}


}
```

Approach

1. Manage a supplier database
   - Add a supplier
   - Update a supplier
   - Remove/Disable a supplier
2. Manage product catalog
   - Add product
   - Remove product
   - Update a product

Manage Suppliers Use Case

- System displays admin work area identifying the admin name
- System offers two options: view or browse supplier directory
- User chooses to view or browse supplier directory
- System displays supplier directory
- User chooses to:
  - Add a supplier and returns to previous screen
  - To view a supplier in detail
    - Upon viewing a supplier, the user might choose to update the supplier information

Supplier Use Case

- Supplier logs in using supplier name
- System checks if the supplier is valid and if successful displays supplier work area identifying the supplier name
- Supplier chooses to view or browse product catalog
- System displays product catalog
- User chooses to:
  - Adds a product and returns to previous screen
    - User adds a product and returns to previous screen
  - To view a product in detail
    - Upon viewing a product, the user might choose to update it

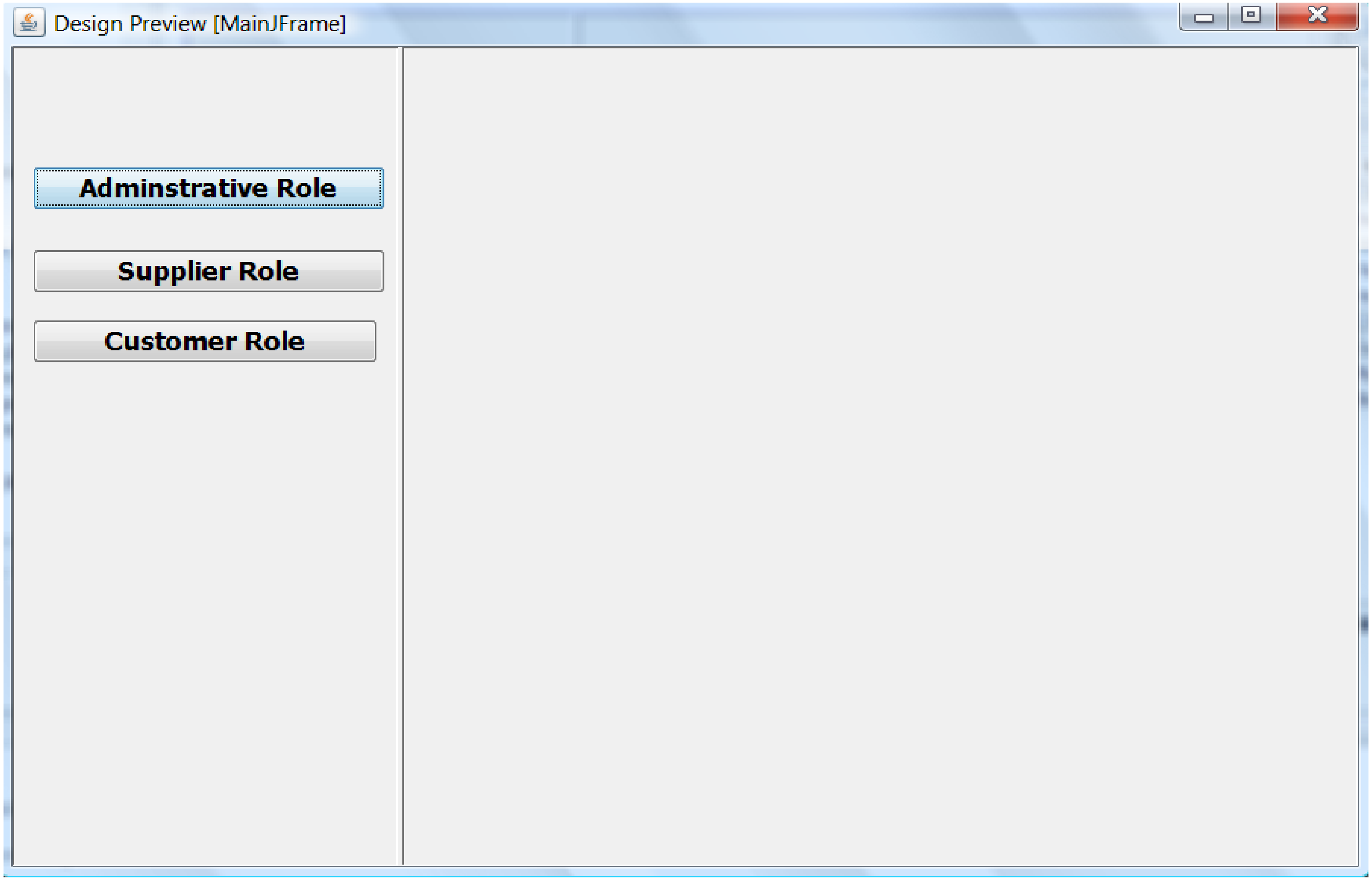
Define MainJFrame Class

under the userinterface package

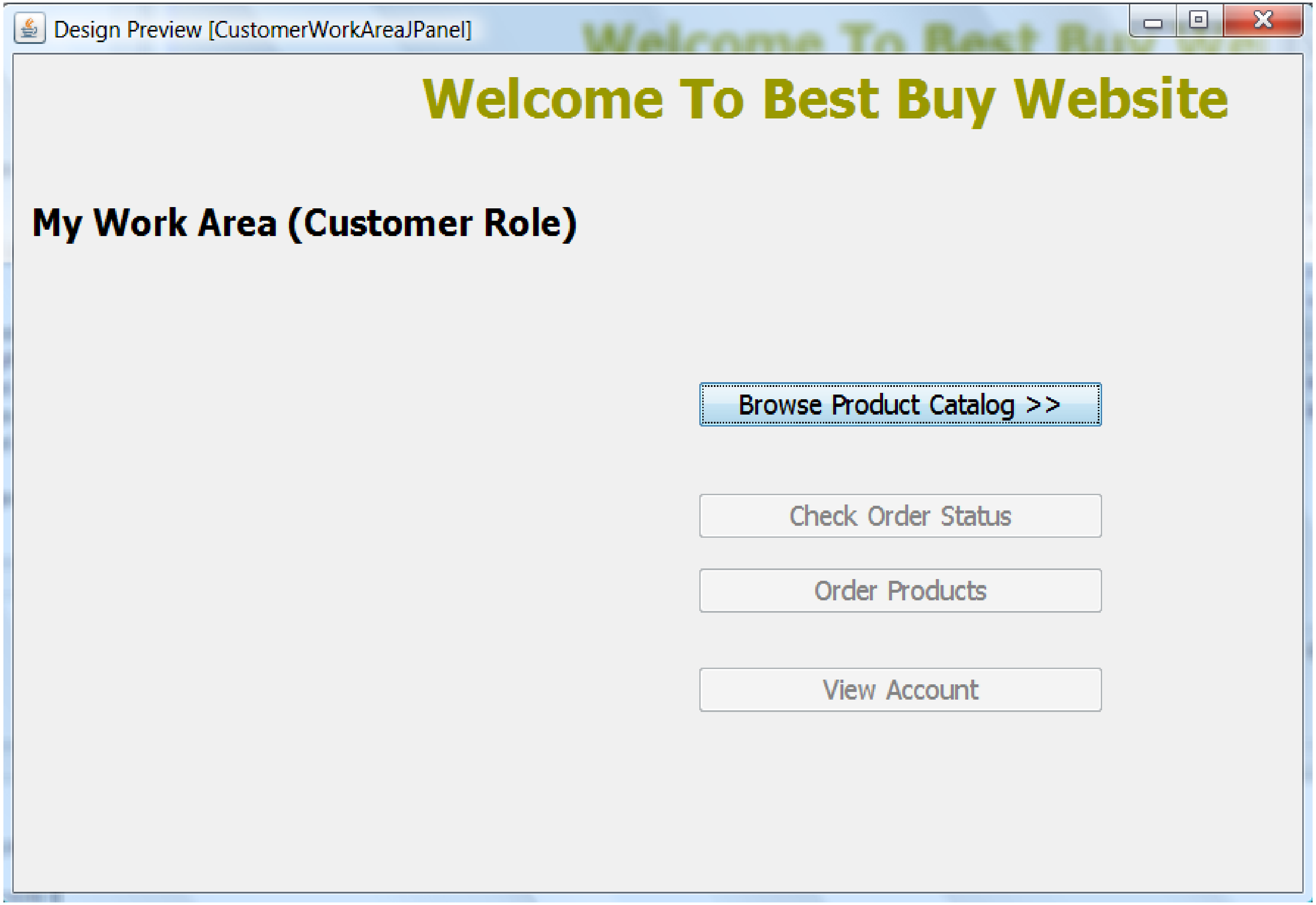
Create a global variable of product for this class

```
class MainJFrame {
private SupplierDirectory supplierdirectory; //
   Global Variable

 public MainJFrame() {

        initComponents();
         supplierdirectory = new
   SupplierDirectory();
}
```

Input: SupplierDirectory



Input: SupplierDirectory



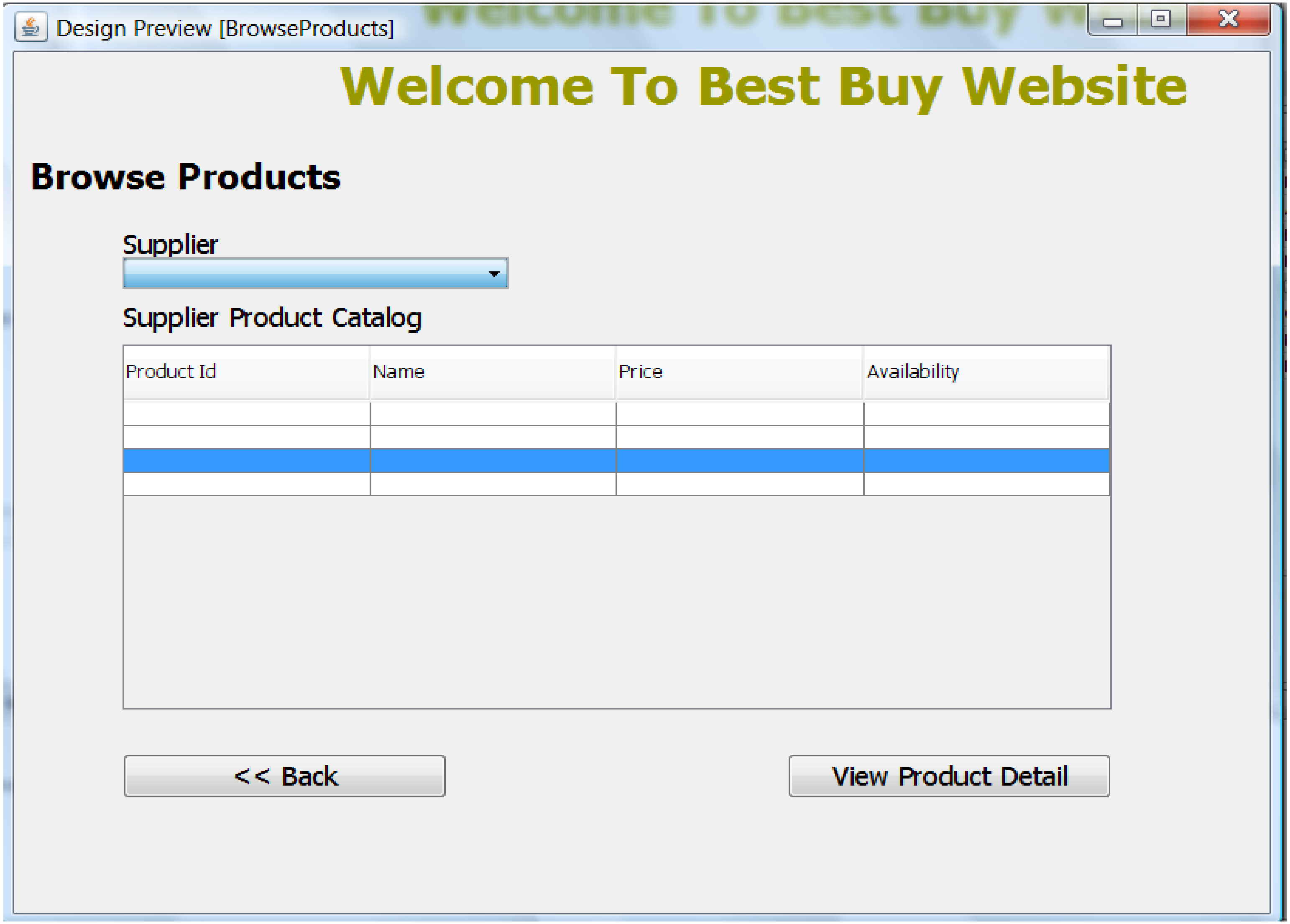
Design Preview [CustomerWorkAreaJPanel]

Welcome To Best Buy Website

My Work Area (Customer Role)

Browse Product Catalog >>
Check Order Status
Order Products
View Account

Input: SupplierDirectory



Design Preview [BrowseProducts]

Welcome To Best Buy Website

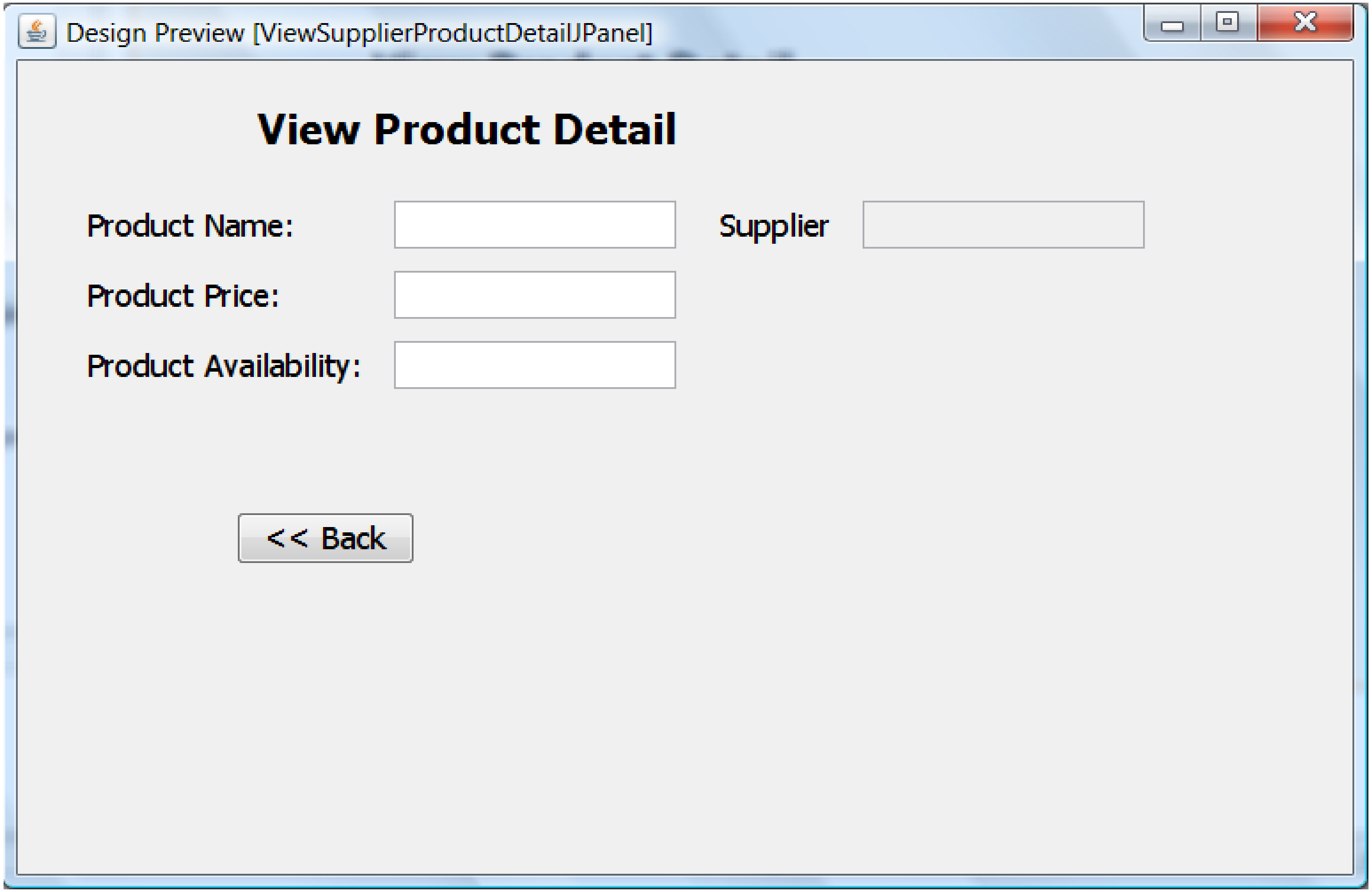
Browse Products

Supplier

Supplier Product Catalog

Product Id	Name	Price	Availability

What is the input to this screen?



Design Preview [ViewSupplierProductDetailJPanel]

View Product Detail

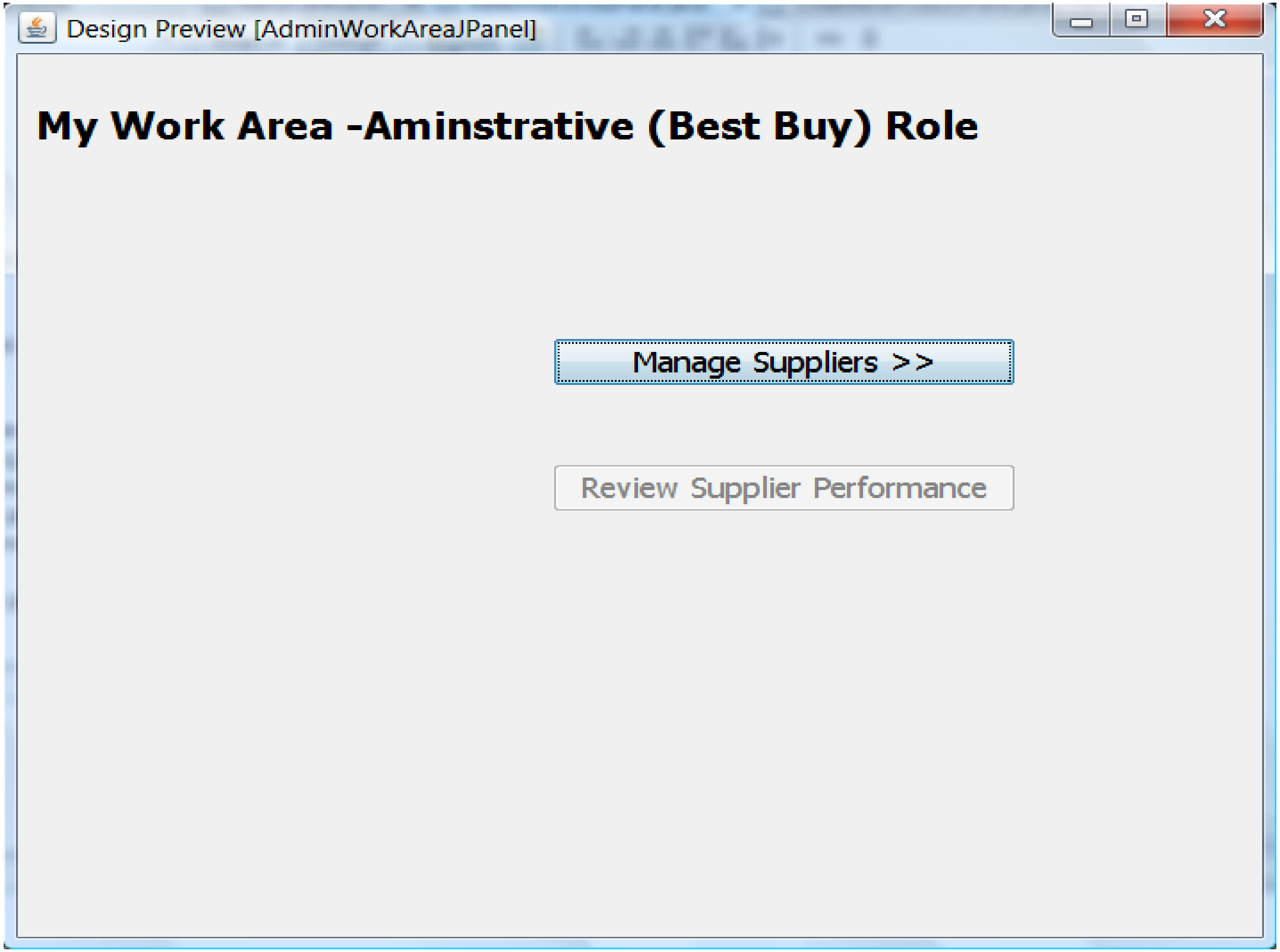
Product Name:

Supplier

Product Price:

Product Availability:

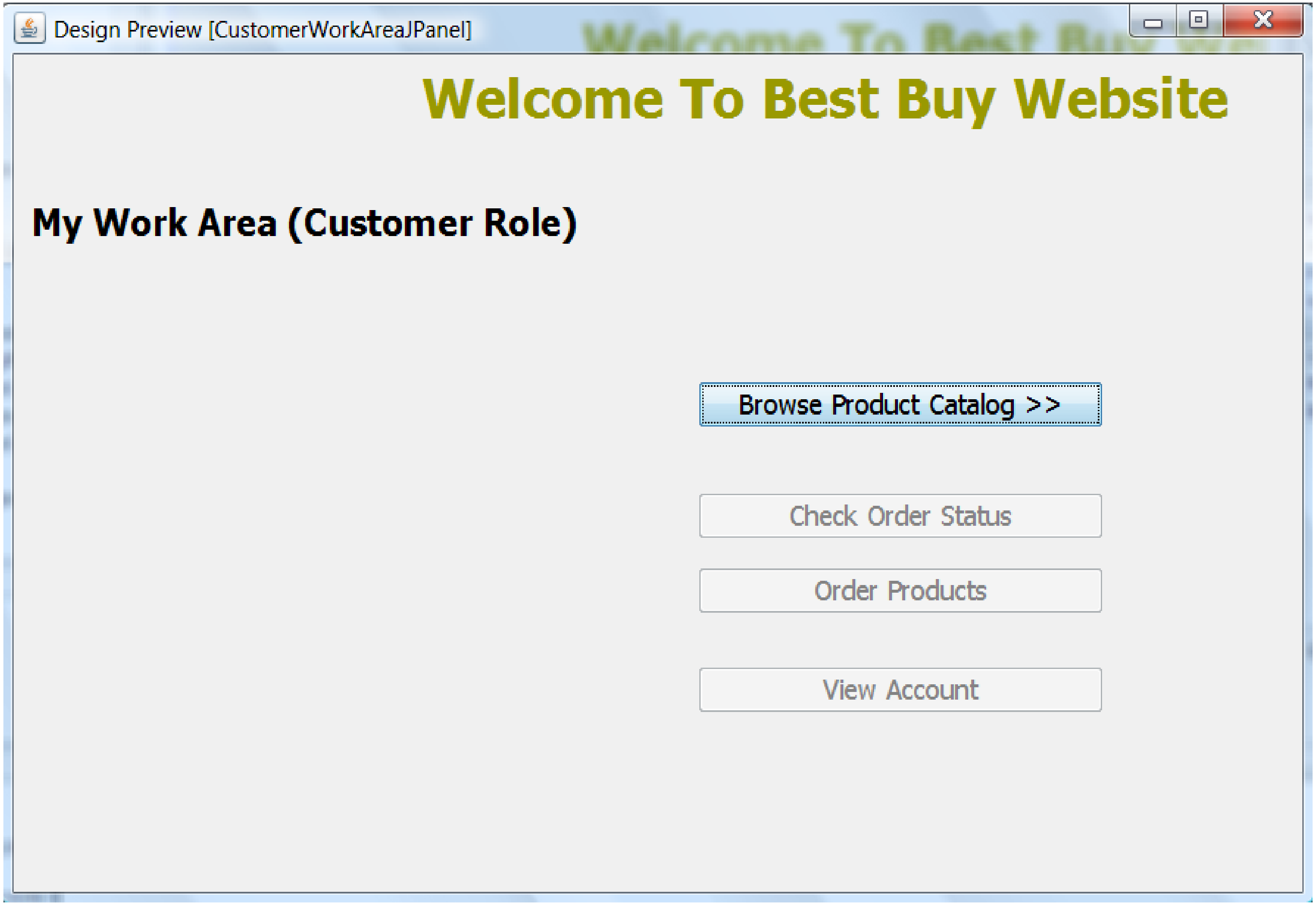
Input: SupplierDirectory



Design Preview [AdminWorkAreaJPanel]

My Work Area -Aminstrative (Best Buy) Role

Input: SupplierDirectory

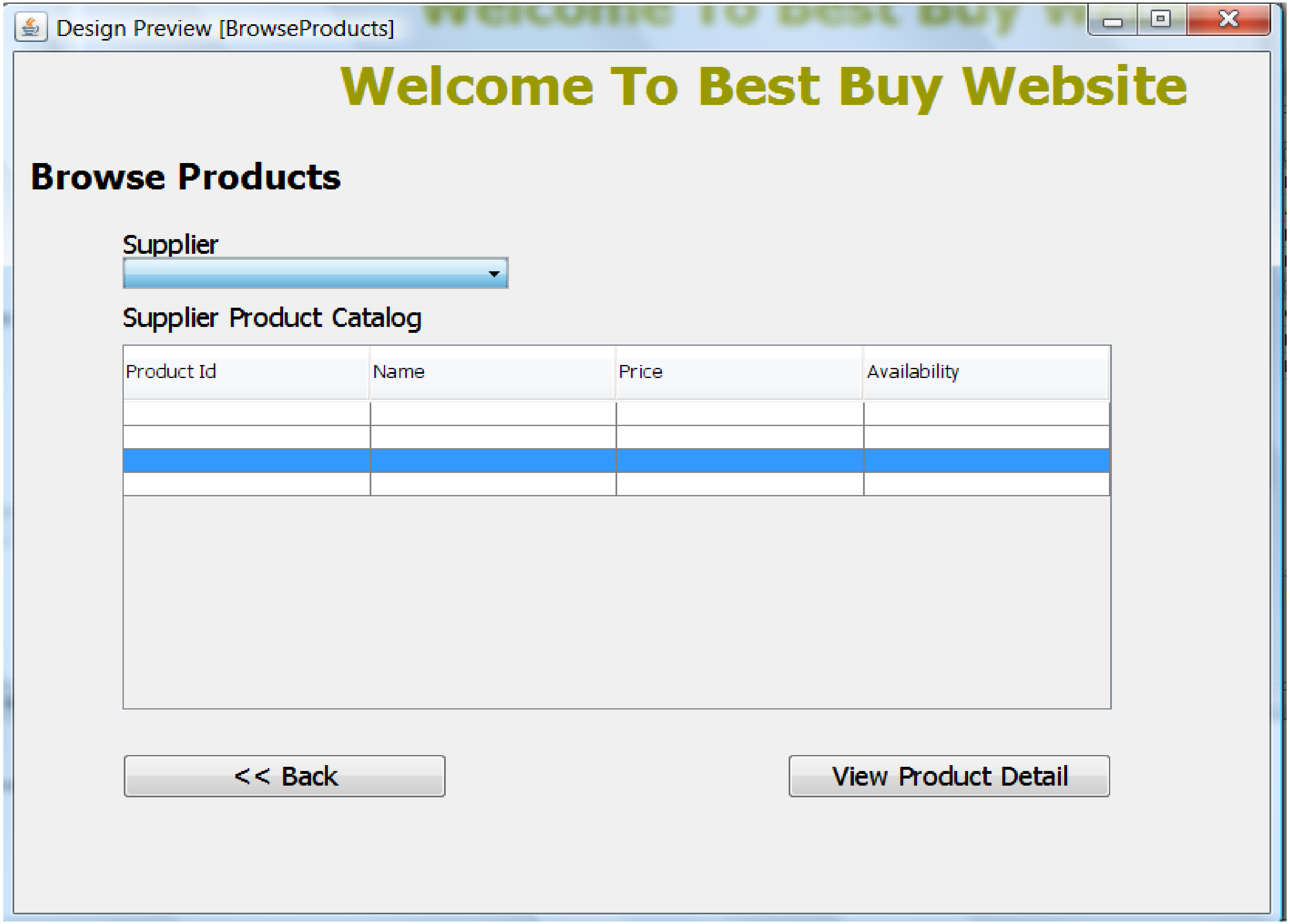


Design Preview [CustomerWorkAreaJPanel]

Welcome To Best Buy Website

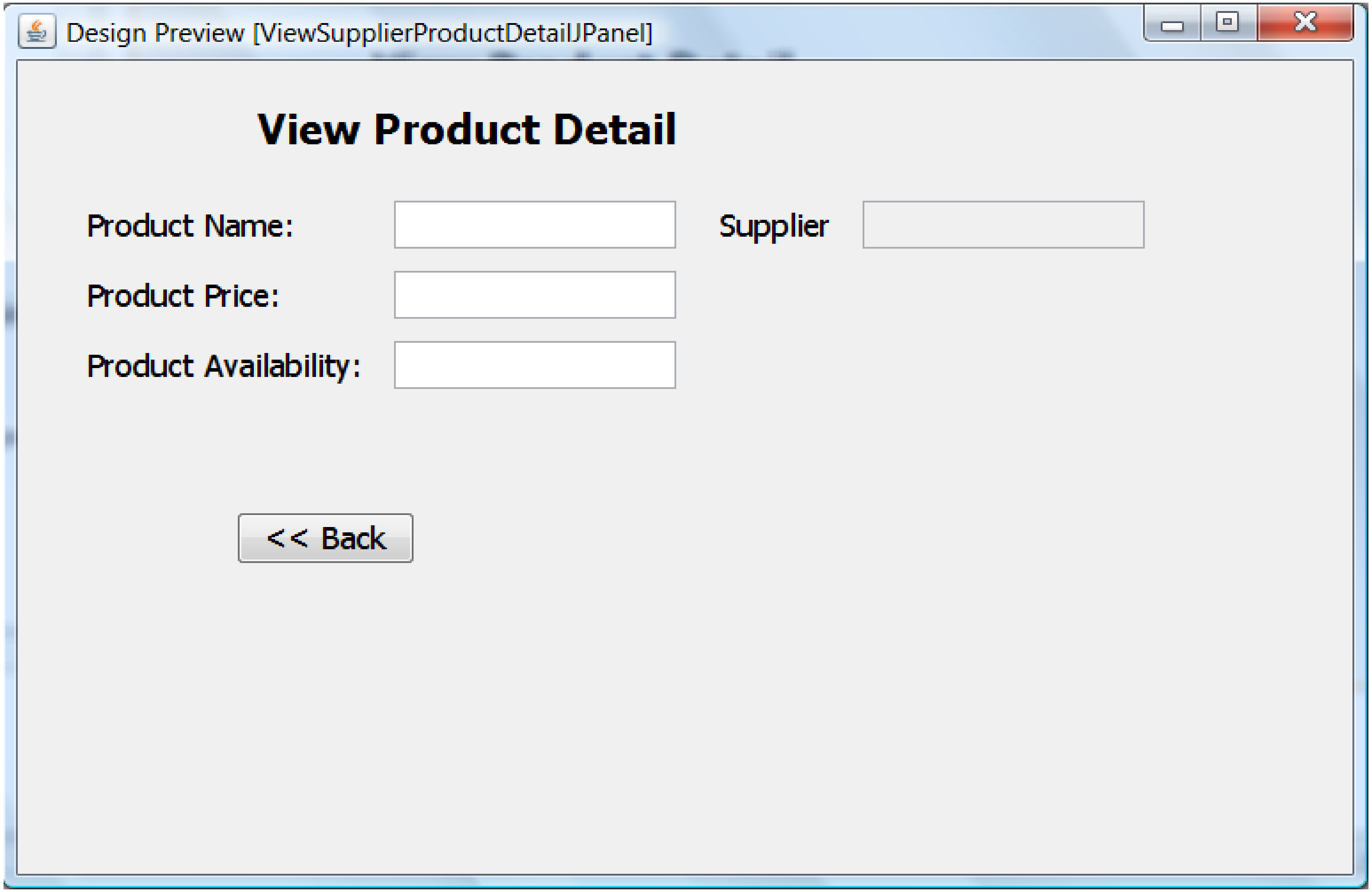
My Work Area (Customer Role)

Input: SupplierDirectory



Product Id	Name	Price	Availability

What is the input to this screen?



Design Preview [ViewSupplierProductDetailJPanel]

View Product Detail

Product Name:		Supplier	
Product Price:			
Product Availability:			