

# Composition with Components

The spirit of web components is to allow encapsulation so that our site is easier to maintain and easier to extend. And we have the opportunity to do that right now. If you look at the main page you'll see a link for "Ship Orders" but on our main page, we already have a list of orders to ship. Aha! We have an opportunity for re-use!

1. Open a command window and use the Angular CLI to generate a new component called `ListOrders`. It should exist in the shipping folder. (Hint: use the `--flat` flag and specify the folder as part of the name ie. `shipping/ListOrders`)
2. Edit `Dashboard.component.html` and add a tag to show the list-of-orders component.
3. Run and test. If you can see your new component hosted inside the dashboard, you've just implemented composition.
4. Now edit `dashboard.component.html` and find the the html that creates the list of orders. Cut it from there and paste it into your new `list-of-orders.component.html`.
5. Run and test. You won't see any orders lists because the "orders" property is defined in `DashboardComponent` but is trying to be displayed in `ListOrders`. We need to pass those orders into the `ListOrders` component. Let's do that in the next few steps. Read on!

## Property binding between components

6. Open `ListOrders` and create a new property called `orders`. Mark it with an `@Input` annotation. (Hint: In order for this to work, you're going to have to import `Input` from `@angular/core`).
7. Now to pass it in the HTML. Open `dashboard.component.html`. Find where you've included the tag to list-of-orders. Add this property binding to it:  

```
[orders]="orders"
```

This says to take the `orders` property from the host component and pass it down into the inner component as `orders`. (They happen to have the same name but they could be different if you prefer).
8. Run and test again. You should see the list in your dashboard again.

Cool. What we've done will make our app more modular and easier to understand. But we now have an opportunity for re-use.

## Reusing a component

Notice that the `AppComponent` has a menu choice at the top called "Ship Order", We really want to have that menu choice bring up a list of orders that are ready to ship and then allow the user to click on one to see the details for that one order. Hey! That's like `ListOrders`. Let's reuse it.

9. Add a nice header to your `OrdersToShip` component and a paragraph telling the user to click on one of the orders to see its detail. The message and layout are up to you.
10. Look in the `DashboardComponent.ts` and copy the creation of this `orders` to `OrdersToShipComponent.ts`.
11. Edit `orders-to-ship.component.html` and add a tag to display the list-of-orders component. (Hint: Don't forget your property binding.)
12. Run and test. Once the list of orders is available, you've successfully used and re-used a component.
13. Bonus! Look in `setup/assets/html` for a file called `list-of-orders.css`. This file has styles for your new component. Copy it and make it work.