# Angular Best Friends

## Module 3 Demo 3 – Reference types and value types

## Goals

To understand how value types and reference types behave when passed through Input properties and updated through output properties

## Steps

1. Go to the “demos” folder and then to the “module3demo3” folder. Open the “initial” folder in Visual studio Code
2. If for the first time, run **npm install** to install necessary node modules.
3. Serve the application with **ng server –open**
4. Go to the “Components” tab. Click a customer and you’ll notice that the customer’s details are displayed on the right. This is done with the container presentation pattern so everything is sent to the child component via an input property. Briefly explain this concepts by showing how information changes based on the customer you click on.
5. Go to the “Communication” menu item. Here when we click the button to add a customer, a new customer should be added to the array. However, nothing happens in the UI when we do this. Why? Briefly introduce the idea of reference types.
6. Then show some code. Go to the “communication” folder. There show that we have one module with the corresponding routing module, a container component and two presentation components.
7. Show that when you click the button the *addCustomerPush()* function is called. In this method we call the data service which should add a customer.
8. Briefly show the dataservice method *addCustomer()* and explain what it should do.
9. Explain why this doesn’t change => we added a new item, but the array is a reference type. So the reference doesn’t change.