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## Practical 5: Implement 3-Tier Web Application (Part 2)

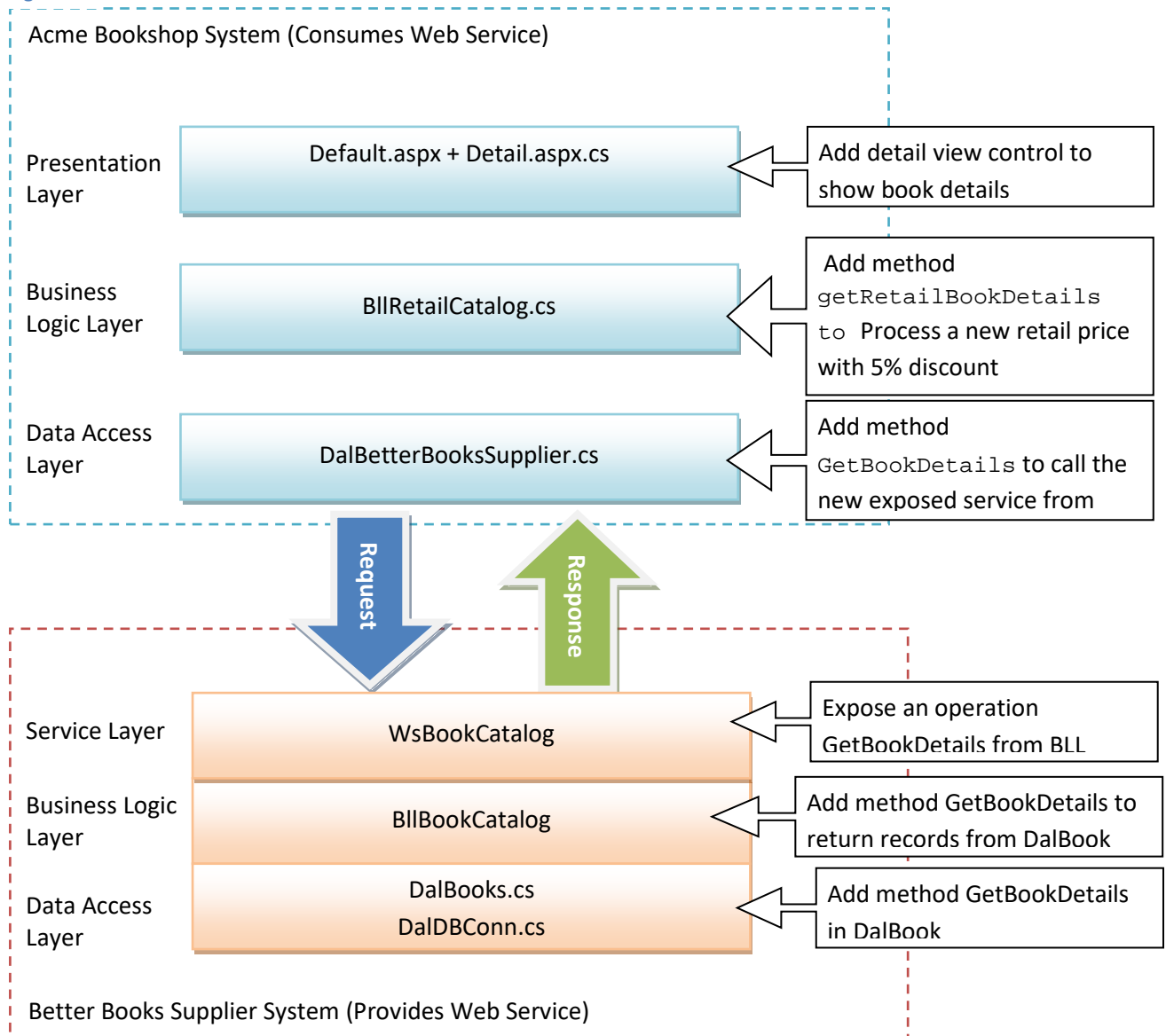
### Objectives

- Reinforce the 3 tiers architecture development
- Create new class to return detail product information from web service

### Scenario :

Continue from the last practical by extending additional services to BBS customers. Exercise 1 requires you to expose an additional operation to retrieve product information by book id. Base on the architecture, it is necessary to code addition methods in the existing layer as shown in the arrow box.

Figure 1



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**Exercise 1 : Modify the Web Service to expose operation to retrieve detail product**

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1. Download and unzip IT2605 Prac05 Resource from *blackboard module content*.
2. Open the Better Book Supplier project by double-clicking on the *IT2605Prac05\_BBS.sln* file
3. Open **DalBooks.cs**. Write a new method GetBookDetails, add code to retrieve the book information by a given book id.

**Figure 2**

```
public DataSet GetBookDetails(int bookId)
{
}
```

**Hint:** This method is similar to GetAll(), copy the code from GetAll() to this method, then make additional changes to

- Add a where clause in the SQL Select Query to retrieve record by parameter.
  - Add code to assign SQL parameter from the input argument of this method.
4. Open **BLLBookCatalog.cs**. Write a new method to GetBookDetails, add code to call the book GetBookDetails in DalBooks.cs by a given book id.

**Figure 3**

```
public DataSet GetBookDetails(int bookId)
{
}
```

Refer to the *GetBooks* in BLLBookCatalog.cs , you can easily do it yourself.

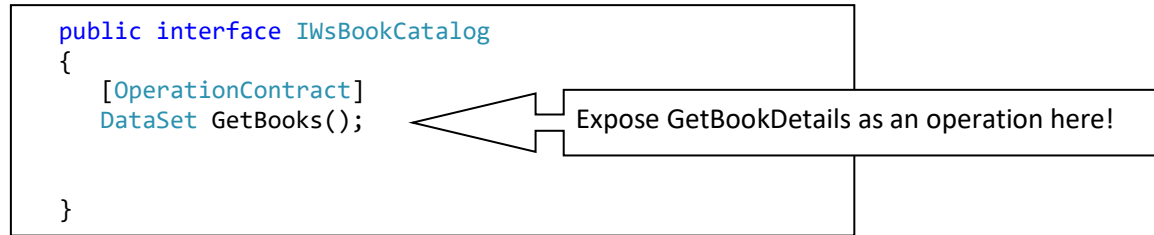
5. Open **WsBookCatalog.svc.cs**. Copy the existing GetBooks method in this class to this method. Change the code to call GetBookDetails from business layer.

**Figure 4**

```
public DataSet GetBookDetails(int bookId)
{
}
```

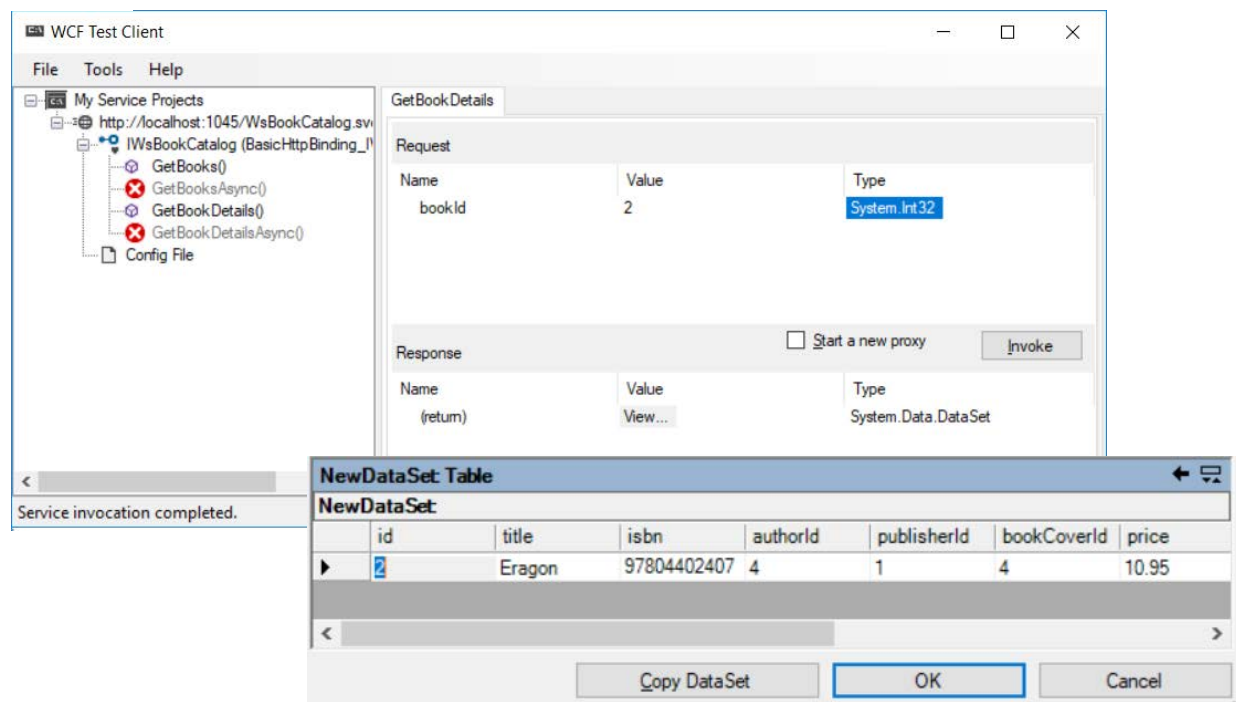
6. Open *IWsBookCatalog.cs*. Expose GetBookDetails as a new operation.

Figure 5



7. You have completed the coding for the new GetBookDetails operation, press F5 to run, you should obtain the result as in Figure 6.

Figure 6




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**Exercise 2 : Create DetailView To Consume GetBookDetails Operation**

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1. Open the ACME BookShop project by double-clicking on the *IT2605Prac05\_ACME.sln* file from last week practical.
2. You are going to add a detail view control to the existing Default.aspx page and bind the control to the new operation GetBookDetails from Better Book Supplier Web Service.
3. **Right click the service reference *SvcRefBetterBookSupplier* and click Update Service Reference.**  
Make sure the Web Service from Exercise 1 is running
4. Open ***DalBetterBookSupplier*** in *DAL* folder. Refer to figure 1 on changes required in ACME. This time you need to add new method GetBookDetails. Complete the following code to consume new operation in BBS web service.

**Figure 7**

```
public DataSet GetBookDetails(int bookId)
{
    WsBookCatalogClient betterBookSupplierClient;
    betterBookSupplierClient = new WsBookCatalogClient();
    return betterBookSupplierClient. 
}
```

5. Open ***BllRetailCatalog.cs***. Add new method *getRetailBookDetails*. ACME bookshop offer 5% discount for promotion, thus this method will create a new dataset column named RetailPrice for promotion price. See Figure 8 for detail sample.

**Figure 8**

```
public DataSet getRetailBookDetails(int bookId)
{
}
}
```

**Hint: Copy the code from existing *getRetailBooksList* to this method. Complete the change to call the required method to return detail book information**

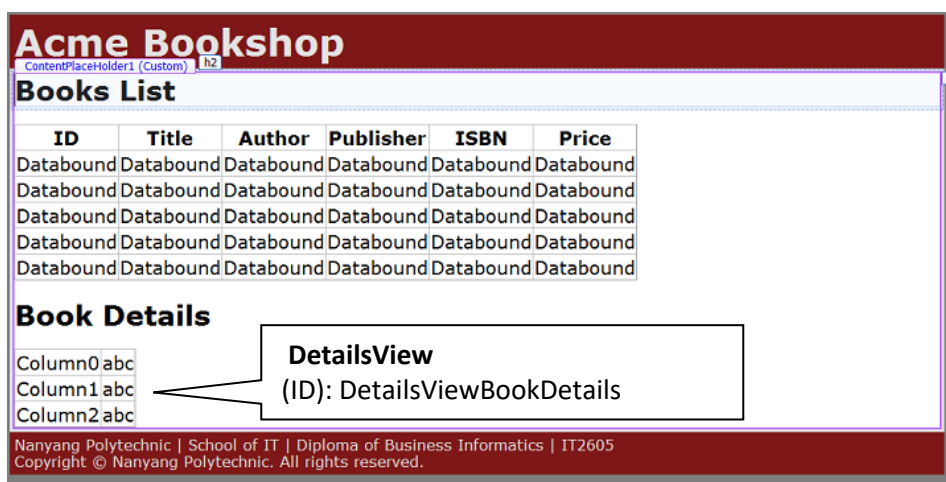
Figure 9

```
public DataSet getRetailBookDetails(int bookId)
{
    DalBetterBookSupplier dal;
    DataSet dataSetBookDetails;
    DataTable dt;
    Double rrp;

    dal = new DalBetterBookSupplier();
    dataSetBookDetails =          call the required method to return
detail book information

    // Business Logic
    // Acme Book Shop wants to offer the books at 5% below RRP, so
    // we need to write code here to create a new column in the data
    // and fill it with the new price.
    //
    // 1. Get a reference to the Data Table
    dt = dataSetBookDetails.Tables[0];
    // 2. Add a new column
    dt.Columns.Add("RetailPrice", typeof(double));
    // 3. Check table is not empty
    if (dt.Rows.Count != 0)
    {
        // Get RRP
        rrp = Convert.ToDouble(dt.Rows[0]["rrp"]);
        // Calculate retail price and store in new column
        dt.Rows[0]["RetailPrice"] = calculateRetailPrice(rrp);
    }
    return dataSetBookDetails;
}
```

- Open **Default.aspx** page to add detail view control below the grid view.

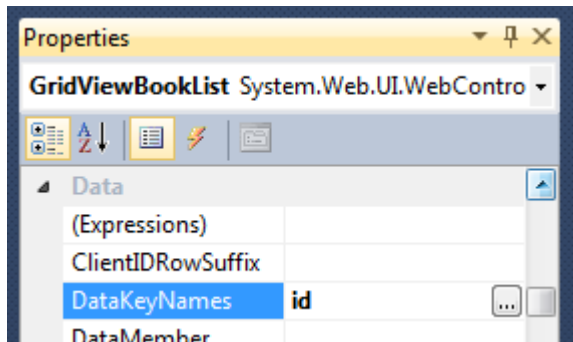


### Selecting and Displaying Book Details

Next, we're going to make the *DetailsView* display the book details when a book is selected in the *GridView*.

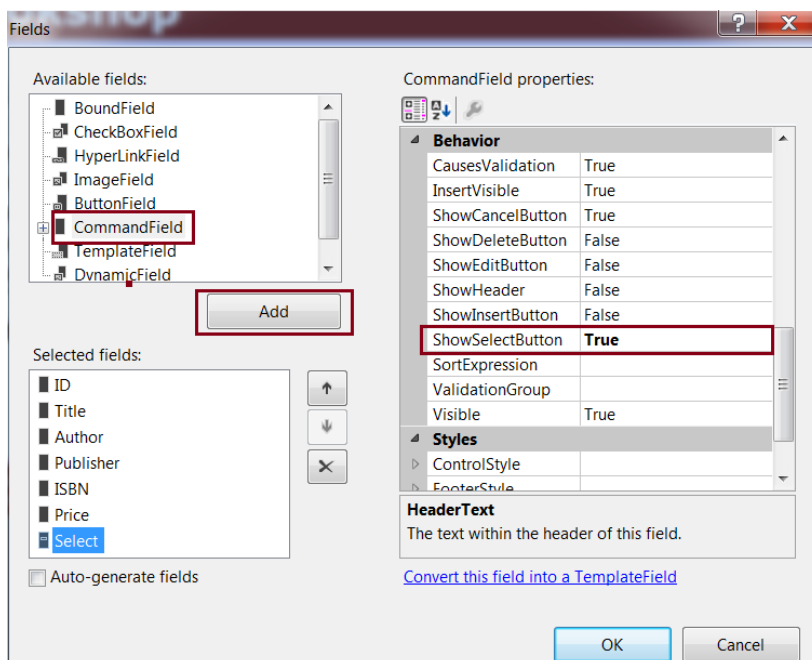
7. In the *Properties* for *GridViewBookList*, enter *id* for *DataKeyNames* to uniquely identify each book. Note *id* is the primary key of books table in BBS.

Figure 10



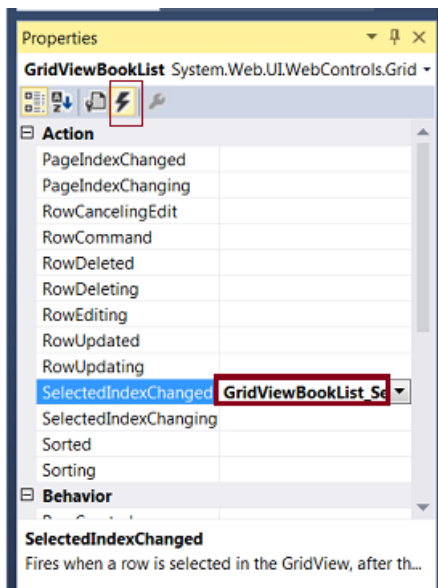
8. Expand smart tag of *GridViewBookList*, select *Edit Column* in *GridView Task*. Add *CommandField* with select button.

Figure 11



In *GridViewBookList* Properties, click the thunder icon, double click the *SelectedIndexChanged* to fire the event.

Figure 12



9. A blank GridViewBookList\_SelectedIndexChanged event is created, enter the code

- Obtain the datakey from selected value
- Call the getRetailBookDetail with the selected value to retrieve the record
- Bind the record to the datasource in DetailsViewBookDetails

Figure 13

```
protected void GridViewBookList_SelectedIndexChanged(object sender, EventArgs e)
{
    int selectedProductId = Convert.ToInt32(GridViewBookList.SelectedValue);
    BllRetailCatalog myCat = new BllRetailCatalog();
    DataSet ds;
    ds = myCat.getRetailBookDetails(selectedProductId);
    DetailsViewBookDetails.DataSource = ds;
    DetailsViewBookDetails.DataBind();
}
```

10. Expand the smart tag of DetailsViewBookDetails to Edit Field, add following bound fields and set the HeaderText property as in table below

Figure 14

Bound Field	HeaderText
title	Title
lastName	Author
isbn	ISBN
name	Publisher
RetailPrice	Promotion Price
price	Cost Price



11. Test *AcmeBookShop's Default.aspx*. You should expect the result like Figure 15. There are additional columns that display the author names, publisher names and filenames.

Figure 15

# Acme Bookshop

## Books List

	ID	Title	Author	Publisher	ISBN	Price
<a href="#">Select</a>	2	Eragon	Paolini	Laurel Leaf	9780440240730	19.9
<a href="#">Select</a>	3	The Golden Compass	Pullman	Laurel Leaf	9780440238133	21.8
<a href="#">Select</a>	4	hi	Pullman	Laurel Leaf	97800001100	22.8
<a href="#">Select</a>	1	Harry Potter and The Socerers Stone	Rowling	Scholastic Press	9780590353403	23.7

## Book Details

Title	Eragon
Author	Paolini
ISBN	9780440240730
Publisher	Laurel Leaf
Promotion Price	19.9
Cost Price	10.95

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~~End~~

### Checkpoint

By the end of this practical, you have learnt to:

- ✓ Update service reference at service requestor to obtain the latest service operation
- ✓ Able to consume the web service and gain access of data generated from service requestor database.
- ✓ Bind the data from web service to the detail view