Week 15 Lab Reverse Engineering the DVD Swap

Things to do

- Set up Teams
- Claim eGrids
- Complete the reverse engineering exercise

Team Exercise

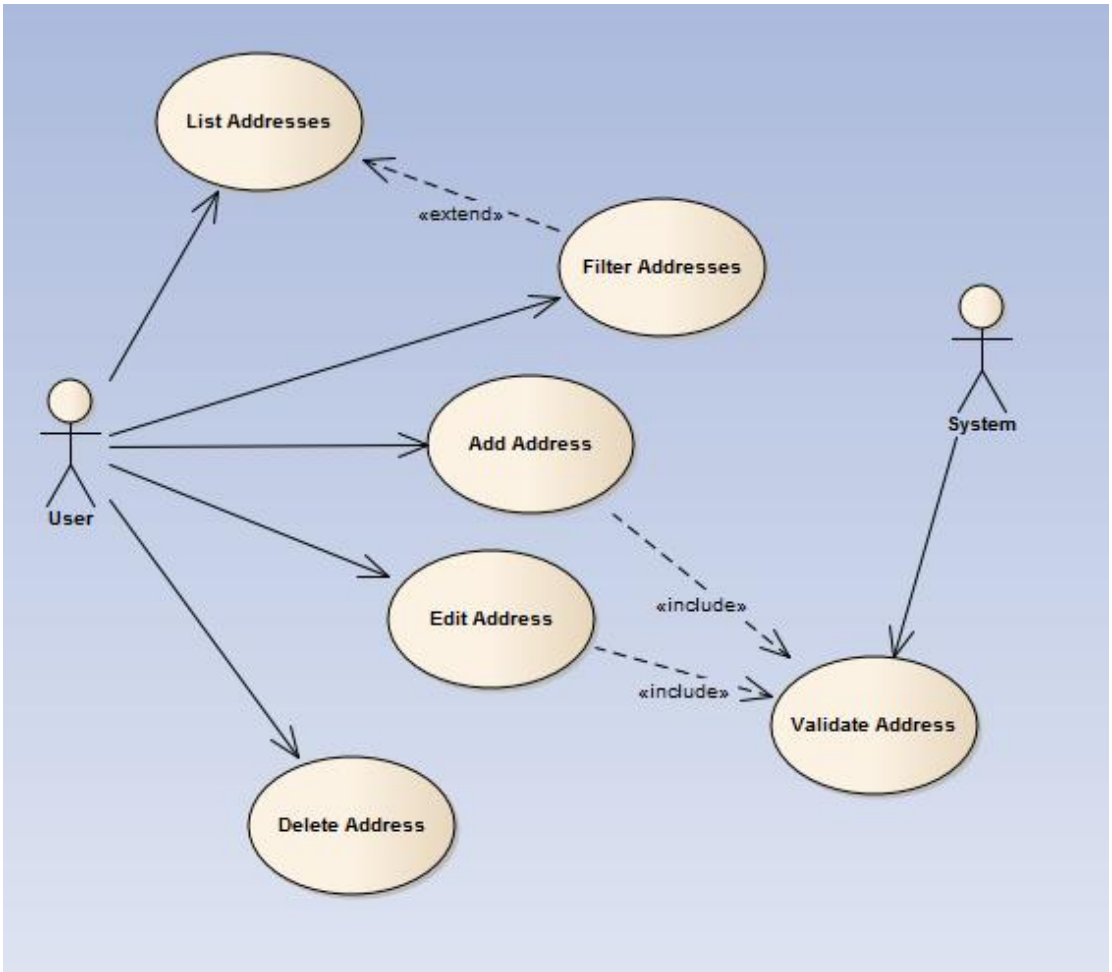
For this session we will take a look at the DVD Swap Shop and consider how the application is built at each layer of the system. For each layer you will draw up appropriate design documentation by reverse engineering the system.

The idea of reverse engineering is that rather than writing the documentation and then building the software, you look at an existing system and then write the documentation last.

You will need to create the following documents electronically in software of your choice.

- The Presentation Layer — Use Case Diagram
- Middle Layer — Partial Class Diagram
- Data Layer — Entity Relationship Diagram

Documenting the Presentation Layer

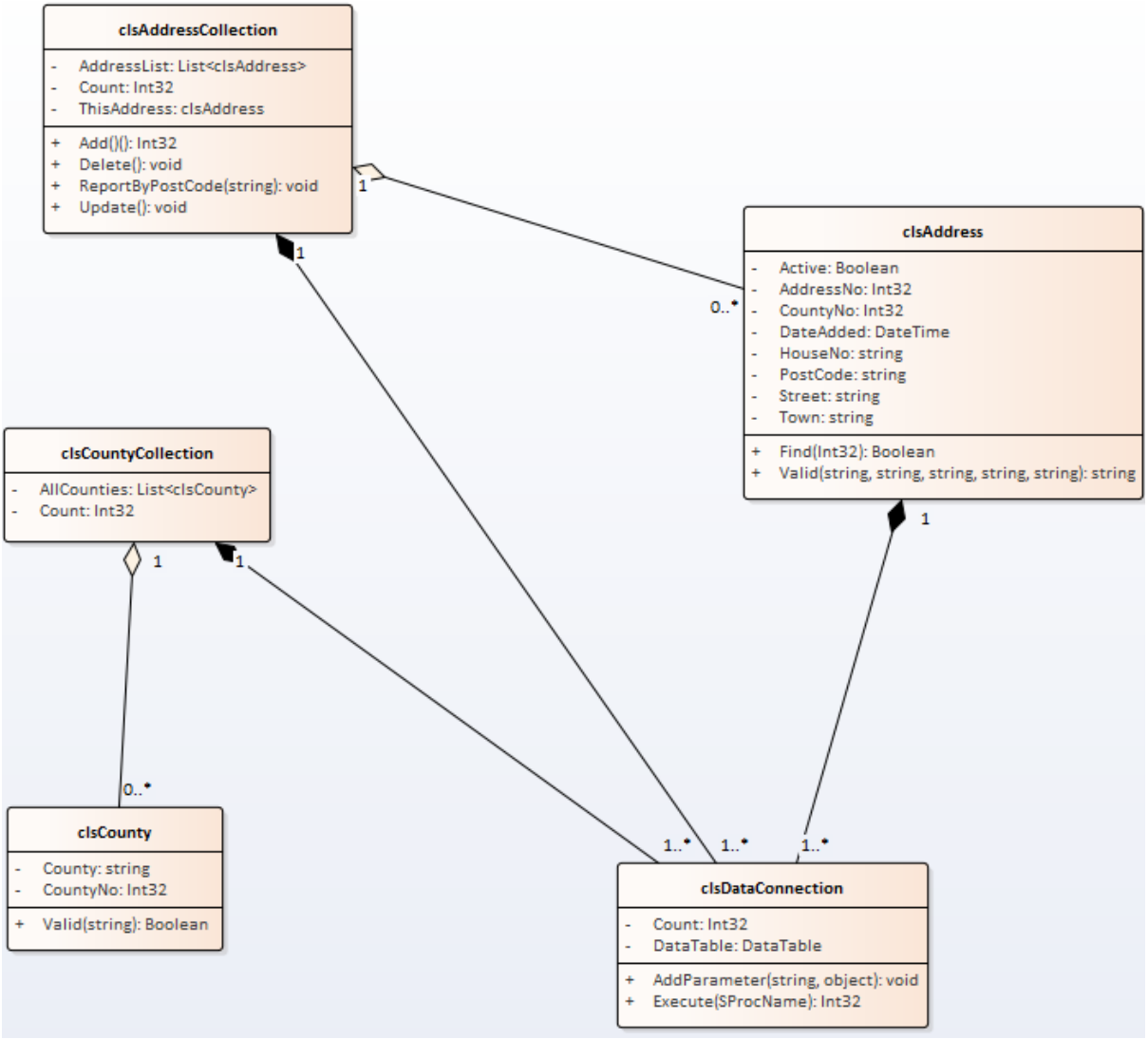


The Presentation Layer is documented by means of a use case diagram. You will need to download, unzip and open the DVD Swap Shop application in Visual Studio. Run the program to see what it does and as a team draw up a single use case diagram for the presentation layer.

Consider the following question – what technology is being used to create the presentation layer?

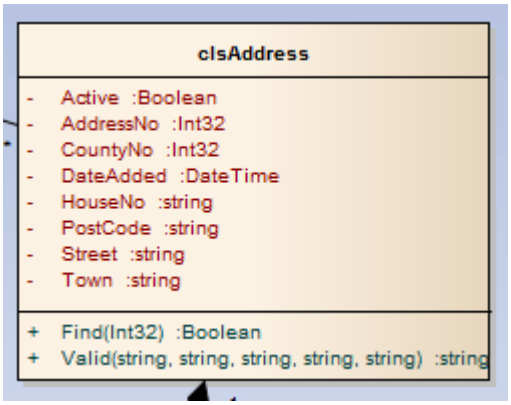
Documenting the Middle Layer

To document the middle layer you would normally produce a class diagram. Since you will probably be new to this form of documentation you will only need to create a partial class diagram, documenting the classes themselves but ignoring any relationships.



To create the classes on paper you will need to look at the classes in the App_Code folder and examine the code to identify the class's methods and properties.

For example clsAddressPage on the diagram looks like this...

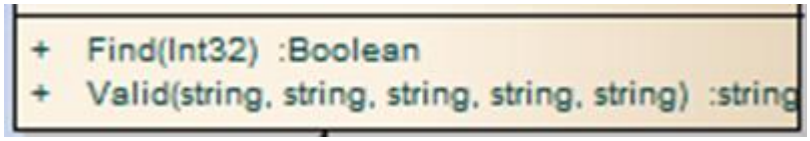


Notice the three sections to the class.

At the top we have the name of the class (This is used when we create objects)...

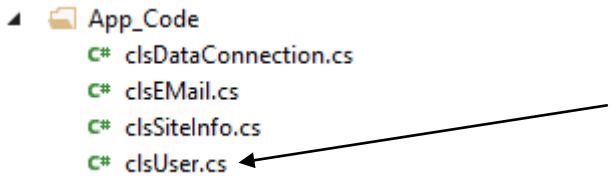
The next section describes the attributes of the class (these describe the properties)...

The last section describes the operations of the class (these describe the methods)...

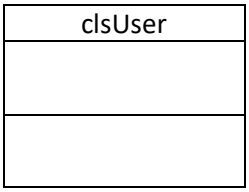


To get you started here are a couple of examples.

Inside the middle layer there is a class called clsUser.



This means the class on the diagram would look like so…



Inside the class we find a function that defines a public property called UserNo (we know it is a property as it has a getter and a setter)…

```
//returns the UserNo of the current user
-references
public Int32 UserNo
{
    get
    {
        return mUserNo;
    }
    set
    {
        mUserNo = value;
    }
}
```

Which would be documented in the diagram as an attribute like so…

clsUser
UserNo Int32

In the same class we also have function called clsUser. This function creates the constructor for the class. (We know it is the constructor because the function has the same name as the class!)

```
0 references
public clsUser(string EMail, string Password)
{
    //get the details for this user
    Users = new clsDataConnection("select * from Users
    //if there is one user found
    if (Users.Count > 0)
    {
        //flag authenticated as true
        mAuthenticated = true;
        //store the email address
        mEMail = Convert.ToString(Users.DataTable.Rows
        //store the first name
        mFirstName = Convert.ToString(Users.DataTable.
        //store the User no
```

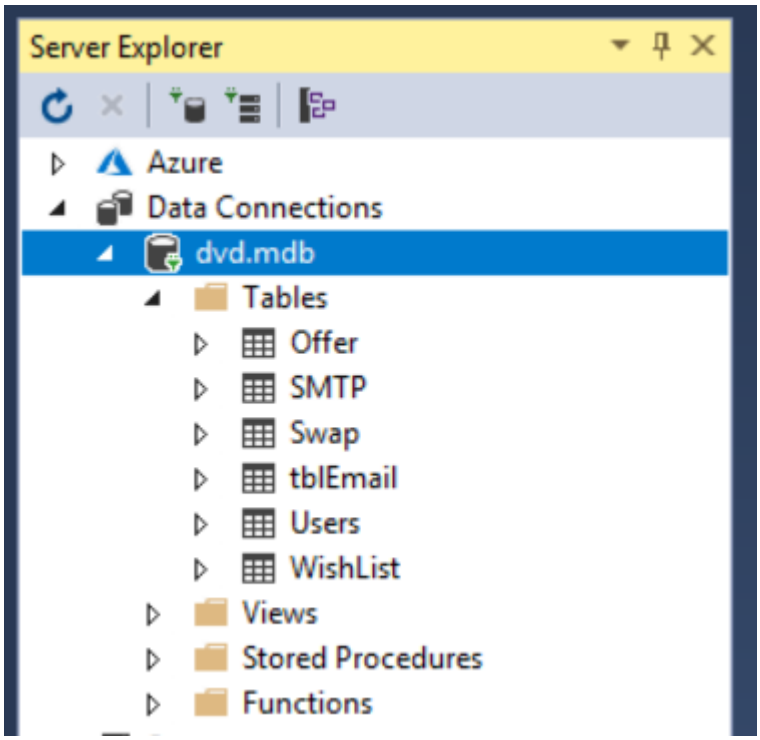
This might be documented in the diagram as an operation like so…

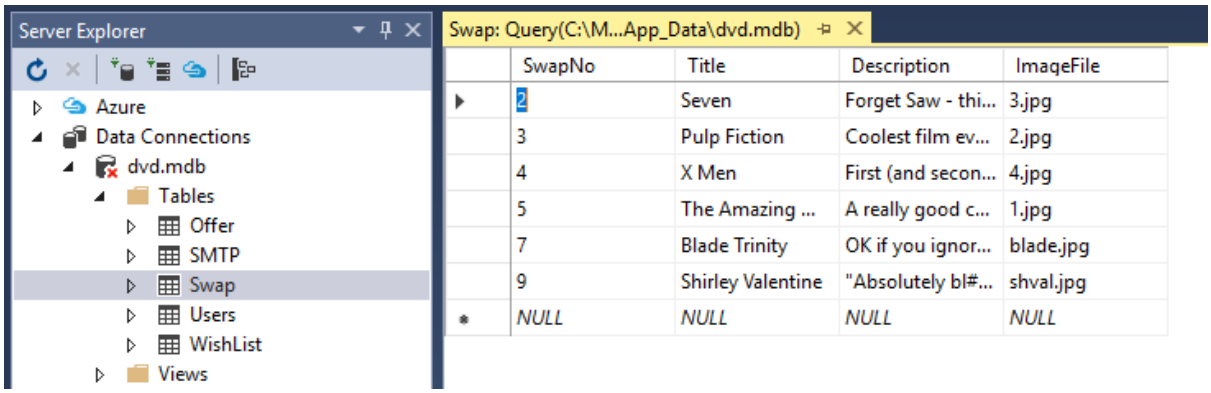
clsUser
UserNo Int32
clsUser(string,string)

Once you have created the partial class diagram have a go at writing definitions for each class outlining what it is that they do. The comments within each class should help with this.

Documenting the Data Layer

Rather than using SQL server the DVD Swap Shop uses Microsoft Access. Visual Studio should still allow you to access the data in exactly the same way using the server explorer like so…





Look at the primary and foreign keys to try and deduce what the relationships are between each table.

Sign-up Procedure

Notice what happens to the table tblEMail when you sign up a new account. The email is currently not sent to the recipient but is stored within the table for sending later!

Deliverables

As a team you need to write up the set of reverse engineered documentation.