Assignment 1 – ATM

# Purpose

* Create a basic ATM
* Learn C# and the .NET Framework
* Create a database using MS SQL Server
* Interact with the database using ADO.NET

# Due Date/Course Weight

This assignment must be demonstrated by: **5:59:59pm Wednesday February 22nd 2012**

* NOTE: Late assignments will not be accepted.

This assignment is wroth: **5% of your total course mark**

# Assessment

When you are ready to demo your results please print off the Assignment Assessment page provided on Blackboard. Provide your Name and Student Number.

# Summary of Tasks

Listed below are the sections of the assignment which will need to be completed:

1. Read every word in the assignment
2. Create a database to house the ATM bank information
3. Create tables in your new database to store ATM information
4. Create a new solution to house your ATM application
5. Create either ADO.NET objects to interact with your database
6. Write a program to interact with your database

# Create a Database

Use the SQL Server Management Studio (Express) to create a database named ATM. Default properties will suffice – do not worry about advanced configuration.

# Create database Tables

Use the SQL Server Management Studio to create the following tables:

* People  
  Holds the information regarding the users of the database  
  + PersonId, Primary Key, int, not null, with Identity and Auto-increment constraints
  + FirstName, varchar(50), not null
  + LastName, varchar(50), not null
  + EmailAddress, varchar(255), not null
  + Password, varchar(10), not null
  + Social Insurance Number, varchar(11), not null
* TransationType  
  Describes the transaction being done by the user  
  + TransactionTypeId, int, not null
  + Transaction, varchar(10), not null

Put the following information in the table

1, Deposit,

2, Withdraw

* Transactions  
  Tracks the users actions in the system  
  + TransationId, primary key, int, not null, with identity and auto-increment constraints
  + PersonId, int, not null
  + TransactionTypeId, int, not null
  + AmountTransferred
* Administators
  + Username, primary key, varchar(20), not null
  + Password, varchar(20), not null

# Create a new Project

Use Visual Studio to create a new project.

1. Open Visual Studio (2008 or 2010)
2. Click File -> New Project and the New Project dialog box will appear
3. Be sure that C# is selected from the Installed Templates menu
4. Select Console Application
5. Name your project Assignment 1
6. Select your save Location
7. Click OK

Visual Studio will create a new project with some default code/classes to get you started.

# Create ADO.NET data objects

Create a class to represent each table in your database. Each class will need to have methods that will allow you to INSERT, UPDATE, DELETE and SELECT information from the table it represents.

# Write your application

Write an application to simulate the basic functionality of an Automated Teller Machine. Typically a user is allowed to deposit and withdraw money, check the balance of the account. We are going to add new features to allow the user(s) to create/remove their accounts, backup the database, export reports to pipe delimited report files, etc.

Your application must allow the users be able to:

USER

* Create a new account
  + Password must be encrypted so that it is not plain text is the database
  + SIN must be encrypted so that it is not plain text in the database
* Login using an existing account
  + EmailAddress and Password to be used to authenticate a user
* Depost a user defined amount into the account
* Withdraw a user defined amount from the account
* Check the balance of the money stored in the account
  + Must be able to export this information to a pipe delimited file that can be opened in excel
* Show a report of the last 5/10 or 15 transactions
  + Must be able to export this information to a pipe delimited file that can be opened in excel
* Close (remove) an existing account
  + EmailAddress and Password to be used to verify this action
  + Be sure to remove transaction records as well. Data integrity is key!

ADMINISTRATOR

* Login using an existing account
  + Password in the Administrator table must be encrypted so it is not plain text in the database
* This account can export the database to a series of backup files.
* This account can delete the entire database
* This account can restore the database from a series of backup files.