Lab 8 – Database Programming

Deliverable

Word or PDF File containing your work

Set up

In this lab, you will apply the concepts learned in this week's lectures and readings. You'll need access to a SQL Server instance to perform these tasks. You can use either the iSchool resource or install SQL Server Developer or Express edition on your own computer.

It may also be helpful to review the W3 Schools chapters on selecting, inserting, deleting, and updating data:
http://www.w3schools.com/sql/sql_select.asp

http://www.w3schools.com/sql/sql_insert.asp

http://www.w3schools.com/sql/sql_delete.asp

http://www.w3schools.com/sql/sql_update.asp

Steps

Create a blank document to record your answers to the questions called out below. Ensure your name is at the top of the document! Any diagrams should be done using Visio 2010 and paste the diagram into your Word Document.

Views

1. Execute the following SQL against your database:

```
CREATE VIEW ProductCosts AS
SELECT
    Product.ProductName
    , MIN(VendorProduct.Cost) as MinCost
    , AVG(VendorProduct.Cost) as AvgCost
    , MAX(VendorProduct.Cost) as MaxCost
FROM Product
JOIN VendorProduct ON VendorProduct.ProductID = Product.ProductID
```

2. Code and execute the SELECT statement to retrieve all values from this view. Copy and paste your code to your lab document.
3. Paste a screenshot of the results of the query in b to your lab document.
4. Code and execute the SQL statement to create a view called ReorderProducts that shows all of the products with a quantity on hand of less than 5. Copy and paste this code to your lab document.
5. Code and execute the SELECT statement that retrieves all rows from this view. Copy and paste this code into your lab document. Paste a screenshot of the results into your lab document.

Functions

6. Execute the following code against your database:

```
CREATE FUNCTION dbo.Profit (@ProductID int, @VendorID int, @SellPrice decimal(12, 4))
RETURNS decimal(12, 4)
AS
BEGIN
    DECLARE @profit decimal(12, 4)
    SELECT @profit = @SellPrice - Cost FROM VendorProduct
    WHERE ProductID = @ProductID AND VendorID = @VendorID
    RETURN @profit
END
GO

SELECT dbo.Profit(1, 1, 100)
```

7. Paste a screenshot of the result of the SELECT statement to your lab document.
8. Code and execute the statement to create a function called PreferredVendor that accepts a product id parameter as an input and returns the Vendor ID of the Vendor with the lowest cost in VendorProduct (this may take some research). Copy and paste your code into your lab document.
9. Code and execute the select statement that returns the ProductName, ProductDescription, QtyOnHand, and the preferred vendorID (use your function). Copy and paste your code into your lab document. Paste a screenshot of the results of this query into your lab document.

Stored Procedures

10. Execute the following code against your database:

```
CREATE PROCEDURE AddProduct(@name char(30), @description varchar(255)) AS
BEGIN
    DECLARE @ProductCount int
    SELECT @ProductCount = COUNT(ProductID) FROM Product
        WHERE ProductName = @name

    IF @ProductCount = 0
    BEGIN
        INSERT INTO Product (ProductName, ProductDescription)
        VALUES (@name, @description)
    END
    RETURN @@IDENTITY
END
```

11. What does this procedure do (be descriptive). Answer in your lab document.
12. `EXEC AddProduct('Red shirt', 'This is a red shirt')` will not add a row to the database. Why? Answer in your lab document.
13. Using AddProduct as a guide, code and execute a SQL command to create a stored procedure called AddProductWithVendor that accepts a VendorID and a Cost (in addition to the parameters in AddProduct) and not only adds the product, but also adds the VendorProduct record with the appropriate. Hint: have a look at what @@identity does). Copy and paste your sql code into your lab document.

14. Code and execute the command to EXEC your stored procedure with the following values as parameters. Copy and paste your code into your lab document.
    a. Product Name: 'Black hat'
    b. Product Description: 'This is a black hat'
    c. Vendor ID: 1
    d. Cost: 15
15. Select all values from your ProductCosts view and paste the results into your lab document (make sure your results include a black hat).