MODULE 2 DATABASE PROGRAMMING

Database Connectivity (ODBC)

YESTERDAY...

What is normalization?

How do we create a table in the database?

How do we drop a table in the database?

Gallery Customer History Form

Customer Name

Jackson, Elizabeth
123 – 4th Avenue
Fonthill, ON
L3J 4S4

Phone (206) 284-6783

Purchases Made

Artist	Title	Purchase Date	Sales Price
03 - Carol Channing	Laugh with Teeth	09/17/2000	7000.00
15 - Dennis Frings	South toward Emerald Sea	05/11/2000	1800.00
03 - Carol Channing	At the Movies	02/14/2002	5550.00
15 - Dennis Frings	South toward Emerald Sea	07/15/2003	2200.00

The Gill Art Gallery wishes to maintain data on their customers, artists and paintings. They may have several paintings by each artist in the gallery at one time. Paintings may be bought and sold several times. In other words, the gallery may sell a painting, then buy it back at a later date and sell it to another customer.

Persistent State

What is state?

Connecting to the database

What have we used to connect to the database?

Solving the database conundrum

How many databases are there?

- Microsoft SQL
- MySQL
- Oracle
- PostGRE SQL
- etc.

Steps for database access

- Create a connection
  - SqlConnection connection = new SqlConnection(connectionString)
- Open the connection
  - connection.Open();
- Create a command object
  - SqlCommand cmd = new SqlCommand();
- Set the command text
  - cmd.CommandText = <command text variable>;
- Set the connection
  - cmd.connection = connection;
- Get the data
  - SqlDataReader reader = cmd.ExecuteReader();
- Close the connection
  - Connection.Close();

Reading the data

- Get the data
  - SqlDataReader reader = cmd.ExecuteReader();
- Read the data

```
while (reader.Read())
{
        some code;
}
```

- Close the database connection
  - connection.Close();

Other Access Methods

- ExecuteNonQuery
  - Executes the sql text and returns an int that represents the number of rows affected.
- ExecuteScalar
  - Returns the value in the first row and first column

DAO Pattern

Data Access Object (DAO) design pattern encapsulates the details of persistent storage inside of classes whose only role is to store and retrieve data.

DAOs usually perform **CRUD** operations on domain objects.

- **C**reate
- **R**ead
- **U**pdate
- **D**elete

DAO pattern makes code loosely coupled

- Handle structure changes
- Change database technology

LET'S CODE!

WHAT QUESTIONS DO YOU HAVE?