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Data Modeling Questions

- Design a database to model a cookbook with meal types, recipes, ingredients.
    a. You can use paper to document your data model.

SQL Questions

- Given the following SQL SELECT statement what are the highlighted text represent?

  SELECT ***CUST***.CUSTOMER AS ***NAME***, ***CUST***.CUSTOMER_ADDRESS

  FROM CUSTOMER_V ***CUST***

  WHERE ***NAME*** = 'Home Furnishings';

  This is an SQL alias declaration. You are saying to assign the data in CUST.CUSTOMER to the variable NAME. You can then use NAME in your query even though it is not an actual field in a table.

- Given the following Orders and Customers tables:

OrderID	CustomerID	OrderDate
10308	2	1996-09-18
10309	37	1996-09-19
10310	77	1996-09-20

CustomerID	CustomerName	ContactName	Country
1	Alfreds Futterkiste	Maria Anders	Germany
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mexico

What would the result set be given the following SQL SELECT statement?

```
SELECT Orders.OrderID, Customers.CustomerName, Orders.OrderDate
FROM Orders
INNER JOIN Customers
ON Orders.CustomerID=Customers.CustomerID;
```

This will return OrderID, CustomerName, and OrderDate for every row where the CustomerID on the Orders table matches up to the CustomerID on the Customers table.

What would the result set be given the following SQL SELECT statement?

```
SELECT Orders.OrderID, Customers.CustomerName, Orders.OrderDate
FROM Orders
LEFT JOIN Customers
ON Orders.CustomerID=Customers.CustomerID;
```

This returns a row for each order. Each row has the OrderID, CustomerName, and OrderDate.

Entity Framework Questions

- What do the following Entity Framework Object Services provide for your application in regards to data from a database?
    a. Materialization
    b. Change Tracking
    c. Object identities
- Design a code first data model which has a Project class that can contain a bunch of tasks.

I still have no idea when it comes to Entity Framework. I am doing more tutorials this weekend.

Object Orientation Questions

- What are the basic concepts of OOP?

    Everything is an object that can inherit from other objects.

- How do you program behavior into your C# class?

    You give your objects properties and write methods inside of them that do something.

- Explain method overriding.

    Method overriding is when an object inherits from another object and replaces a method with a new method. For example, a method

    public virtual void exampleMethod(){Console.WriteLine("A");} could be overridden when it's inherited in another class by a method like:

    public override void exampleMethod(Console.WriteLine("B";){}

- What is Inheritance?

    Inheritance is where a derived class inherits properties and methods from a base class. For example, the class Animal could have a property called Name. If you create a class Dog, which derives from Animal, the Dog class will have inherited the Name property without having to declare it again.

- What is abstract class?

  An abstract class is a class that cannot be instantiated on its own. It must be derived by another class.

MVC Questions

What is an example URL that would call the following controller method, assuming the default routes have been configured?

www.mywebsite.com/Catalog/Specifications

Part II: What HTTP Verb is used?

I have no idea. I'm going to guess HTTPGET since you are just returning a view.

```
public class CatalogController : Controller
 {
     public ActionResult Specifications(int id)
     {
         var model = new SpecModel(id);
         return View();
     }
}
```

Examine the following View for an MVC Application:

```
@model IEnumerable<MVCGuidedLab.Models.Color>

@{
    ViewBag.Title = "Index";
}

<h2>Index</h2>

<p>
    @Html.ActionLink("Create New", "Create")
</p>
<table class="table">
    <tr>
        <th>
            @Html.DisplayNameFor(model => model.Name)
        </th>
        <th>
            @Html.DisplayNameFor(model => model.Value)
        </th>
        <th></th>
    </tr>

@foreach (var item in Model) {Go
    <tr>
        <td>
```

```
            @Html.DisplayFor(modelItem => item.Name)
        </td>
        <td>
            @Html.DisplayFor(modelItem => item.Value)
        </td>
        <td>
            @Html.ActionLink("Edit", "Edit", new { id=item.Id }) |
            @Html.ActionLink("Details", "Details", new { id=item.Id }) |
            @Html.ActionLink("Delete", "Delete", new { id=item.Id })
        </td>
    </tr>
}

</table>
```

1. What type is the Model?

   IENUMERABLE

2. Is the model a single object, or a sequence?

   The model is a collection, not a single object.

3. What properties are on the items in the model?

   The properties are name and value.

Programming Exercises

To turn in this exam, you'll create a fork of a repository, make modifications to the project in that repository, and submit a pull request with your changes.

We'll walk you through the github workflow for those pieces. However, the code will be yours.

Go to Github.com and fork the repository https://github.com/BillWagner/ExperienceITExam

Then, clone your fork to your desktop. You'll do that by clicking the "Clone in Desktop" button on the github page.

Now, you're ready to do your work.

1. the program.cs file in the Loops project. The Main method has comments that describe what you should do. Make your changes.

   Done

2. Open the program.cs file in the Extension methods project. The Main method has comments that describe the code you should add. Make your changes.
3. Open the program.cs file in the Lazy Evaluation project. The Main method has comments that describe the code you should add. Make those changes as well.

Done (Maybe)

4. Open the program.cs file in the Query Expresssions project. As before, the Main method has comments that describe the code you should or change.
5. Make a new ASP.NET MVC project and add it to the solution. Add a controller called DiceRoll controller. Modify the index method and the index view to display all the combinations of results from rolling 2 six-sided dice. (For example, { 1, 1}, {1, 2} etc.

Commit your changes, and then push them to github.

Now, you're ready to submit a pull request. Navigate to your fork of the repository in github.com in a browser. Below the Code tab on the right side, you'll see a link that says "Pull Request". Click that. Once you're on the Pull Request page, submit a new pull request. Add your name, and any comments you would like on your pull request, and submit the request.

We can now look at your changes, and see how you did.