C# Programming Homework 21

Chapter 21, C# Step by Step

Readings

Read chapter 21 in the *C# Step by Step* book.

Discussion Questions

1. What is the difference in the purposes of SQL and LINQ? In other words, why do we need two different query languages? Does LINQ replace SQL? Does SQL make LINQ unnecesary?

2. What is the one essential requirement for the datastructures used with LNQ? Why is this requirement important?

3. Were does the LINQ *Select()* method live?

4. (Select) Explain, token by token, each token in this line of code:

   ```
   IEnumerable<string> customerFirstNames = customers.Select(cust => cust.FirstName);
   ```

5. (Filter) Explain, token by token, each token in this line of code:

   ```
   IEnumerable<string> usCompanies = addresses.Where(addr =>
       String.Equals(addr.Country, "United States")).Select(usComp => usComp.CompanyName);
   ```

6. (OrderBy) Explain, token by token, each token in this line of code:

   ```
   IEnumerable<string> companyNames = addresses.OrderBy(addr =>
       addr.CompanyName).Select(comp => comp.CompanyName);
   ```

7. (Group) Explain, token by token, each token in this line of code:

   ```
   var companiesGroupedByCountry = addresses.GroupBy(addrs => addrs.Country);
   ```

8. (Distinct) Explain, token by token, each token in this line of code:

   ```
   int numberOfCountries = addresses.Select(addr => addr.Country).Distinct().Count();
   ```

9. (Join) Explain, token by token, each token in this line of code:

```
var companiesAndCustomers =
    customers.Select(c =>
        new { c.FirstName, c.LastName, c.CompanyName }).Join(addresses, custs =>
        custs.CompanyName, addrs => addrs.CompanyName, (custs, addrs) =>
        new {custs.FirstName, custs.LastName, addrs.Country });
```

10. Explain the difference between a deferred collection and a static, cached collection.