
CIS655, Spring 2016 – SQL Homework Assignment

This is an **individual** assignment. You are welcome to **talk** about the assignment with your colleagues, but do not share SQL statements and the work you turn in must be your own.

Learning Objectives:

The objective of this assignment is to use *Microsoft SQL Server* and *Transact-SQL* (T-SQL) to formulate simple and complex database **SQL queries** in response to “plain English” end-user questions/requests.

Important Notes: Read This Before You Start!

- A. This assignment is based on the **AdventureWorks** and **HayneExample** databases, which are on the “*buscissql\cissql*” server. **AdventureWorks** is a large sample database from Microsoft, and you will only need to use a portion of the database for this assignment. This database is **CASE SENSITIVE**, so capitalization of table, column names, and alphanumeric data matters!
- B. The **AdventureWorks** tables you will be working with come from three schemas, as shown in the diagram: the **Person**, **Sales** and the **HumanResources** schema. You will need to qualify table names with the schema in your SQL statements.
- C. Here are some resources that may be useful for this assignment:
 - i. Microsoft’s SQL Server reference for every Transact-SQL (T-SQL) statement: <http://msdn2.microsoft.com/en-us/library/ms189826.aspx>.
 - ii. Canvas Discussion forum -- If you get stuck, post a discussion message.

Requirements: Turn in a **PDF** with the SQL statements (all of them if it takes more than one) **and** the answers to the following questions. If there is **lots of data**, include the first 10 rows, and the number of total rows. **Be sure that all columns have meaningful names!**

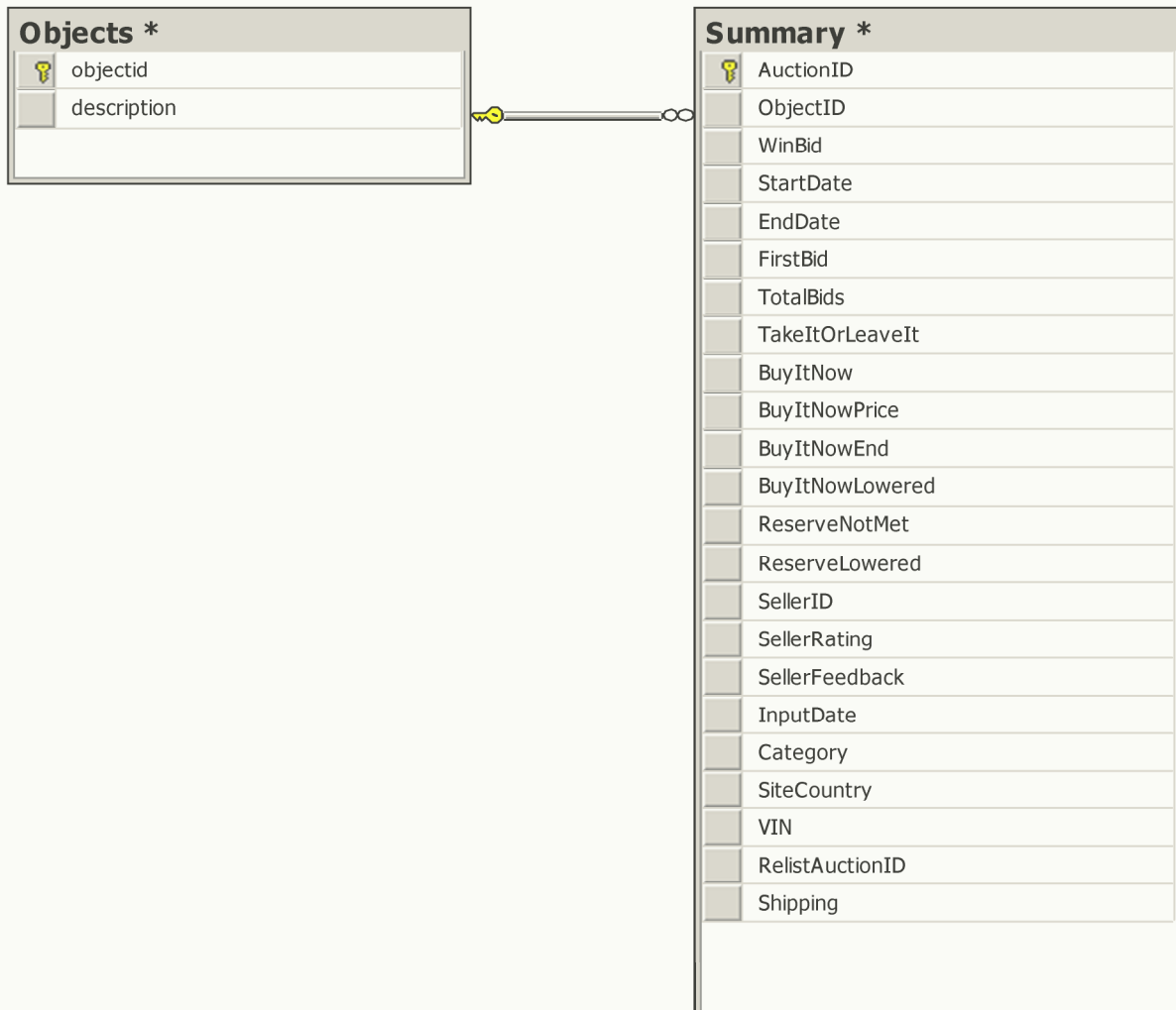
The following questions use the **HayneExample** database (Answers may vary, based on your approach. These questions make you **analyze the trend in car sales**. Analysis will be done using **only** the database columns and records found in the database.):

1. Which **1970 car (make and model)** sold the **most**? And which 1970 car (make and model) sold the **least**? (5 points)
2. If your answers for question a, and b **differ**, **explain what conditions** might have affected this variation? If your answers for question a, and b are the **same**, explain what conditions might have kept it the same. (5 points)
3. Certain cars (make and model) have **higher number of auctions** than what is actually **sold**. What is the **make** and **model** of the car that has **highest ratio of number of auctions:actual sale**? (10 points)
4. Many vehicles are a **depreciating asset**, but there are some vehicles in this database whose value appears to decline quite a bit! Compare **such a poorly depreciating car** to the **1967 Ford Mustang** (Make, Model, and Year) (this may take several queries to find the final prices for your vehicle of interest). Import the **price data (including dates sold)** into Excel and graph it including a **trend line**. Explain the difference in depreciation. The final answer should include the **queries, graphs and explanation**. (20 points)

The following questions use the **AdventureWorks** database:

5. Answer each of these questions about employees and managers:
 - a. Which **employees are Buyers**? The result set should show each the EmployeeID, name (first & last **combined into** a single column), and job title. **Sort by** the employees’ last name. (2 points)
 - b. Who manages “**Dan Wilson**”? The result set should the employee’s EmployeeID, name (first & last **combined into** a single column), and job title, and when they **were hired** (MM-DD-YYYY). (3 points)
6. List each sales person’s name (first & last), Job Title and total number of customers that **each sales person** has sold to. **Sort by the most number of customers** first. (5 points) **Bonus** – who has the **least customers each territory**? (This should be a **single query that sorts by territory**. 3 points) **DOUBLE Bonus** – which **Sales Manager has the fewest sales**? (2 points)
7. List, for each product (ProductID and Product Name), the **% of profit made** when selling it (**10 most** profitable products first). Are there any products we should **consider dropping**? Why? (20 points)
Hint: make sure you know how to calculate **profit!** **Do NOT discount prices** by any special offers at this time.
8. Does the firm have a “**gender bias**” with respect to pay? Demonstrate with **sophisticated queries and discuss**. (20 points)
Note: An employee may have worked for multiple departments – only need to look at the current department assignment (i.e., **the EmployeeDepartmentHistory record with no end date**).

Appendix A: eBay Database Schema

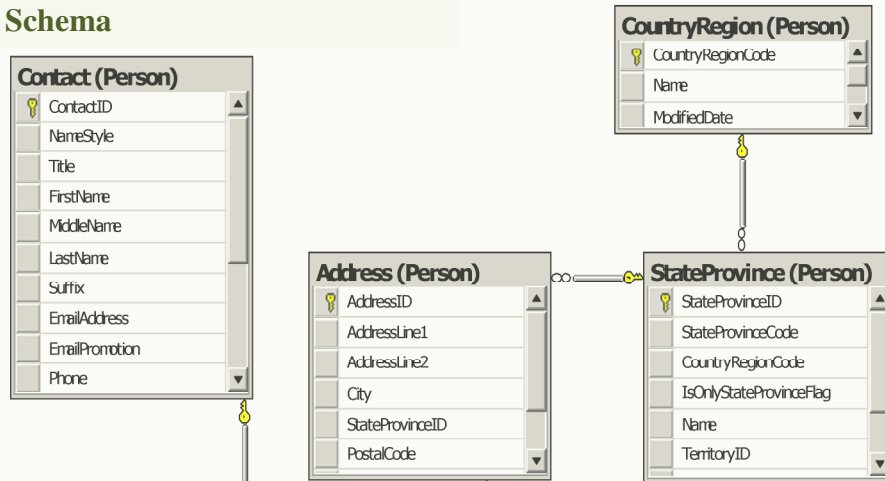


eBay Schema

Appendix B: AdventureWorks Database Schema

Hint: SalesPersonID is an FK to EmployeeID. There may be others not indicated on these diagrams...

Person Schema



HumanResources Schema

