# SQL-3 Exercises

## 1. Enhancing Output with Titles and Formats

Open program **s103e01** and modify the query.

**a.** Select only the **Employee_ID**, **Salary**, and **Tax** columns.

**b.** Display the **Tax** and **Salary** columns using the COMMA10.2 format.

**c.** Order the report by **Salary** in descending order.

**d.** Add this title to the report: **Single Male Employee Salaries**.

Partial PROC SQL Output

Single Male Employee Salaries

| Employee_ID | Salary | Tax |
|---|---|---|
| 121141 | 194,885.00 | 64,961.67 |
| 120101 | 163,040.00 | 54,346.67 |
| 120268 | 76,105.00 | 25,368.33 |
| 120724 | 63,705.00 | 21,235.00 |
| 120660 | 61,125.00 | 20,375.00 |
| 120810 | 58,375.00 | 19,458.33 |
| 120804 | 55,400.00 | 18,466.67 |
| 120691 | 49,240.00 | 16,413.33 |
| 120769 | 47,990.00 | 15,996.67 |
| 120793 | 47,155.00 | 15,718.33 |
| 120753 | 47,000.00 | 15,666.67 |

## 2. Using Formats to Limit the Width of Columns in the Output

Write a query that retrieves the **Supplier_Name**, **Product_Group**, and **Product_Name** columns from the table **orion.Product_dim**.

**a.** Add this title to the report: **Australian Clothing Products**.

**b.** Include only rows where **Product_Category = "Clothes"** and **Supplier_Country = "AU"** (Australia).

**c.** To enable the report to print in portrait orientation, use formats to limit the width of column **Supplier_Name** to 18, **Product_Group** to 12, and **Product_Name** to 30 characters.

**d.** Label the columns **Supplier**, **Group**, and **Product**, respectively.

**e.** Order the report by **Product_Name**.

PROC SQL Output

Australian Clothing Products

| Supplier | Group | Product |
|---|---|---|
| Typhoon Clothing | Street Wear | Tyfoon Flex Shorts |
| Typhoon Clothing | Street Wear | Tyfoon Ketch T-Shirt |
| Typhoon Clothing | Street Wear | Tyfoon Oliver Sweatshirt |

**3. Enhancing Output with Multiple Techniques**

Create a report that displays **Customer_ID**, the customer's name written as **Customer_LastName**, **Customer_FirstName**, and **Gender**, as well as the customer's age as of 31DEC2007. Use the data contained in the **orion.Customer** table. Include only U.S. customers who were more than 50 years old on 31DEC2007. Present the data ordered by descending age, last name, and first name. Give the report an appropriate title. Limit the space used to display the customer's name to a maximum of 20 characters, so that the report can be printed in portrait orientation. The **Customer_ID** values must be displayed with leading zeros as shown in this sample report.

Partial PROC SQL Output

US Customers >50 Years Old as of 31DEC2007

| Customer ID | Last Name, First Name | Gender | Age |
|---|---|---|---|
| 0000089 | Lewis, Wynella | F | 73 |
| 0000056 | Siferd, Roy | M | 73 |
| 0000092 | Celii, Lendon | M | 63 |
| 0000023 | Devereaux, Tulio | M | 58 |
| 0000018 | Asmussen, Tonie | M | 53 |
| 0000017 | Evans, Jimmie | M | 53 |

**4. Summarizing Data**

Create a report that displays the number of employees residing in each city.

**a.** Use the **City** column and the COUNT(*) function.

**b.** Use the **orion.Employee_Addresses** table.

**c.** Group the data and order the output by **City**.

**d.** Add this title to the report: **Cities Where Employees Live**.

PROC SQL Output

Cities Where Employees Live

| City | Count |
|---|---|
| Melbourne | 41 |
| Miami-Dade | 109 |
| Philadelphia | 95 |
| San Diego | 112 |
| Sydney | 67 |

**5. Using SAS Functions**

Create a report that includes each employee's age at time of employment.

**a.** The report should contain the columns **Employee_ID**, **Birth_Date**, **Employee_Hire_Date**, and **Age**.

**b.** Obtain the data for the report from the **orion.Employee_Payroll** table.

**c.** Calculate **Age** as INT((**Employee_Hire_Date** − **Birth_Date**)/365.25).

**d.** Add this title to the report: **Age at Employment**.

**e.** Display **Birth_Date** and **Employee_Hire_Date** values using the MMDDYY10. format.

**f.** Label each column as shown in the following sample report:

Partial PROC SQL Output

Age at Employment

| Employee ID | Birth Date | Hire Date | Age |
|---|---|---|---|
| 120101 | 08/18/1976 | 07/01/2003 | 26 |
| 120102 | 08/11/1969 | 06/01/1989 | 19 |
| 120103 | 01/22/1949 | 01/01/1974 | 24 |
| 120104 | 05/11/1954 | 01/01/1981 | 26 |
| 120105 | 12/21/1974 | 05/01/1999 | 24 |
| 120106 | 12/23/1944 | 01/01/1974 | 29 |

Hint: For the purpose of this report, an employee's age when hired can be computed by taking the integer portion of (**Employee_Hire_Date** − **Birth_Date**)/365.25.

**6. Summarizing Data**

**a.** Using data contained in the **orion.Customer** table, create a report that shows the following statistics for each country:

1) total number of customers
2) total number of male customers
3) total number of female customers
4) percent of all customers that are male (**Percent Male**)

**b.** Add this title to the report: **Customer Demographics: Gender by Country**.

**c.** Arrange the report by value of **Percent Male** so that the country with the lowest value is listed first, with the remaining countries following in ascending order.

Customer Demographics: Gender by Country

| Customer Country | Customers | Men | Women | Percent Male |
|---|---|---|---|---|
| ZA | 4 | 1 | 3 | 25% |
| CA | 15 | 7 | 8 | 47% |
| US | 28 | 15 | 13 | 54% |
| AU | 8 | 5 | 3 | 63% |
| DE | 10 | 7 | 3 | 70% |
| IL | 5 | 5 | 0 | 100% |

| | | | | |
|---|---|---|---|---|
| TR | 7 | 7 | 0 | 100% |

Hint: The Boolean expression (**Customer_Gender="M"**) evaluates as 1 when true and 0 when false.

### 7. Summarizing Data in Groups

Use the **orion.Customer** table to determine the number of Orion Star customers of each gender in each country. Display columns titled **Country**, **Male Customers**, and **Female Customers**. Display only those countries that have more female customers than male customers. Order the report by descending female customers. Add this title to the report: **Countries with more Female than Male Customers**.

PROC SQL Output

Countries with more Female than Male Customers

| Country | Male Customers | Female Customers |
|---|---|---|
| CA | 7 | 8 |
| ZA | 1 | 3 |

### 8. Advanced Summarizing Data in Groups

Use the **orion.Employee_Addresses** table to create a report that displays the countries and cities where Orion Star employees reside, and the number of employees in each city. Include only one row per country/city combination. Display the values in country/city order, and give the report an appropriate title.

PROC SQL Output

Countries and Cities Where Employees Live

| Country | City | Employees |
|---|---|---|
| AU | Melbourne | 41 |
| AU | Sydney | 67 |
| US | Miami-Dade | 109 |
| US | Philadelphia | 95 |
| US | San Diego | 112 |

Hint: Some data might not have consistent capitalization.