**SQL Exercises – Answer Key**

***For questions 1-10, use the Shipments table in the attached Excel file.***

1. How many shipments are in the dataset?

SELECT COUNT(\*)

FROM Shipments;

1. Using the Shipments table, find out the minimum ship date (as min\_ship\_date), the maximum ship date (as max\_ship\_date), and the average weight (as avg\_weight).

SELECT MIN(Ship Date) AS min\_ship\_date,

MAX(Ship Date) AS max\_ship\_date,

AVG(Weight) AS avg\_weight

FROM Shipments;

1. Provide the number of LTL shipments.

SELECT COUNT(\*)

FROM Shipments

WHERE Mode = 'LTL';

1. Provide the number of unique origin zip codes.

SELECT COUNT(DISTINCT Origin Zip)

FROM Shipments;

1. How many shipments are greater than 100 and less than 250 lbs?

SELECT COUNT(\*)

FROM Shipments

WHERE Weight > 100 AND Weight < 250;

1. What is the average number of pallets per LTL shipments less than 500 lbs?

SELECT AVG(Pallets)

FROM Shipments

WHERE Mode = 'LTL' AND Weight < 500;

1. We want to get an idea of how many shipments are sent each month. Use SQL to count the number of shipments by year-month. Note that by year-month, we mean that May 2013 and May 2014 should be considered as different year-months. The resulting table should show year-month and count, and order results by year-month.

SELECT COUNT(\*), MONTH(Ship Date) AS month, YEAR(Ship Date) AS year

FROM Shipments

GROUP BY year, month

ORDER BY year, month;

1. How many unique cities have shipments originating from them?

SELECT COUNT(DISTINCT Origin City)

FROM Shipments;

1. What is the average shipment weight leaving each city? The resulting table should include origin city name and each city's average weight. Limit results to those that have an average weight over 15000 pounds and sort the results in descending order by weight.

SELECT Origin City, AVG(Weight) AS avg\_weight

FROM Shipments

GROUP BY Origin City

HAVING avg\_weight > 15000

ORDER BY avg\_weight DESC;

1. Find the set of shipments that are shipping out of an origin with 'City' in the name (i.e., Johnson City, Salt Lake City, Kansas City, etc.). Report ID number and origin city name.

SELECT ID Number AS ID, Origin City

FROM Shipments

WHERE Origin City LIKE '%City%';

***For questions 11-15, use the Workers, Bonus, and Title tables in the attached Excel file.***

1. Write a SQL query to print the first name and title of the workers who are also managers.

SELECT DISTINCT w.First\_Name, t.Worker\_Title

FROM Workers AS w

INNER JOIN Title AS t

ON w.Worker\_ID = t.Worker\_Ref\_ID

WHERE t.Worker\_Title = 'Manager';

1. Write a SQL query to print the worker ID's who have had a bonus and the corresponding bonus values.

SELECT Worker\_ID, Bonus\_Amount

FROM Workers AS w

INNER JOIN Bonus AS b

ON w.Worker\_ID = b.Worker\_Ref\_ID;

1. Select the ID of workers who have had bonuses, the bonus date, bonus amount, and the title for each worker.

SELECT b.Worker\_Ref\_ID, Bonus\_Date, Bonus\_Amount, Worker\_Title

FROM Bonus AS b

LEFT JOIN Title AS t

USING (Worker\_Ref\_ID);

1. Select full name (this means the result should return one column with the full name) and corresponding bonuses for workers who received higher than average bonuses.

SELECT CONCAT(First\_Name, ‘ ‘, Last\_Name) AS Worker\_Name, Bonus\_Amount

FROM Workers AS w

JOIN Bonus As b

ON w.Worker\_ID = b.Worker\_Ref\_ID

WHERE Bonus\_Amount > (SELECT AVG(Bonus\_Amount) FROM Bonus);

1. Write a SQL query to print the first name, last name, title, and salary of workers who have the highest salary for each of the departments.

SELECT First\_Name, Last\_Name, Worker\_Title, w.Salary  
FROM Workers w

JOIN Title t

ON w.Worker\_ID = t.Worker\_Ref\_ID

WHERE w.Salary = (SELECT MAX(Salary) FROM Workers w1

WHERE w1.Department = w.Department);