Lab: Unit 06 –Advanced SQL SELECT

# Overview

In this lab we will explore advanced aspects of the SQL SELECT statements such as set operators the PIVOT and UNPIVOT clauses and temporal tables.

## Learning Objectives

Upon completion of the lab, you should be able to:

* Use aggregate functions with the GROUP BY and HAVING clauses,
* Demonstrate use of the WITH statement to reduce query complexity,
* Use window functions to apply a function to a partition of data,
* Select the appropriate window function for the problem at hand,
* Write SQL select queries to solve a variety of problems, and
* Read database schemas (internal data models).

## What you will need

To complete this lab, you will need the Learn Databases Environment up and running, specifically:

* Microsoft SQL Server DBMS,
* Provision the **vbay, Northwind, fudgeflix\_v3**, **payroll** databases using the Database Provisioner application <https://localhost:5000>
* Azure Data Studio connected to SQL server with an open query window.
* Please review the first lab if you require assistance with these tools.

# Questions

Answer these questions using the problem set submission template. You will need to consult the logical model in the overview section for details. For any screenshots provided, please follow the guidelines for submitting a screenshot.

Write the following as SQL queries. If the query is ambiguous, fill in the gaps yourself and justify your reasoning. For each, include the SQL as a screenshot with the output of the query.

1. The GIS department would like to get a list of latitudes and longitudes of those vBay users who

make valid bids on items and review users also. These are considered active participants in the platform and they would like to plot them on a map for a real-time dashboard.

1. Northwind Traders would like to send out holiday cards to its Employees, Customers and Suppliers. Create a single mailing list from these sources. The mailing address should have 4 lines:   
   0) a label of the source of the address: Employee, Customer, or Supplier

1) customer name and title,   
2) company,   
3) address, City, Region, Country, postal code

1. vBay would like a list of items with item id name and type along with a count of bids with bid

type (ok, low\_bid, item\_seller). There should be a column for each of the bid types.

1. Northwind traders has 3 different shippers. For each customer ID and CompanyName list the total amount of shipping freight paid for each of the three different shippers. There should be a column for each shipper.
2. Unpivot all the dates in the Northwind orders table, creating a table output with three columns: order id, type of date (ship date, require date, order date) and the date itself.
3. Unpivot the FudgeFlix titles which are just Movies so that is it easier to query titles which are available in different formats such as instant, DVD, and Blu-ray. Flatten these three columns into a single column with types, but only include a row when the value is 1 in the column.
4. Get a list of the employees from the payroll database as they were on May 31, 2018.
5. Produce a report of Gus Toffwind's pay increases from the payroll database. Include the id, name SSN of the employee along with pay rate, previous pay rate and pay increase (difference between the current and previous pay rates).