# SIT103/SIT772: Database Fundamentals
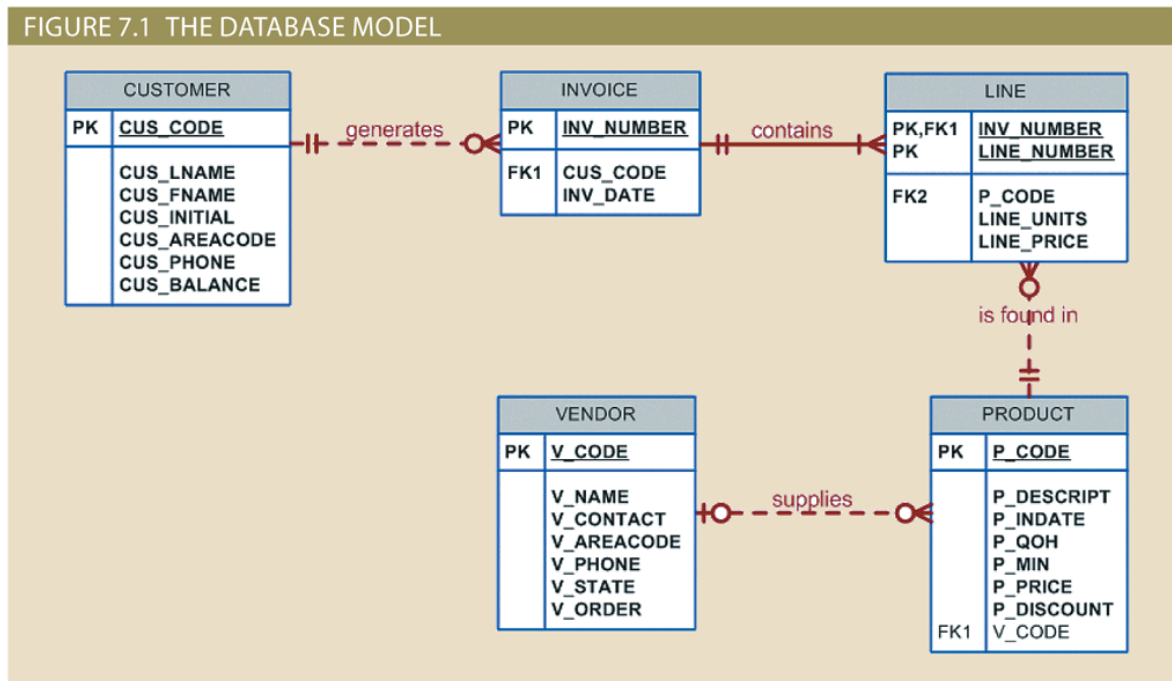
## 6.1P: SELECT Queries with JOIN and SQL Functions

## Overview

In this task, you will learn how to use `JOIN` to `SELECT` data from multiple tables and SQL functions. Note that you may have to use commands/clauses learned last week as well. You will use the database provided in `Task6_1P-sales.sql` that is available in the task resource. The ERD of the database is provided below.



FIGURE 7.1 THE DATABASE MODEL

First, you need to run the provided `.sql` script in in your database environment to create required tables if they do not exist already. Please see instructions in Task 5.1P sheet if you need help with running `.sql` script in your MySQL environment.

## Tasks to do

1. Write a SQL statement to list invoices with their INV_NUMBER, INV_DATE along with the CUS_FNAME and CUS_LNAME of the customers they belong to.

   Output will look something like:

| INV_NUMBER | INV_DATE | CUS_FNAME | CUS_LNAME |
|---|---|---|---|
| 1001 | 2018-01-16 00:00:00 | Myron | Orlando |
| 1002 | 2018-01-16 00:00:00 | Leona | Dunne |
| 1003 | 2018-01-16 00:00:00 | Kathy | Smith |
| 1004 | 2018-01-17 00:00:00 | Leona | Dunne |
| 1005 | 2018-01-17 00:00:00 | Anne | Farriss |
| 1006 | 2018-01-17 00:00:00 | Myron | Orlando |
| 1007 | 2018-01-17 00:00:00 | Amy | O'Brian |
| 1008 | 2018-01-17 00:00:00 | Leona | Dunne |

2. Write a SQL statement to list V_CODE and V_NAME along with the number of products they supply (column name as 'NUM_PRODS') and the average price of product they supply (column name as 'AVG_PROD_PRICE').

Output will look something like:

| V_CODE | V_NAME | NUM_PRODS | AVG_PROD_PRICE |
|---|---|---|---|
| 21225 | Bryson, Inc. | 2 | 8.470000 |
| 21231 | D&E Supply | 1 | 8.450000 |
| 21344 | Gomez Bros. | 3 | 12.490000 |
| 23119 | Randsets Ltd. | 2 | 41.970000 |
| 24288 | ORDVA, Inc. | 3 | 155.593333 |
| 25595 | Rubicon Systems | 3 | 89.630000 |

3. Write a SQL statement to list P_CODE and P_DESCRIPT of all products along with their vendors' V_CODE and V_NAME if available. Note that your results must include all products regardless of whether vendor information is available or not. For products where vendor information is not available, V_CODE and V_NAME columns will be empty or NULL in the result (*Hint: use outer join*).

Output will look like:

| P_CODE | P_DESCRIPT | V_CODE | V_NAME |
|---|---|---|---|
| 11QER/31 | Power painter, 15 psi., 3-nozzle | 25595 | Rubicon Systems |
| 13-Q2/P2 | 7.25-in. pwr. saw blade | 21344 | Gomez Bros. |
| 14-Q1/L3 | 9.00-in. pwr. saw blade | 21344 | Gomez Bros. |
| 1546-OO2 | Hrd. cloth, 1/4-in., 2x50 | 23119 | Randsets Ltd. |
| 1558-OW1 | Hrd. cloth, 1/2-in., 3x50 | 23119 | Randsets Ltd. |
| 2232/QTY | B&D jigsaw, 12-in. blade | 24288 | ORDVA, Inc. |
| 2232/QWE | B&D jigsaw, 8-in. blade | 24288 | ORDVA, Inc. |
| 2238/QPD | B&D cordless drill, 1/2-in. | 25595 | Rubicon Systems |
| 23109-HB | Claw hammer | 21225 | Bryson, Inc. |
| 23114-AA | Sledge hammer, 12 lb. | NULL | NULL |
| 54778-2T | Rat-tail file, 1/8-in. fine | 21344 | Gomez Bros. |
| 89-WRE-O | Hicut chain saw, 16 in. | 24288 | ORDVA, Inc. |
| PVC23DRT | PVC pipe, 3.5-in., 8-ft | NULL | NULL |
| SM-18277 | 1.25-in. metal screw, 25 | 21225 | Bryson, Inc. |
| SW-23116 | 2.5-in. wd. screw, 50 | 21231 | D&E Supply |
| WR3/TT3 | Steel matting, 4'x8'x1/6", .5" m... | 25595 | Rubicon Systems |

4. Write a SQL statement to retrieve INV_DATE and the list of products with P_CODE and P_DESCRIPT of

the invoice with INV_NUMBER = 1008 (*Hint: you may have to join three tables*).

Output will look something like:

| INV_DATE | P_CODE | P_DESCRIPT |
|---|---|---|
| 2018-01-17 00:00:00 | 23109-HB | Claw hammer |
| 2018-01-17 00:00:00 | PVC23DRT | PVC pipe. 3.5-in.. 8-ft |
| 2018-01-17 00:00:00 | WR3/TT3 | Steel matting. 4'x8'x1/6". .5" mesh |

5. EMP table has records as follows:

| EMP_NUM | EMP_TITLE | EMP_LNAME | EMP_FNAME | EMP_INITIAL | EMP_DOB | EMP_HIRE_DATE | EMP_AREACODE | EMP_PHONE | EMP_MGR |
|---|---|---|---|---|---|---|---|---|---|
| 100 | Mr. | Kolmvcz | George | D | 1942-06-15 00:00:00 | 1985-03-15 00:00:00 | 615 | 324-5456 | NULL |
| 101 | Ms. | Lewis | Rhonda | G | 1965-03-19 00:00:00 | 1986-04-25 00:00:00 | 615 | 324-4472 | 100 |
| 102 | Mr. | Vandam | Rhett | NULL | 1958-11-14 00:00:00 | 1990-12-20 00:00:00 | 901 | 675-8993 | 100 |
| 103 | Ms. | Jones | Anne | M | 1974-10-16 00:00:00 | 1994-08-28 00:00:00 | 615 | 898-3456 | 100 |
| 104 | Mr. | Lange | John | P | 1971-11-08 00:00:00 | 1994-10-20 00:00:00 | 901 | 504-4430 | 105 |
| 105 | Mr. | Williams | Robert | D | 1975-03-14 00:00:00 | 1998-11-08 00:00:00 | 615 | 890-3220 | NULL |
| 106 | Mrs. | Smith | Jeanine | K | 1968-02-12 00:00:00 | 1989-01-05 00:00:00 | 615 | 324-7883 | 105 |
| 107 | Mr. | Diante | Jorge | D | 1974-08-21 00:00:00 | 1994-07-02 00:00:00 | 615 | 890-4567 | 105 |
| 108 | Mr. | Wiesenbach | Paul | R | 1966-02-14 00:00:00 | 1992-11-18 00:00:00 | 615 | 897-4358 | NULL |
| 109 | Mr. | Smith | George | K | 1961-06-18 00:00:00 | 1989-04-14 00:00:00 | 901 | 504-3339 | 108 |
| 110 | Mrs. | Genkazi | Leighla | W | 1970-05-19 00:00:00 | 1990-12-01 00:00:00 | 901 | 569-0093 | 108 |
| 111 | Mr. | Washington | Rupert | E | 1966-01-03 00:00:00 | 1993-06-21 00:00:00 | 615 | 890-4925 | 105 |
| 112 | Mr. | Johnson | Edward | E | 1961-05-14 00:00:00 | 1983-12-01 00:00:00 | 615 | 898-4387 | 100 |
| 113 | Ms. | Smythe | Melanie | P | 1970-09-15 00:00:00 | 1999-05-11 00:00:00 | 615 | 324-9006 | 105 |
| 114 | Ms. | Brandon | Marie | G | 1956-11-02 00:00:00 | 1979-11-15 00:00:00 | 901 | 882-0845 | 108 |
| 115 | Mrs. | Saranda | Hermine | R | 1972-07-25 00:00:00 | 1993-04-23 00:00:00 | 615 | 324-5505 | 105 |
| 116 | Mr. | Smith | George | A | 1965-11-08 00:00:00 | 1988-12-10 00:00:00 | 615 | 890-2984 | 108 |

Here, the last column EMP_MGR refer to the employee's manager, the value is the manager's EMP_NUM.

Write a SQL statement to list full names (by concatenating EMP_FNAME and EMP_LNAME separated by a space) of employees AS 'Employee' with their managers' full name (again by concatenating EMP_FNAME and EMP_LNAME separated by a space) AS 'Manager' (*Hint: recursive/self join and string concatenation*).

Output will look like:

| Employee | Manager |
|---|---|
| Rhonda Lewis | George Kolmvcz |
| Rhett Vandam | George Kolmvcz |
| Anne Jones | George Kolmvcz |
| John Lange | Robert Williams |
| Jeanine Smith | Robert Williams |
| Jorge Diante | Robert Williams |
| George Smith | Paul Wiesenbach |
| Leighla Genkazi | Paul Wiesenbach |
| Rupert Washington | Robert Williams |
| Edward Johnson | George Kolmvcz |
| Melanie Smythe | Robert Williams |
| Marie Brandon | Paul Wiesenbach |
| Hermine Saranda | Robert Williams |
| George Smith | Paul Wiesenbach |

6. Write a SQL statement to list P_CODE and P_DESCRIPT of products that came in store (INDATE) in the month of February of 2018.

Output will look like:

| P_CODE | P_DESCRIPT |
|--------|------------|
| 89-WRE-O | Hicut chain saw, 16 in. |
| PVC23DRT | PVC pipe, 3.5-in., 8-ft |
| SW-23116 | 2.5-in. wd. screw, 50 |

## Submission Requirements:

Submit one PDF/WORD file with the **SQL statement and screenshot of result** for each question above.

## Submission Due

The due for each task has been stated via its OnTrack task information dashboard.