

2814ICT – DATA MANAGEMENT 7003ICT – DATABASE DESIGN

School of Information & Communication Technology Trimester 1, 2021

Assignment Part 2: Implementing a Database for BigM

ASSIGNMENT TITLE: Analysing ERDs and Writing corresponding SQL statements for BigM's Database.

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Course Code: 2814ICT		Workshop/Lab day & time: Friday 9:00am – 10:45am
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Acknowledgements

1) Emon Kumar Dey

Task 1: Creating SQL Tables

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```
CREATE DATABASE IF NOT EXISTS BigM_s5213262;
USE bigm_s5213262;
SHOW TABLES;
CREATE TABLE IF NOT EXISTS CUSTOMER(
                            INT PRIMARY KEY AUTO_INCREMENT,
      Cust_Number
      Cust Fname
                             VARCHAR(30),
      Cust Lname
                                   VARCHAR(30),
      Cust Phone
                                   CHAR(10)
) ENGINE=InnoDB;
CREATE TABLE IF NOT EXISTS PRODUCT(
                             INT PRIMARY KEY AUTO_INCREMENT,
      Prod Num
      Prod Desc
                             VARCHAR(30),
      Prod Size
                             VARCHAR(30),
      Prod Price
                             DECIMAL
) ENGINE=InnoDB;
CREATE TABLE IF NOT EXISTS DEPARTMENT(
      Dept_ID
                             INT PRIMARY KEY AUTO_INCREMENT,
      Dept_Name
                             VARCHAR(30)
) ENGINE=InnoDB;
CREATE TABLE IF NOT EXISTS EMPLOYEE(
      Emp ID
                       INT PRIMARY KEY AUTO INCREMENT,
      Emp_FName VARCHAR(30),
      Emp_LName VARCHAR(30),
      Emp Phone INTEGER,
      Emp DoB
                 DATE,
                       DATE,
      Emp_StartDate
      Emp_TaxFNum
                       INTEGER,
      Emp_HourlySalary
                       DECIMAL(10,2),
      StrDept ID
                       INT.
      SupervisorID INT
) ENGINE = InnoDB;
CREATE TABLE IF NOT EXISTS STORE(
      Str_Num
                                    INT PRIMARY KEY AUTO_INCREMENT,
      Str_Name
                                    VARCHAR(50),
      Str_Phone
                                    CHAR(10),
      Str Fax
                                    CHAR(10),
      Str Email
                                    VARCHAR(40),
      StoreManagerID
                                    INT.
      SupStore Num
                             INT.
      FOREIGN KEY (StoreManagerID)
                                    REFERENCES EMPLOYEE(Emp_ID),
```

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```
FOREIGN KEY (SupStore Num)
                                    REFERENCES STORE(Str_Num)
) ENGINE=InnoDB;
CREATE TABLE IF NOT EXISTS CUSTOMERORDER(
      CustOrd ID
                                    INT PRIMARY KEY AUTO INCREMENT,
      CustOrd Date
                              DATE.
      Cust_Number
                                    INT NOT NULL,
      Str Num
                                    INT NOT NULL,
      FOREIGN KEY (Cust_Number)
                                    REFERENCES CUSTOMER (Cust Number),
      FOREIGN KEY (Str_Num)
                                    REFERENCES STORE (Str_Num)
) ENGINE=InnoDB;
CREATE TABLE IF NOT EXISTS ORDERLINE(
      CustOrd ID
                              INT,
      Prod Num
                              INT,
      OrdLn DateArrived
                              DATE,
      OrdLn_DatePicked
                              DATE,
      OrdLn Qnty
                              INT,
      PRIMARY KEY (CustOrd_ID, Prod_Num),
      FOREIGN KEY (CustOrd_ID) REFERENCES CUSTOMERORDER(CustOrd_ID),
      FOREIGN KEY (Prod_Num) REFERENCES PRODUCT (Prod_Num)
) ENGINE=InnoDB;
CREATE TABLE IF NOT EXISTS STOREDEPARTMENT(
                                    INT PRIMARY KEY AUTO_INCREMENT,
      StrDept ID
      StrDept_Phone
                              CHAR(10),
      StrDept_Email
                              VARCHAR(40),
      DeptSupervisorID
                                    INT,
      Str Num
                                    INT.
      Dept ID
                                    INT.
      FOREIGN KEY (DeptSupervisorID)
                                    REFERENCES EMPLOYEE(Emp_ID),
      FOREIGN KEY (Str_Num) REFERENCESSTORE(Str_Num),
      FOREIGN KEY (Dept ID)
                              REFERENCESDEPARTMENT(Dept_ID)
) ENGINE=InnoDB;
ALTER TABLE EMPLOYEE
ADD FOREIGN KEY (StrDept ID) REFERENCES STOREDEPARTMENT (StrDept ID);
ALTER TABLE EMPLOYEE
ADD FOREIGN KEY (SupervisorID) REFERENCES EMPLOYEE (Emp. ID);
CREATE TABLE IF NOT EXISTS PAYSLIP(
                              INT PRIMARY KEY AUTO_INCREMENT,
      Pay ID
      Pay_date
                                    DATE,
      Pay num of hours
                                    INT NOT NULL,
      Pay amount gross
                                    DOUBLE NOT NULL,
      Emp ID
                                    INT NOT NULL,
      Str Num
                                    INT NOT NULL,
      FOREIGN KEY (Emp ID)
                                    REFERENCES EMPLOYEE (Emp ID),
      FOREIGN KEY (Str Num)
                                    REFERENCES STORE (Str Num)
) ENGINE=InnoDB;
CREATE TABLE IF NOT EXISTS INVENTORY(
      ProductNum
                                    INT,
      Str Num
                                    INT,
      Inv QntyOnHand
                                    INT NOT NULL,
      Inv_QtyOrdered
                                    INT NOT NULL,
      PRIMARY KEY (ProductNum, Str Num),
      FOREIGN KEY (ProductNum) REFERENCES PRODUCT (Prod Num),
      FOREIGN KEY (Str_Num) REFERENCES STORE (Str_Num)
) ENGINE=InnoDB;
```

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Task 2: Inserting Records

```
USE bigm s5213262;
INSERT INTO CUSTOMER VALUES
        (NULL, 'Buffy', 'Winters', '0412345678'),
        (NULL. 'Duwon'. 'Ha'. '0455803205').
        (NULL, 'Kavya', 'Krishnakumar', '0489789774'),
        (NULL, 'Jack', 'Tomlinson', '0484787854'),
        (NULL, 'Shinzo', 'Tanimoto', '0435607767'), (NULL, 'Jone', 'Tyler', '0445679873'),
        (NULL, 'Princess', 'Ha', '0413247477'),
        (NULL, 'David', 'Bieber', '0412522377');
INSERT INTO PRODUCT VALUES
        (NULL, 'Gardening Scissors', 'Medium', 10),
        (NULL, 'Shirt', 'Medium', 30),
        (NULL, 'Kitchen Knives Set Deluxe', 'Medium', 120),
        (NULL, 'Basketball Regulation Size', 'Small', 350),
        (NULL, 'Nickson James Hits', 'Small', 50),
        (NULL, '100% Polyester sleepwear', 'Large', 120),
        (NULL, 'Jordan Shoes', 'Small', 700);
INSERT INTO DEPARTMENT VALUES
        (NULL, 'Sports'),
        (NULL, 'Clothes'),
        (NULL, 'Kitchen'),
        (NULL, 'Homeware'),
        (NULL, 'Garden');
INSERT INTO EMPLOYEE(Emp_ID, Emp_FName, Emp_LName, Emp_Phone, Emp_DoB,
Emp StartDate, Emp TaxFNum, Emp HourlySalary) VALUES
        (NULL, 'Koupa', 'Taylor', '0321224224', '2002-03-12', '2020-05-02', 12345678, 30),
        (NULL, 'Ben', 'Flint', '0434551234', '1999-06-12', '2020-05-02', 15125677, 60),
       (NULL, 'Harry', 'Robin', '0449879343', '2002-07-07', '2020-09-12', 98765432, 30), (NULL, 'Elizabeth', 'Then', '0421252322', '1998-03-23', '2021-03-02', 9823124, 30), (NULL, 'Jordan', 'Nickson', '0414279846', '1989-08-01', '2010-04-20', 09872525, 40),
        (NULL, 'Jason', 'Micheal', '0412340987', '1997-05-04', '2019-12-12', 102938475, 30);
INSERT INTO STORE(Str_Num, Str_Name, Str_Phone, Str_Fax, Str_Email,
StoreManagerID) VALUES
        (NULL, 'Elizabeth-Street-Branch', '0312452524', '0145252434', 'elizabeth@bigm.au',
3),
        (NULL, 'Adelaide-Street-Branch', '0124352321', '291232423', 'adelaide@bigm.au', 1),
        (NULL, 'Southbank-Branch', '023674845', '026882683', 'southbank@bigm.au', 4),
        (NULL, 'Surfers-Paradise-Branch', '0123452352', '2948274817',
'surfers.paradise@bigm.au', 5),
        (NULL, 'Mount-Gravatt-Branch', '0937192322', '2982142351',
'mountGravatt@bigm.au', 6);
```

```
INSERT INTO CUSTOMERORDER VALUES
(NULL, '2021-05-03', 1, 1),
(NULL, '2021-05-07', 2, 2),
(NULL, '2021-05-22', 3, 3),
NULL, '2021-05-12', 4, 4),
(NULL, '2021-05-25', 5, 5),
(NULL, '2021-05-30', 6, 3),
(NULL, '2021-05-22', 7, 4);
INSERT INTO ORDERLINE VALUES
       (1, 1, '2017-06-03', '2017-06-04', 3),
       (2, 2, '2021-06-07', '2021-06-09', 2),
(3, 3, '2015-06-22', '2015-06-23', 2),
       (4, 4, '2021-06-12', '2021-06-13', 1),
       (5, 5, '2014-06-17', '2014-06-20', 3);
INSERT INTO STOREDEPARTMENT VALUES
       (NULL, '1234567891', 'elizabeth.kitchen@bigm.au', 3, 1, 3),
       (NULL, '1209384756', 'adelaide.sports@bigm.au', 5, 2, 1), (NULL, '1252156215', 'southbank.kitchen@bigm.au', 4, 3, 3),
       (NULL, '9830484921', 'surfers.paradice.homewear@bigm.au', 1, 4, 4),
       (NULL, '8273182931', 'mountGravatt.garden@bigm.au', 6, 5, 5),
       (NULL, '2910242312', 'elizabeth.garden@bigm.au', 3, 1, 5),
       (NULL, '2923144212', 'adelaide.garden@bigm.au', 2, 2, 5);
UPDATE EMPLOYEE SET StrDept_ID = 4 WHERE Emp_ID = 1;
UPDATE EMPLOYEE SET StrDept_ID = 7 WHERE Emp_ID = 2;
UPDATE EMPLOYEE SET StrDept ID = 1 WHERE Emp ID = 3;
UPDATE EMPLOYEE SET StrDept ID = 3 WHERE Emp ID = 4:
UPDATE EMPLOYEE SET StrDept ID = 2 WHERE Emp ID = 5;
UPDATE EMPLOYEE SET StrDept_ID = 5 WHERE Emp_ID = 6;
UPDATE STORE SET SupStore Num = 2 WHERE Str Num = 1;
UPDATE STORE SET SupStore Num = 3 WHERE Str Num = 2;
UPDATE STORE SET SupStore Num = 4 WHERE Str Num = 3;
UPDATE STORE SET SupStore Num = 5 WHERE Str Num = 4;
UPDATE STORE SET SupStore Num = 1 WHERE Str Num = 5;
INSERT INTO PAYSLIP VALUES
       (NULL, '2021-06-30', 80, 2400, 1,2),
       (NULL, '2021-06-30', 72, 4320, 2,2),
       (NULL, '2021-06-30', 50, 1500, 3,1),
       (NULL, '2021-06-30', 60, 1800, 4,3),
       (NULL, '2021-06-30', 80, 3200, 5,4),
       (NULL, '2021-06-30', 68, 2040, 6,5);
INSERT INTO INVENTORY VALUES
       (2,2,3,4),
       (1,3,4,5),
       (3,2,1,10),
       (2,3,10,2),
       (5,4,2,4),
       (5,3,2,2),
       (6,5,5,2),
       (7,2,5,2);
```

Task 3: SQL Queries

Query 1: List of names of all employees sorted by their hourly salary.

SELECT CONCAT(Emp_FName, '', Emp_LName) AS 'Name' FROM EMPLOYEE ORDER BY Emp_HourlySalary;

Output table:



Table 1

Query 2: The date on which the most recent customer order has been made. The customer's name and date of the order will be sufficient.

SELECT CONCAT(C.Cust_FName, '', C.Cust_LName) AS 'Name', O.CustOrd_Date AS 'Date Of The Order'
FROM CUSTOMER AS C, CUSTOMERORDER AS O
WHERE C.Cust_Number = O.Cust_Number
Order by CustOrd_Date DESC
limit 0,1;

Output table:



Table 2

Query 3: List of all the store names and their manager names, sorted in dictionary order of the store name.

SELECT S.Str_Name AS 'Store Name', CONCAT(E.Emp_FName, ' ', E.Emp_LName) AS 'Name' FROM STORE AS S, EMPLOYEE AS E WHERE S.StoreManagerID = E.Emp_ID ORDER BY S.Str_Name ASC;

Table 3

Query 4: A list of all customers that have not placed an order yet. Displaying customer number and name will be sufficient.

SELECT C.Cust_Number AS 'Custom Number', CONCAT(C.Cust_FName, ' ', C.Cust_LName) AS 'Name'

FROM CUSTOMER AS C

WHERE C.Cust_Number NOT IN (SELECT Cust_Number FROM CUSTOMERORDER);

Output table:



Table 4

Query 5: A list containing the name of employees, who work as supervisors for 'Sports' departments in various stores. Show store names and the supervisors of Sports department.

SELECT S.Str_Name AS 'Store Name', CONCAT(E.Emp_FName, ' ', E.Emp_LName) AS 'Supervisor Name'

FROM STORE AS S, EMPLOYEE AS E, STOREDEPARTMENT AS SD WHERE SD.DeptSupervisorID = E.Emp_ID

AND SD.Dept_ID = (SELECT Dept_ID FROM DEPARTMENT WHERE Dept_Name = 'Sports')
AND SD.Str_Num = S.Str_Num;

Output table:

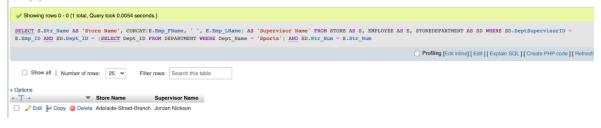


Table 5

Query 6: A list containing the total quantity on hand for each product (product number and description) regardless of stores.

SELECT P.Prod_Num AS 'Product Number', P.Prod_Desc AS 'Description', SUM(Inv_QntyOnHand) AS 'Quantity On Hand' FROM PRODUCT AS P, INVENTORY AS I WHERE P.Prod_Num = I.ProductNum GROUP BY P.Prod Num;

Output table:

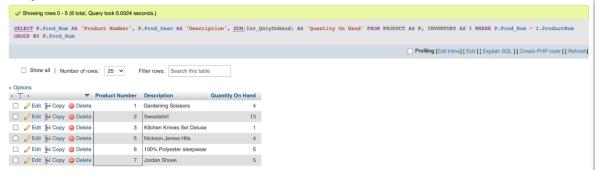


Table 6

Query 7: A list showing each product sold (picked) on or before May 20, 2018. Show product number, name and quantity sold, sorted by product number and then quantity sold.

SELECT P.Prod_Num AS 'Product Number', P.Prod_Desc AS 'Description', SUM(O.OrdLn_Qnty) AS 'Quantity Sold' FROM ORDERLINE AS O, PRODUCT AS P WHERE O.Prod_Num = P.Prod_Num AND OrdLn_DatePicked <= '2018-05-20' GROUP BY P.Prod_Num ORDER BY P.Prod_Num, sum(O.OrdLn_Qnty);

Output table:



Table 7

Query 8: A list of products (show product number, description and price) whose price is less than or equal to the average product price.

SELECT Prod_Num AS 'Product Number', Prod_Desc 'Description', Prod_Price AS '(\$) Price' FROM PRODUCT WHERE Prod_Price <= (SELECT AVG(Prod_Price) FROM PRODUCT);

Output table:



Table 8

Query 9: Increase each employee's salary by 7.5% and show the updated salary of all employees (name and salary).

UPDATE EMPLOYEE

SET Emp_HourlySalary = Emp_HourlySalary*1.075;

SELECT CONCAT(Emp_FName, ' ', Emp_LName) AS 'Name', Emp_HourlySalary AS 'Hourly Salary'
FROM EMPLOYEE:

Output table:



Table 9

Query 10: Show the pay information (employee name, hours paid, amount paid) of all employees in the most recent pay date.

Output table:



Table 10

Task 4: Inserting Additional Data

USE bigm_s5213262;

INSERT INTO CUSTOMER VALUES (NULL, 'Daniel', 'Ortega', '0431xxx668');

INSERT INTO CUSTOMERORDER VALUES

(NULL, '2018-09-06', (SELECT Cust_Number FROM CUSTOMER ORDER BY Cust_Number DESC limit 0, 1), 2);

INSERT INTO ORDERLINE VALUES

((SELECT CustOrd_ID FROM CUSTOMERORDER ORDER BY CustOrd_ID DESC limit 0, 1), 2, '2018-09-08', '2018-09-10', 2);

UPDATE INVENTORY

SET Inv_QtyOnHand = Inv_QtyOnHand - (SELECT OrdLn_Qnty FROM ORDERLINE WHERE CustOrd_ID = (SELECT CustOrd_ID FROM CUSTOMERORDER ORDER BY CustOrd_ID DESC limit 0, 1) AND Prod_Num = 2) WHERE ProductNum = 2 AND Str_Num = 2;

UPDATE INVENTORY

SET Inv_QtyOrdered = Inv_QtyOrdered + (SELECT OrdLn_Qnty FROM ORDERLINE WHERE CustOrd_ID = (SELECT CustOrd_ID FROM CUSTOMERORDER ORDER BY CustOrd_ID DESC limit 0, 1) AND Prod_Num = 2) WHERE ProductNum = 2 AND Str_Num = 2;