

Warm-up Project Report

Identifiers

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SQL Scripts

Database Schemas Creation

```
CREATE TABLE Customer(  
    cNumber          INT          NOT NULL,  
    cName            VARCHAR(20)  NOT NULL,  
    cAddress         VARCHAR(50)  NOT NULL,  
    cPhone           VARCHAR(12)  NOT NULL,  
    PRIMARY KEY(cNumber)  
);
```

```
CREATE TABLE Manufacturer(  
    mNumber          INT          NOT NULL,  
    mName            VARCHAR(20)  NOT NULL,  
    mAddress         VARCHAR(50)  NOT NULL,  
    mManager         VARCHAR(20)  NOT NULL,  
    mPhone           VARCHAR(12)  NOT NULL,  
    PRIMARY KEY(mNumber)  
);
```

```
CREATE TABLE Product(  
    pNumber          INT          NOT NULL,  
    mNumber          INT          NOT NULL,  
    pName            VARCHAR(30)  NOT NULL,  
    pUnitPrice       FLOAT(10)    NOT NULL,  
    PRIMARY KEY(pNumber, mNumber)  
);
```

```
CREATE TABLE Shippment(  
    oNumber          INT          NOT NULL,  
    cNumber          INT          NOT NULL,  
    sDate            VARCHAR(30)  NOT NULL,  
    receivedDate     VARCHAR(30)  NOT NULL,  
    PRIMARY KEY(oNumber)  
);
```

```
CREATE TABLE OrderDetail(
    oNumber          INT          NOT NULL,
    oDate            VARCHAR(30)  NOT NULL,
    detailNo         INT          NOT NULL,
    pNumber          INT          NOT NULL,
    oQuantity        INT          NOT NULL,
    Cost             FLOAT(10)    NOT NULL,
    PRIMARY KEY(oNumber, detailNo)
);
```

Date Tuples

INSERT INTO Customer

VALUES (1, "Usha Trevizo", "839 Meadow Street Aberdeen, SD 57401", "613-555-0110"),
 (2, "Sharika Comeau", "661 Amherst Street Clarksville, TN 37040", "613-555-0166"),
 (3, "Tessa Kearney", "481 Grant Street Lapeer, MI 48446", "613-555-0132"),
 (4, "Gail Dabbs", "208 7th Street Kent, OH 44240", "613-555-0178"),
 (5, "Amira Beers", "419 Washington Street Ridgefield, CT 06877", "613-555-0103"),
 (6, "Shyla Pinedo", "771 Canterbury Road Glasgow, KY 42141", "613-555-0117"),
 (7, "Wonda Gee", "621 Mulberry Street Windsor Mill, MD 21244", "613-555-0175"),
 (8, "Francesco Juhasz", "463 Maple Lane Port Richey, FL 34668", "613-555-0176"),
 (9, "Gertha Aubrey", "23 Wall Street Littleton, CO 80123", "613-555-0148"),
 (10, "Jefferey Mcgehee", "313 Prospect Street Warren, MI 48089", "613-555-0160"),
 (11, "Sherryl Voss", "509 Ridge Road Saint Albans, NY 11412", "613-555-0164"),
 (12, "Ashlyn Frenette", "993 Maple Street Sarasota, FL 34231", "613-555-0112"),
 (13, "Rosena Ebeling", "833 Ridge Avenue Concord, NH 03301", "613-555-0141"),
 (14, "Lavina Ploss", "300 8th Avenue Grand Forks, ND 58201", "613-555-0191"),
 (15, "Frank Lopez", "264 Valley Drive Fairfax, VA 22030", "613-555-0187");

INSERT INTO Manufacturer

VALUES (1, "Go Manufacturer", "805 Holly Drive Palm City, FL 34990", "Franklyn Farnes", "613-555-0131"),
 (2, "Manufacturer Group", "173 Jefferson Street Blacksburg, VA 24060", "Whitney Akey", "613-555-0137"),
 (3, "Manufacturer Media", "375 5th Street South San Carlos, CA 94070", "Elizabeth Aldana", "613-555-0123"),
 (4, "Manufacturer Design", "823 Church Road Quakertown, PA 18951", "Deane Kehl", "613-555-0107"),
 (5, "Pro Manufacturer", "876 Tanglewood Drive Morganton, NC 28655", "Dwain Lathem", "613-555-0180"),
 (6, "Manufacturer Site", "192 Olive Street North Haven, CT 06473", "Denisse Oh", "613-555-0161"),
 (7, "Manufacturer TV", "747 Bank Street Satellite Beach, FL 32937", "Arcelia Cesare", "613-555-0134"),
 (8, "Manufacturer Now", "477 Route 27 Kennesaw, GA 30144", "Elza Beall", "613-555-0152"),
 (9, "Manufacturer Plus", "24 Hamilton Road Parsippany, NJ 07054", "Alyssa Henningsen", "613-555-0108"),

(10, "All Manufacturer", "913 Colonial Avenue Huntington Station, NY 11746", "Jonathon Quist", "613-555-0187"),
(11, "Manufacturer Pro", "99 Forest Drive Glenside, PA 19038", "Nu Juarez", "613-555-0162"),
(12, "Manufacturer Club", "664 Summit Street Camas, WA 98607", "Kimbra Mire", "613-555-0114"),
(13, "Manufacturer Market", "848 Cambridge Road Deltona, FL 32725", "Robert Bigger", "613-555-0150"),
(14, "Manufacturer Tech", "243 Brown Street Port Chester, NY 10573", "Stan Kilday", "613-555-0159"),
(15, "Free Manufacturer", "503 Holly Court West Bend, WI 53095", "Racquel Strozier", "613-555-0178");

INSERT INTO Product

VALUES (1, 1, "Go Pro Hero", 80.20),
(2, 1, "Go Pro Hero 2", 120.25),
(3, 1, "Go Pro Lite", 50.75),
(4, 2, "Office Chair", 45.50),
(5, 2, "Extendable Desk", 120.25),
(6, 2, "Light Bulb 60W", 9.99),
(7, 2, "Light Bulb 30W", 4.99),
(8, 3, "Rasberry Pie", 37.85),
(9, 3, "Nexus Tablet", 80.85),
(10, 3, "Cyborg Tablet", 120.75),
(11, 4, "Business Card", 0.25),
(12, 4, "Fine Diagram", 12.25),
(13, 4, "Theme Billboard", 17.50),
(14, 5, "Pro Business Card", 0.75),
(15, 5, "Pro HR Diagram", 15.75),
(16, 5, "Pro Billboard", 27.50),
(17, 6, "Carpet XL", 120.73),
(18, 6, "Carpet XXL", 210.30),
(19, 7, "LCD 70 Aquos", 1575.50),
(20, 7, "Plasma 32 Aquos", 567.75),
(21, 8, "Direct Enveloppe", 0.75),
(22, 8, "Direct XL Enveloppe", 1.25),
(23, 9, "Plus Office Chair", 125.85),
(24, 9, "Plus Desk Suite", 345.67),
(25, 10, "Scotch Tape Clear", 1.20),
(26, 10, "Scotch Tape Thick", 2.20),
(27, 10, "Scotch Tape Stick", 1.75),
(28, 11, "Dotted Diagram Pro", 23.76),
(29, 11, "Fine Track Pro", 15.70),
(30, 12, "Right Golf Clubs", 160.45),
(31, 12, "Left Golf Clubs", 230.45),
(32, 13, "Studio Pencil", 1.55),

(33, 13, "Cobalt Pencil", 0.75),
(34, 13, "Azure Pencil", 1.25),
(35, 14, "USB Cable", 12.75),
(36, 14, "HDMI Cable", 47.65),
(37, 14, "DVI/AVI Cable", 23.71),
(38, 15, "Recycled Paper", 15.01),
(39, 15, "Letter Recycled Paper", 17.01),
(40, 15, "Free Length Paper", 27.01),
(41, 3, "Good Hardware", 22.99),
(42, 12, "Mediocre Hardware", 9.99),
(43, 15, "Bad Hardware", 2.99);

INSERT INTO Shipment

VALUES (1, 10, "2007-10-10", "2007-10-17"),
(2, 9, "2007-11-16", "2007-11-19"),
(3, 2, "2008-09-04", "2008-09-10"),
(4, 7, "2008-10-15", "2008-10-20"),
(5, 15, "2010-02-17", "2010-02-21"),
(6, 13, "2011-01-07", "2011-01-12"),
(7, 1, "2011-10-25", "2011-10-29"),
(8, 3, "2012-06-12", "2012-06-17"),
(9, 14, "2012-10-15", "2012-10-19"),
(10, 6, "2013-09-19", "2013-09-27"),
(11, 12, "2013-11-01", "2013-11-14"),
(12, 4, "2014-08-20", "2014-08-22"),
(13, 8, "2016-02-04", "2016-02-11"),
(14, 11, "2016-05-11", "2016-05-15"),
(15, 5, "2016-07-22", "2016-07-27"),
(16, 5, "2016-07-22", "2016-07-27"),
(17, 5, "2016-07-22", "2016-07-27"),
(18, 5, "2016-07-22", "2016-07-27"),
(19, 5, "2016-07-22", "2016-07-27"),
(20, 5, "2016-07-22", "2016-07-27"),
(21, 5, "2016-07-22", "2016-07-27"),
(22, 5, "2016-07-22", "2016-07-27"),
(23, 5, "2016-07-22", "2016-07-27"),
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(26, 5, "2016-07-22", "2016-07-27"),
(27, 5, "2016-07-22", "2016-07-27"),
(28, 5, "2016-07-22", "2016-07-27"),
(29, 5, "2016-07-22", "2016-07-27"),

(30, 5, "2016-07-22", "2016-07-27"),
(31, 5, "2016-07-22", "2016-07-27"),
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(37, 5, "2016-07-22", "2016-07-27"),
(38, 5, "2016-07-22", "2016-07-27"),
(39, 5, "2016-07-22", "2016-07-27"),
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(42, 5, "2016-07-22", "2016-07-27"),
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(45, 5, "2016-07-22", "2016-07-27"),
(46, 5, "2016-07-22", "2016-07-27"),
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(49, 5, "2016-07-22", "2016-07-27"),
(50, 5, "2016-07-22", "2016-07-27"),
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(52, 5, "2016-07-22", "2016-07-27"),
(53, 5, "2016-07-22", "2016-07-27"),
(54, 5, "2016-07-22", "2016-07-27"),
(55, 5, "2016-07-22", "2016-07-27"),
(56, 5, "2016-07-22", "2016-07-27"),
(57, 5, "2016-07-22", "2016-07-27");

INSERT INTO OrderDetail
VALUES (1, "2007-10-7", 1, 32, 10, 15.5),
(2, "2007-11-12", 2, 14, 6, 4.5),
(3, "2008-09-01", 3, 38, 4, 60.04),
(3, "2016-02-01", 13, 7, 1, 4.99),
(3, "2010-02-14", 5, 26, 1, 2.20),
(4, "2008-10-12", 4, 5, 2, 240.5),
(5, "2010-02-14", 5, 26, 9, 19.8),
(6, "2011-01-03", 6, 14, 7, 5.25),
(6, "2011-01-03", 2, 41, 1, 22.99),
(7, "2011-10-22", 7, 30, 2, 320.9),
(8, "2012-06-9", 8, 27, 3, 5.25),

(8, "2012-06-9", 2, 42, 1, 9.99),
(9, "2012-10-12", 9, 3, 8, 406),
(10, "2013-09-15", 10, 2, 7, 841.75),
(11, "2013-10-27", 11, 9, 8, 646.8),
(12, "2014-08-15", 12, 19, 6, 9453),
(12, "2014-08-15", 2, 43, 1, 2.99),
(13, "2016-02-01", 13, 7, 8, 39.92),
(14, "2016-05-08", 14, 5, 6, 721.5),
(15, "2016-07-18", 15, 14, 2, 1.5),
(16, "2016-07-18", 16, 1, 1, 1.5),
(17, "2016-07-18", 17, 2, 1, 1.5),
(18, "2016-07-18", 18, 3, 1, 1.5),
(19, "2016-07-18", 19, 4, 1, 1.5),
(20, "2016-07-18", 20, 5, 1, 1.5),
(21, "2016-07-18", 21, 6, 1, 1.5),
(22, "2016-07-18", 22, 7, 1, 1.5),
(23, "2016-07-18", 23, 8, 1, 1.5),
(24, "2016-07-18", 24, 9, 1, 1.5),
(25, "2016-07-18", 25, 10, 1, 1.5),
(26, "2016-07-18", 26, 11, 1, 1.5),
(27, "2016-07-18", 27, 12, 1, 1.5),
(28, "2016-07-18", 28, 13, 1, 1.5),
(29, "2016-07-18", 29, 15, 1, 1.5),
(30, "2016-07-18", 30, 16, 1, 1.5),
(31, "2016-07-18", 31, 17, 1, 1.5),
(32, "2016-07-18", 32, 18, 1, 1.5),
(33, "2016-07-18", 33, 19, 1, 1.5),
(34, "2016-07-18", 34, 20, 1, 1.5),
(35, "2016-07-18", 35, 21, 1, 1.5),
(36, "2016-07-18", 36, 22, 1, 1.5),
(37, "2016-07-18", 37, 23, 1, 1.5),
(38, "2016-07-18", 38, 24, 1, 1.5),
(39, "2016-07-18", 39, 25, 1, 1.5),
(40, "2016-07-18", 40, 26, 1, 1.5),
(41, "2016-07-18", 41, 27, 1, 1.5),
(42, "2016-07-18", 42, 28, 1, 1.5),
(43, "2016-07-18", 43, 29, 1, 1.5),
(44, "2016-07-18", 44, 30, 1, 1.5),
(45, "2016-07-18", 45, 31, 1, 1.5),
(46, "2016-07-18", 46, 32, 1, 1.5),
(47, "2016-07-18", 47, 33, 1, 1.5),
(48, "2016-07-18", 48, 34, 1, 1.5),

```
(49, "2016-07-18", 49, 35, 1, 1.5),  
(50, "2016-07-18", 50, 36, 1, 1.5),  
(51, "2016-07-18", 51, 37, 1, 1.5),  
(52, "2016-07-18", 52, 38, 1, 1.5),  
(53, "2016-07-18", 53, 39, 1, 1.5),  
(54, "2016-07-18", 54, 40, 1, 1.5),  
(55, "2016-07-18", 55, 41, 1, 1.5),  
(56, "2016-07-18", 56, 42, 1, 1.5),  
(57, "2016-07-18", 57, 43, 1, 1.5);
```

Queries

Query 1

```
SELECT c.cName  
FROM Customer c, Product p, OrderDetail od, Shippment s  
WHERE c.cNumber = s.cNumber AND  
       s.oNumber = od.oNumber AND  
       od.pNumber = p.pNumber AND  
       p.pName LIKE '%ware%';
```

Query 2

```
SELECT *  
FROM Product p, OrderDetail od  
WHERE od.pNumber = p.pNumber AND  
       od.oNumber = 3;
```

Query 3

```
SELECT c.cName  
FROM Customer c  
WHERE (SELECT COUNT(od.pNumber)  
       FROM OrderDetail od, Shippment s  
       WHERE od.oNumber = s.oNumber AND  
             s.cNumber = c.cNumber  
       ) = 3;
```

Query 4

```
SELECT p.pName, m.mName  
FROM Product p, Manufacturer m  
WHERE p.mNumber = m.mNumber AND p.pUnitprice > 100;
```

Query 5

```
SELECT DISTINCT cName
FROM Customer
WHERE cName not in (
  SELECT DISTINCT c.cName
  FROM Customer c, Shippment s, OrderDetail od
  WHERE c.cNumber = s.cNumber AND
    s.oNumber = od.oNumber AND
    od.pNumber in (
      SELECT DISTINCT p.pNumber
      FROM Product p, Customer c, Shippment s, OrderDetail od
      WHERE c.cName LIKE 'Frank%' AND
        c.cNumber = s.cNumber AND
        s.oNumber = od.oNumber AND
        p.pNumber = od.pNumber));
```

Query 6

```
SELECT c.cName
From Customer c
WHERE (
  SELECT COUNT(od.pNumber)
    FROM Customer c, Shippment s, OrderDetail od
    WHERE c.cNumber = s.cNumber
  AND s.oNumber = od.oNumber ) = (SELECT COUNT(*) FROM Product);
```

Query 7

```
select c.cname, min(o.oQuantity), max(o.oQuantity)
from shippment as s join orderdetail as o on s.oNumber = o.oNumber
join customer as c on c.cnumber = s.cnumber
group by c.cname;
```

Outputs

```
+-----+
| cName      |
+-----+
| Rosena Ebeling |
| Tesha Kearney |
| Gail Dabbs    |
+-----+
3 rows in set (0.00 sec)
```



```

+-----+-----+-----+-----+-----+-----+-----+-----+
| pNumber | mNumber | pName          | pUnitPrice | oNumber | oDate   | detailNo | pNumber |
oQuantity | Cost   |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 38 | 15 | Recycled Paper | 15.01 | 3 | 2008-09-01 | 3 | 38 | 4 | 60.04 |
| 26 | 10 | Scotch Tape Thick | 2.2 | 3 | 2010-02-14 | 5 | 26 | 1 | 2.2 |
| 7 | 2 | Light Bulb 30W | 4.99 | 3 | 2016-02-01 | 13 | 7 | 1 | 4.99 |
+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

```

```

+-----+
| cName      |
+-----+
| Sharika Comeau |
+-----+
1 row in set (0.01 sec)

```

```

+-----+-----+
| pName      | mName      |
+-----+-----+
| Go Pro Hero 2 | Go Manufacturer |
| Extendable Desk | Manufacturer Group |
| Cyborg Tablet | Manufacturer Media |
| Carpet XL | Manufacturer Site |
| Carpet XXL | Manufacturer Site |
| LCD 70 Aquos | Manufacturer TV |
| Plasma 32 Aquos | Manufacturer TV |
| Plus Office Chair | Manufacturer Plus |
| Plus Desk Suite | Manufacturer Plus |
| Right Golf Clubs | Manufacturer Club |
| Left Golf Clubs | Manufacturer Club |
+-----+-----+
11 rows in set (0.00 sec)

```

```

+-----+
| cName      |
+-----+
| Usha Trevizo |
| Tesha Kearney |
| Gail Dabbs |
| Amira Beers |
| Shyla Pinedo |

```

Wonda Gee
Francesco Juhasz
Gertha Aubrey
Jefferey Mcgehee
Sherryl Voss
Ashlyn Frenette
Rosena Ebeling
Lavina Ploss

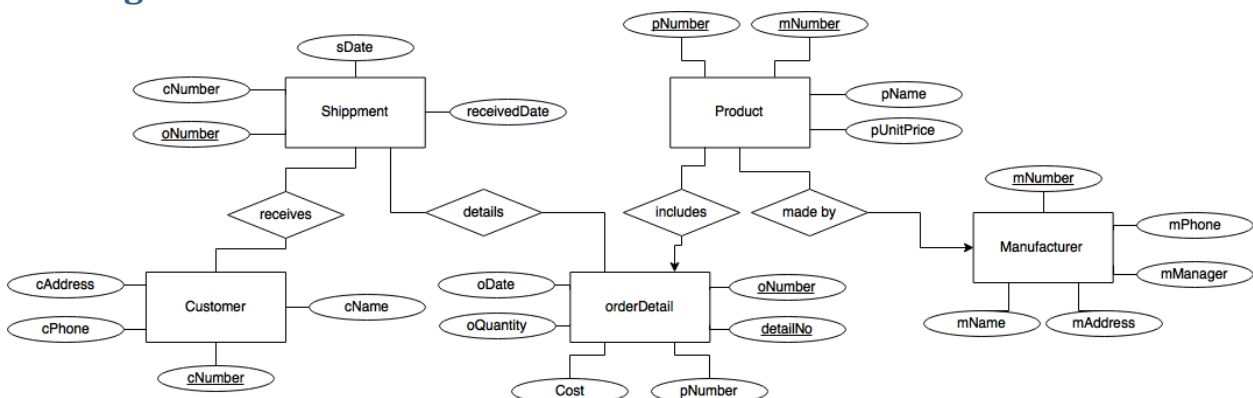
+-----+

13 rows in set (0.02 sec)

cname	min(o.oQuantity)	max(o.oQuantity)
Amira Beers	2	2
Ashlyn Frenette	8	8
Francesco Juhasz	8	8
Frank Lopez	9	9
Gail Dabbs	1	6
Gertha Aubrey	6	6
Jefferey Mcgehee	10	10
Lavina Ploss	8	8
Rosena Ebeling	1	7
Sharika Comeau	1	4
Sherryl Voss	6	6
Shyla Pinedo	7	7
Tesha Kearney	1	3
Usha Trevizo	2	2
Wonda Gee	2	2

+-----+

ER-Diagram



Potential Issues

The problem with having cost as part of the order detail table is that it creates redundancy in the data. We want to avoid putting calculable values in tables because it wastes storage space. We already have the unit price in the product table so it is possible to calculate the cost by multiplying the price and the quantity. Also since cost is dependent on the price it doesn't really make sense to keep them separate. If for some reason, the price was changed and the order would have to be modified, we would have change the data from two fields instead of one. If we simply remove the cost from the order detail table we fix this redundancy.