

HW 4
Due 10 March
(Monday)

```
insert into THE(select o.odetails
                from o_orders o
                where ono = 1020)
values (10800,5);
```

• Write and execute all queries for Exercise 2.3 on tinman Oracle.

Updates and Deletes

Updates and deletes to object-relational tables are done in a similar manner to purely relational tables, using the `update` and `delete` statements. Attributes are accessed in a similar manner as in the queries.

The following `update` statement changes the street address for a particular customer:

```
update o_customers c
set    c.person.address.street = '111 New Street'
where c.cno = 1111;
```

and the following `delete` statement deletes a particular customer row:

```
delete from o_customers c
where c.person.address.street like '111%';
```

Exercises

- 2.1 To get interesting answers to queries in subsequent exercises, populate the mail-order database, using SQL `insert` statements, with at least 30 customers, 10 employees, 5 zip codes, and 50 parts. Also insert around 100 orders (an average of about 3 per customer), with each order containing an average of 2 parts.
- 2.2 Populate the grade book database, using SQL `insert` statements, with at least 50 rows in the `students` table, 10 rows in the `catalog` table, 12 rows in the `courses` table, 40 rows in the `components` table (resulting in an average of between three and four components per course), 120 rows in the `enrolls` table (resulting in an average of about 10 students in each course), and the appropriate number of rows in the `scores` table to complete the database.

2.3 Consider the following relations of the mail-order database:

```
EMPLOYEES(ENO,ENAME,ZIP,HDATE)
PARTS(PNO,PNAME,QOH,PRICE,LEVEL)
CUSTOMERS(CNO,CNAME,STREET,ZIP,PHONE)
ORDERS(ONO,CNO,ENO,RECEIVED,SHIPPED)
```

ODETAILS(ONO,PNO,QTY)
 ZIPCODES(ZIP,CITY)

Write SQL expressions that answer the following queries:

- (a) Get the names of parts that cost less than \$20.00.
- (b) Get the names and cities of employees who have taken orders for parts costing more than \$50.00.
- (c) Get the pairs of customer number values of customers having the same zip code.
- (d) Get the names of customers who have ordered parts from employees living in Wichita.
- (e) Get the names of customers who have ordered parts *only* from employees living in Wichita.
- (f) Get the names of customers who have ordered *all* parts costing less than \$20.00.
- (g) Get the names of employees along with their total sales for the year 1995.
- (h) Get the numbers and names of employees who have never made a sale to a customer living in the same zip code as the employee.
- (i) Get the names of customers who have placed the highest number of orders.
- (j) Get the names of customers who have placed the most expensive orders.
- (k) Get the names of parts that have been ordered the most (in terms of quantity ordered, not number of orders).
- (l) Get the names of parts along with the number of orders they appear in, sorted in decreasing order of the number of orders.
- (m) Get the average waiting time for all orders in number of days. The waiting time for an order is defined as the difference between the shipped date and the received date. *Note:* The dates should be truncated to 12:00 AM so that the difference is always a whole number of days.
- (n) Get the names of customers who had to wait the longest for their orders to be shipped.
- (o) For all orders greater than \$100.00, get the order number and the waiting time for the order.

2.4 Consider the following relations of the grade book database:

CATALOG(CNO,CTITLE)
 STUDENTS(SID,FNAME,LNAME,MINIT)
 COURSES(TERM,LINENO,CNO,A,B,C,D)
 COMPONENTS(TERM,LINENO,COMPNAME,MAXPOINTS,WEIGHT)