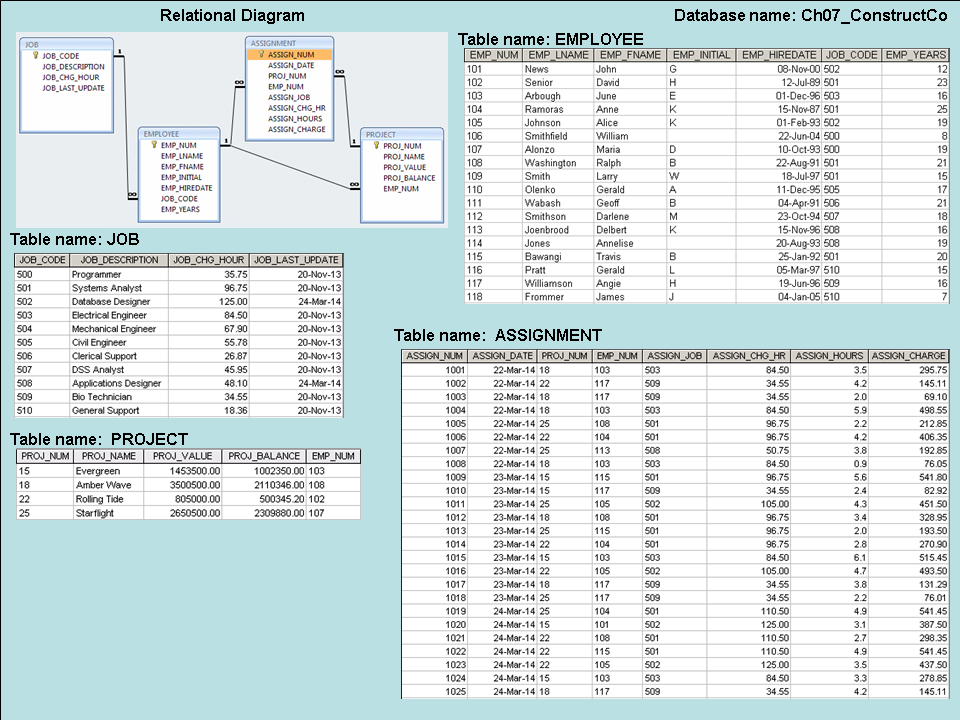
Figure P7.1 Structure and contents of the Ch07\_ConstructCo database



1. **SQL code to create the table structure for a table EMP\_1. (Note: JOB\_CODE is the FK to JOB.):**

CREATE TABLE EMP\_1 (

EMP\_NUM CHAR(3) PRIMARY KEY,

EMP\_LNAME VARCHAR(15) NOT NULL,

EMP\_FNAME VARCHAR(15) NOT NULL,

EMP\_INITIAL CHAR(1),

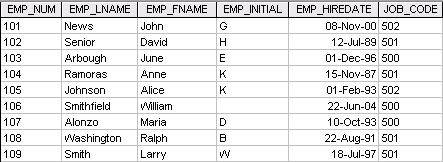
EMP\_HIREDATE DATE,

JOB\_CODE CHAR(3),

FOREIGN KEY (JOB\_CODE) REFERENCES JOB);

1. **SQL code to enter the first two rows for the table shown in Figure P7.2:**

Figure P7.2 The contents of the EMP\_1 table



INSERT INTO EMP\_1 VALUES (‘101’, ‘News’, ‘John’, ‘G’, ’08-Nov-00’, ‘502’);

INSERT INTO EMP\_1 VALUES (‘102’, ‘Senior’, ‘David’, ‘H’, ’12-Jul-89’, ‘501’);

1. **SQL code that will list all attributes for a job code of 502:**

SELECT \*

FROM EMP\_1

WHERE JOB\_CODE = ‘502’;

1. **SQL code to change the job code to 501 for the person whose employee number (EMP\_NUM) is 107:**

UPDATE EMP\_1

SET JOB\_CODE = ‘501’

WHERE EMP\_NUM = ‘107’;

1. **SQL code to delete the row for the person named William Smithfield, who was hired on June 22, 2004, and whose job code classification is 500:**

DELETE FROM EMP\_1

WHERE EMP\_LNAME = 'Smithfield'

AND EMP\_FNAME = 'William'

AND EMP\_HIREDATE = '22-June-04'

AND JOB\_CODE = '500';

1. **Write the SQL code to create a copy of EMP\_1, naming the copy EMP\_2. Then write the SQL code that will add the attributes EMP\_PCT and PROJ\_NUM to its structure. The EMP\_PCT is the bonus percentage to be paid to each employee. The new attribute characteristics are:**

**EMP\_PCTNUMBER(4,2)**

**PROJ\_NUMCHAR(3)**

**Solution A:**

CREATE TABLE EMP\_2 (

EMP\_NUM CHAR(3) NOT NULL UNIQUE,

EMP\_LNAME VARCHAR(15) NOT NULL,

EMP\_FNAME VARCHAR(15) NOT NULL,

EMP\_INITIAL CHAR(1),

EMP\_HIREDATE DATE NOT NULL,

JOB\_CODE CHAR(3) NOT NULL,

PRIMARY KEY (EMP\_NUM),

FOREIGN KEY (JOB\_CODE) REFERENCES JOB);

INSERT INTO EMP\_2 SELECT \* FROM EMP\_1;

ALTER TABLE EMP\_2

ADD (EMP\_PCT NUMBER (4,2)),

ADD (PROJ\_NUM CHAR(3));

**Solution B:**

CREATE TABLE EMP\_2 AS SELECT \* FROM EMP\_1;

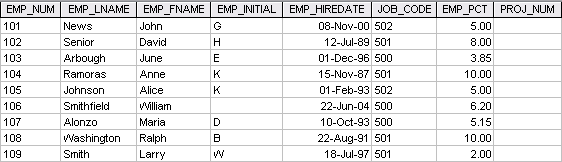
ALTER TABLE EMP\_2

ADD (EMP\_PCT NUMBER (4,2)),

ADD (PROJ\_NUM CHAR(3));

1. **Write the SQL code to change the EMP\_PCT value to 3.85 for the person whose employee number (EMP\_NUM) is 103. Next, write the SQL command sequences to change the EMP\_PCT values as shown in Figure P7.9:**

Figure P7.9 The contents of the EMP\_2 table



UPDATE EMP\_2

SET EMP\_PCT = 3.85

WHERE EMP\_NUM = '103';

To enter the remaining EMP\_PCT values, use the following SQL statements:

UPDATE EMP\_2

SET EMP\_PCT = 5.00

WHERE EMP\_NUM = ‘101’;

UPDATE EMP\_2

SET EMP\_PCT = 8.00

WHERE EMP\_NUM = ‘102’;

Follow this format for the remaining rows.

1. **SQL code that will change the project number (PROJ\_NUM) to 18 for all employees whose job classification (JOB\_CODE) is 500:**

UPDATE EMP\_2

SET PROJ\_NUM = '18'

WHERE JOB\_CODE = '500';

1. **SQL code that will change the project number (PROJ\_NUM) to 25 for all employees whose job classification (JOB\_CODE) is 502 or higher:**

Figure P7.11 The EMP\_2 table contents after the modification



UPDATE EMP\_2

SET PROJ\_NUM = '25'

WHERE JOB\_CODE > = '502'

1. **SQL code that will change the PROJ\_NUM to 14 for those employees who were hired before January 1, 1994 and whose job code is at least 501:**

UPDATE EMP\_2

SET PROJ\_NUM = '14'

WHERE EMP\_HIREDATE <= ' 01-Jan-94'

AND JOB\_CODE >= '501';

1. **Write the two SQL command sequences required to:**

There are many ways to accomplish both tasks. We are illustrating the shortest way to do the job next.

* 1. **Create a temporary table named TEMP\_1 whose structure is composed of the EMP\_2 attributes EMP\_NUM and EMP\_PCT.**
  2. **Copy the matching EMP\_2 values into the TEMP\_1 table.**

CREATE TABLE TEMP\_1

AS SELECT EMP\_NUM, EMP\_PCT

FROM EMP\_2;

An alternate way would be to create the table and then, use an INSERT with sub-select to populate the rows.

CREATE TABLE TEMP\_1 AS (

EMP\_NUM CHAR(3),

EMP\_PCT NUMBER(4,2));

INSERT INTO TEMP\_1

SELECT EMP\_NUM, EMP\_PCT FROM EMP\_2;

1. **SQL code required to list all employees whose last names start with Smith:**

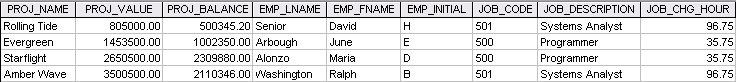
SELECT \*

FROM EMP\_2

WHERE EMP\_LNAME LIKE ‘Smith%’;

1. **Using the EMPLOYEE, JOB, and PROJECT tables in the** ConstructCo **database (see Figure P7.1), write the SQL code that will produce the results shown in Figure P7.16:**

Figure P7.16 The query results for Problem 16



SELECT PROJ\_NAME, PROJ\_VALUE, PROJ\_BALANCE, EMPLOYEE.EMP\_LNAME, EMP\_FNAME, EMP\_INITIAL, EMPLOYEE.JOB\_CODE, JOB.JOB\_DESCRIPTION, JOB.JOB\_CHG\_HOUR

FROM PROJECT, EMPLOYEE, JOB

WHERE EMPLOYEE.EMP\_NUM = PROJECT.EMP\_NUM

AND JOB.JOB\_CODE = EMPLOYEE.JOB\_CODE;

1. **SQL code that will produce a virtual table named REP\_1:**

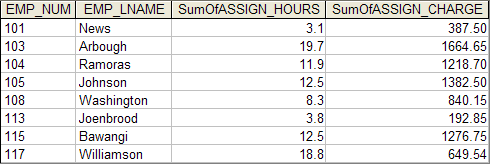
CREATE VIEW REP\_1 AS

SELECT PROJ\_NAME, PROJ\_VALUE, PROJ\_BALANCE, EMPLOYEE.EMP\_LNAME, EMP\_FNAME, EMP\_INITIAL, EMPLOYEE.JOB\_CODE, JOB.JOB\_DESCRIPTION, JOB.JOB\_CHG\_HOUR FROM PROJECT, EMPLOYEE, JOB

WHERE EMPLOYEE.EMP\_NUM = PROJECT.EMP\_NUM AND JOB.JOB\_CODE = EMPLOYEE.JOB\_CODE;

1. **Using the data in the ASSIGNMENT table, write the SQL code that will yield the total number of hours worked for each employee and the total charges stemming from those hours worked. The results of running that query are shown in Figure P7.22.**

Figure P7.22 Total hours and charges by employee



SELECT ASSIGNMENT.EMP\_NUM, EMPLOYEE.EMP\_LNAME, Sum(ASSIGNMENT.ASSIGN\_HOURS) AS

SumOfASSIGN\_HOURS,

Sum(ASSIGNMENT.ASSIGN\_CHARGE) AS

SumOfASSIGN\_CHARGE

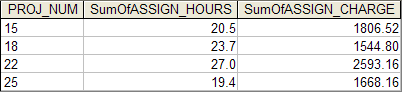
FROM EMPLOYEE, ASSIGNMENT

WHERE EMPLOYEE.EMP\_NUM = ASSIGNMENT.EMP\_NUM

GROUP BY ASSIGNMENT.EMP\_NUM, EMPLOYEE.EMP\_LNAME;

1. **Write a query to produce the total number of hours and charges for each of the projects represented in the ASSIGNMENT table. The output is shown in Figure P7.23.**

Figure P7.23 Total hour and charges by project



SELECT ASSIGNMENT.PROJ\_NUM, Sum(ASSIGNMENT.ASSIGN\_HOURS) AS SumOfASSIGN\_HOURS,

Sum(ASSIGNMENT.ASSIGN\_CHARGE) AS SumOfASSIGN\_CHARGE

FROM ASSIGNMENT

GROUP BY ASSIGNMENT.PROJ\_NUM

1. **Write the SQL code to generate the total hours worked and the total charges made by all employees. The results are shown in Figure P7.24:**

Figure P7.24 Total hours and charges, all employees

FigP7-24-Total-Hours-and-Charges

**Solution A:**

SELECT Sum(SumOfASSIGN\_HOURS) AS SumOfASSIGN\_HOURS,

Sum(SumOfASSIGN\_CHARGE) AS SumOfASSIGN\_CHARGE

FROM Q23;

**or**

SELECT Sum(SumOfASSIGN\_HOURS) AS SumOfASSIGN\_HOURS,

Sum(SumOfASSIGN\_CHARGE AS SumOfASSIGN\_CHARGE

FROM (SELECT ASSIGNMENT.PROJ\_NUM,

Sum(ASSIGNMENT.ASSIGN\_HOURS) AS

SumOfASSIGN\_HOURS,

Sum(ASSIGNMENT.ASSIGN\_CHARGE) AS

SumOfASSIGN\_CHARGE

FROM ASSIGNMENT

GROUP BY ASSIGNMENT.PROJ\_NUM

);

**Solution B:**

SELECT Sum(SumOfASSIGN\_HOURS) AS SumOfASSIGN\_HOURS,

Sum(SumOfASSIGN\_CHARGE) AS SumOfASSIGN\_CHARGE

FROM Q22;

or

SELECT Sum(SumOfASSIGN\_HOURS) AS SumOfASSIGN\_HOURS,

Sum(SumOfASSIGN\_CHARGE) AS SumOfASSIGN\_CHARGE

FROM (SELECT ASSIGNMENT.EMP\_NUM, EMPLOYEE.EMP\_LNAME, Sum(ASSIGNMENT.ASSIGN\_HOURS) AS SumOfASSIGN\_HOURS,

Sum(ASSIGNMENT.ASSIGN\_CHARGE) AS

SumOfASSIGN\_CHARGE

FROM EMPLOYEE, ASSIGNMENT

WHERE EMPLOYEE.EMP\_NUM = ASSIGNMENT.EMP\_NUM

GROUP BY ASSIGNMENT.EMP\_NUM, EMPLOYEE.EMP\_LNAME

);