



ACCESS WORKBENCH EXERCISES

In the “Access Workbench Exercises” in Chapter 1, we created a database for the Wedgewood Pacific Corporation (WPC) of Seattle, Washington, and created and populated the EMPLOYEE table. In this exercise, we will build the rest of the tables needed for the database, create the referential integrity constraints between them, and populate them.

The full set of normalized tables for the WPC database is as follows:

DEPARTMENT (DepartmentName, BudgetCode, OfficeNumber, Phone)

EMPLOYEE (EmployeeNumber, FirstName, LastName, Department, Phone, Email)

PROJECT (ProjectID, ProjectName, Department, MaxHours, StartDate, EndDate)

ASSIGNMENT (ProjectID, EmployeeNumber, HoursWorked)

The primary key of DEPARTMENT is DepartmentName, the primary key of EMPLOYEE is EmployeeNumber, and the primary key of PROJECT is ProjectID. Note that the EMPLOYEE table is the same as the table we have created, except that Department is now a foreign key. In EMPLOYEE and PROJECT, Department is a foreign key that references DepartmentName in DEPARTMENT. Note that a foreign key does not need to have the same name as the primary key to which it refers. The primary key of ASSIGNMENT is the composite (ProjectID, EmployeeNumber). ProjectID is also a foreign key that references ProjectID in PROJECT, and EmployeeNumber is a foreign key that references EmployeeNumber in EMPLOYEE.

The referential integrity constraints are:

Department in EMPLOYEE must exist in DepartmentName in DEPARTMENT

Department in PROJECT must exist in DepartmentName in DEPARTMENT

ProjectID in ASSIGNMENT must exist in ProjectID in PROJECT

EmployeeNumber in ASSIGNMENT must exist in EmployeeNumber in EMPLOYEE

- A. Figure 2-27 shows the column characteristics for the WPC DEPARTMENT table. Using the column characteristics, create the DEPARTMENT table in the WPC.accdb database.

FIGURE 2-27

Column Characteristics for the DEPARTMENT Table

Column Name	Type	Key	Required	Remarks
DepartmentName	Text (35)	Primary Key	Yes	
BudgetCode	Text (30)	No	Yes	
OfficeNumber	Text (15)	No	Yes	
Phone	Text (12)	No	Yes	

FIGURE 2-28**WPC DEPARTMENT Data**

DepartmentName	BudgetCode	OfficeNumber	Phone
Administration	BC-100-10	BLDG01-300	360-285-8100
Legal	BC-200-10	BLDG01-200	360-285-8200
Accounting	BC-300-10	BLDG01-100	360-285-8300
Finance	BC-400-10	BLDG01-140	360-285-8400
Human Resources	BC-500-10	BLDG01-180	360-285-8500
Production	BC-600-10	BLDG02-100	360-287-8600
Marketing	BC-700-10	BLDG02-200	360-287-8700
InfoSystems	BC-800-10	BLDG02-270	360-287-8800

- B. For the DEPARTMENT table, create a data input form named WPC Department Data Form. Make any necessary adjustments to the form so that all data display properly. Use this form to enter into your DEPARTMENT table the data in the DEPARTMENT table shown in Figure 2-28.
- C. Create the relationship and referential integrity constraint between DEPARTMENT and EMPLOYEE. Enable enforcing of referential integrity and enable cascading of data updates, but do *not* enable cascading of deletions.
- D. Figure 2-29 shows the column characteristics for the WPC PROJECT table. Using the column characteristics, create the PROJECT table in the WPC.accdb database.
- E. Create the relationship and referential integrity constraint between DEPARTMENT and PROJECT. Enable enforcing of referential integrity and enable cascading of data updates, but do *not* enable cascading of deletions.
- F. For the PROJECT table, create a data input form named WPC Project Data Form. Make any necessary adjustments to the form so that all data display properly. Use this form to enter into your PROJECT table the data in the PROJECT table shown in Figure 2-30.

FIGURE 2-29**Column Characteristics for the PROJECT Table**

Column Name	Type	Key	Required	Remarks
ProjectID	Number	Primary Key	Yes	Long Integer
ProjectName	Text (50)	No	Yes	
Department	Text (35)	Foreign Key	Yes	
MaxHours	Number	No	Yes	Double, fixed, 2 decimal places
StartDate	Date/Time	No	No	Medium date
EndDate	Date/Time	No	No	Medium date

(Continued)

FIGURE 2-30

WPC PROJECT Data

ProjectID	ProjectName	Department	MaxHours	StartDate	EndDate
1000	2014 Q3 Product Plan	Marketing	135.00	10-MAY-14	15-JUN-14
1100	2014 Q3 Portfolio Analysis	Finance	120.00	05-JUL-14	25-JUL-14
1200	2014 Q3 Tax Preparation	Accounting	145.00	10-AUG-14	15-OCT-14
1300	2014 Q4 Product Plan	Marketing	150.00	10-AUG-14	15-SEP-14
1400	2014 Q4 Portfolio Analysis	Finance	140.00	05-OCT-14	NULL

- G. When creating and populating the DEPARTMENT table, the data were entered into the table before the referential integrity constraint with EMPLOYEE was created, but when creating and populating the PROJECT table the referential integrity constraint was created before the data were entered. Why did the order of the steps differ? Which order is normally the correct order to use?
- H. Figure 2-31 shows the column characteristics for the WPC ASSIGNMENT table. Using the column characteristics, create the ASSIGNMENT table in the WPC.accdb database.
- I. Create the relationship and referential integrity constraint between ASSIGNMENT and PROJECT and between ASSIGNMENT and EMPLOYEE. When creating both relations, enable enforcing of referential integrity, but do *not* enable cascading of data updates or cascading of data from deleted records.
- J. For the ASSIGNMENT table, create a data input form named WPC Assignment Data Form. Make any necessary adjustments to the form so that all data display properly. Use this form to enter into your ASSIGNMENT table the data in the ASSIGNMENT table shown in Figure 2-32.
- K. When creating the relationships between the database tables, we allowed the cascading of data changes between some tables but not between others. (*Cascading* means that changes to data in one table are also made to the other table in the relationship.) The value of a primary key changes in this case, and that change

FIGURE 2-31

Column Characteristics for the ASSIGNMENT Table

Column Name	Type	Key	Required	Remarks
ProjectID	Number	Primary Key, Foreign Key	Yes	Long Integer
EmployeeNumber	Number	Primary Key, Foreign Key	Yes	Long Integer
HoursWorked	Number	No	No	Double, fixed, 1 decimal places

FIGURE 2-32

WPC ASSIGNMENT Data

ProjectID	EmployeeNumber	HoursWorked
1000	1	30.0
1000	8	75.0
1000	10	55.0
1100	4	40.0
1100	6	45.0
1200	1	25.0
1200	2	20.0
1200	4	45.0
1200	5	40.0
1300	1	35.0
1300	8	80.0
1300	10	50.0
1400	4	15.0
1400	5	10.0
1400	6	27.5

is then made in the values of the matching foreign key. Why did we enable cascading of related field values between (1) DEPARTMENT and EMPLOYEE and (2) DEPARTMENT and PROJECT but not for (3) EMPLOYEE and ASSIGNMENT and (4) PROJECT and ASSIGNMENT?

- L. For both the DEPARTMENT and EMPLOYEE tables, create a data input form named WPC Department Employee Data Form. This form should show all the employees in each department.
- M. Create a report named Wedgewood Pacific Corporation Department Employee Report that presents the data contained in your DEPARTMENT and EMPLOYEE tables. The report should group employees by department. Print out a copy of this report.