CHAPTER 6

CREATING TABLE JOINS

6.1 លក្ខណៈទូទៅរបស់ TABLE JOINS

Table-Joins ផ្តល់នូវមុខងារដ៏មានឥទ្ធិពលបំផុតមួយនៅក្នុង SQL Query Language ។ ការ Join អាចឱ្យយើងសរសេរ SELECT Statement តែមួយដើម្បីទាយយកទិន្នន័យពីក្នុង Table មួយឬច្រើន មកបង្ហាញរួមគ្នា។ ការ Join មាន ៣ ប្រភេទសំខាន់ៗក្នុង Access SQL: inner join, self join, and outer join

Syntax:

```
SELECT Column(s)
FROM Table1 Join_Type Table2 ON Join_Condition
```

To qualify a column name:

```
Table.Column
```

6.2 THE INNER JOIN KEYWORD

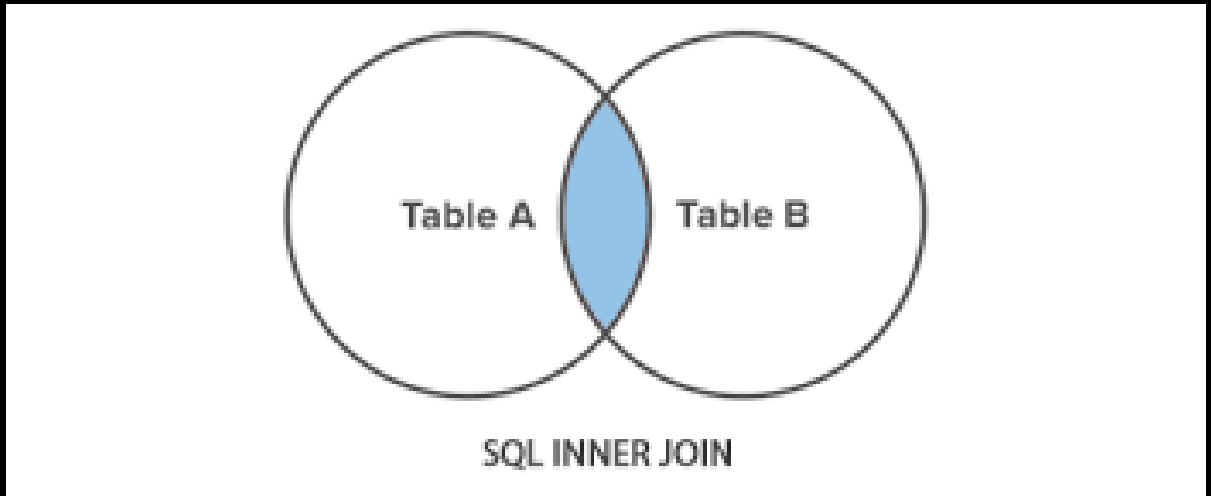
ពាក្យគន្លឹះ INNER JOIN ជ្រើសរើសកំណត់ត្រាដែលមានតម្លៃត្រូវគ្នានៅក្នុងតារាងទាំងពីរ។

Inner Join Syntax:

SELECT *column_name(s)*

FROM *table1* INNER JOIN *table2*

ON *table1.column_name = table2.column_name*



EXAMPLE: JOIN TWO TABLES

Table Customers:

CustomerID	Firstname	Lastname	Address	City	State	Zipcode	Areacode	PhoneNumber
1	Kayla	Allison	6725 3rd Ave N	Atlanta	GA	98700	301	897-3412
2	Devin	Fields	1001 30th St S	Tampa	FL	33677	813	828-8754
3	Gene	Spencer	3910 35th Ave S.	St. Pete	FL	33700	727	321-1111
4	Spencer	Madewell	32101 60th Ave E	Honolulu	HI	96822	808	423-4444
5	Reggie	Collins	1526 1st St N	Tampa	FL	33622	813	847-9002
6	Penny	Penn	2875 Treetop St N	Tampa	FL	33621	813	821-7812

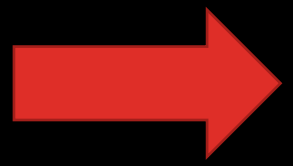
Table Transactions:

TransactionID	ProductID	CustomerID	DateSold
1	VR300	2	2/3/2008
2	CT200	2	2/5/2008
3	ET100	5	2/6/2008
4	PO200	1	2/8/2008
5	TH100	3	2/8/2008
6	RX300	4	2/10/2008
7	CE300	2	2/22/2008
8	OT100	6	2/20/2008
9	LF300	6	2/18/2008
10	BN200	1	2/17/2008

CONT'D

ឧបមាថាអ្នកចង់បង្ហាញព័ត៌មានពីក្នុង Table Customers និង Transactions ចំពោះអតិថិជនទាំងឡាយណាដែលបានទិញទំនិញ។ ដែលព័ត៌មានមានដូចជា CustomerID, LastName, ProductID, DateSold

```
SELECT Customers.Lastname,
Customers.Firstname,
Transactions.ProductID,
Transactions.DateSold
FROM Customers INNER JOIN Transactions
ON Customers.CustomerID = Transactions.CustomerID
```



Lastname	Firstname	ProductID	DateSold
Fields	Devin	VR300	2/3/2008
Fields	Devin	CT200	2/5/2008
Collins	Reggie	ET100	2/6/2008
Allison	Kayla	PO200	2/8/2008
Spencer	Gene	TH100	2/8/2008
Madewell	Spencer	RX300	2/10/2008
Fields	Devin	CE300	2/22/2008
Penn	Penny	OT100	2/20/2008
Penn	Penny	LF300	2/18/2008
Allison	Kayla	BN200	2/17/2008

CONT'D

```
SELECT C.Lastname, C.Firstname, T.ProductID, T.DateSold
FROM Customers C INNER JOIN Transactions T
ON C.CustomerID = T.CustomerID
```

Lastname	Firstname	ProductID	DateSold
Fields	Devin	VR300	2/3/2008
Fields	Devin	CT200	2/5/2008
Collins	Reggie	ET100	2/6/2008
Allison	Kayla	PO200	2/8/2008
Spencer	Gene	TH100	2/8/2008
Madewell	Spencer	RX300	2/10/2008
Fields	Devin	CE300	2/22/2008
Penn	Penny	OT100	2/20/2008
Penn	Penny	LF300	2/18/2008
Allison	Kayla	BN200	2/17/2008

EXAMPLE: JOIN THREE TABLES

Table Customers:

CustomerID	Firstname	Lastname	Address	City	State	Zipcode	Areacode	PhoneNumber
1	Kayla	Allison	6725 3rd Ave N	Atlanta	GA	98700	301	897-3412
2	Devin	Fields	1001 30th St S	Tampa	FL	33677	813	828-8754
3	Gene	Spencer	3910 35th Ave S.	St. Pete	FL	33700	727	321-1111
4	Spencer	Madewell	32101 60th Ave E	Honolulu	HI	96822	808	423-4444
5	Reggie	Collins	1526 1st St N	Tampa	FL	33622	813	847-9002
6	Penny	Penn	2875 Treetop St N	Tampa	FL	33621	813	821-7812

Table Transactions:

TransactionID	ProductID	CustomerID	DateSold
1	VR300	2	2/3/2008
2	CT200	2	2/5/2008
3	ET100	5	2/6/2008
4	PO200	1	2/8/2008
5	TH100	3	2/8/2008
6	RX300	4	2/10/2008
7	CE300	2	2/22/2008
8	OT100	6	2/20/2008
9	LF300	6	2/18/2008
10	BN200	1	2/17/2008

CONT'D

Products Table:

ProductID	ProductName	Price	SalePrice	InStock	OnOrder
AN200	Animated Picture	$20.00	$18.00	10	20
BN200	Animated Rainbow	$20.00	$18.00	10	20
CE300	Miniature Train Set	$60.00	$54.00	1	30
CT200	China Puppy	$15.00	$13.50	20	40
ET100	Wooden Clock	$11.00	$9.90	100	0
LF300	Friendly Lion	$14.00	$12.60	0	30
OT100	Dancing Bird	$10.00	$9.00	10	20
PO200	Glass Rabbit	$50.00	$45.00	50	20
RX300	Praying Statue	$25.00	$22.50	3	40
TH100	Crystal Cat	$75.00	$67.50	60	20
VR300	China Doll	$20.00	$13.00	100	0

CONT'D

ឧបមាថាអ្នកចង់បង្ហាញព័ត៌មានពីក្នុង Table Customers, Products, Transactions ចំពោះអតិថិជនទាំងឡាយណាដែលបានទិញទំនិញ។ ដែលព័ត៌មានមានដូចជា CustomerID, LastName, ProductID, ProductName, DateSold

```
SELECT C.CustomerID, C.LastName,
P.ProductID, P.ProductName, T.DateSold
FROM Customers C INNER JOIN
(Products P INNER JOIN Transactions T
ON P.ProductID=T.ProductID)
ON C.CustomerID = T.CustomerID
```

CustomerID	LastName	ProductID	ProductName	DateSold
2	Fields	VR300	China Doll	2/3/2008
2	Fields	CT200	China Puppy	2/5/2008
5	Collins	ET100	Wooden Clock	2/6/2008
1	Allison	PO200	Glass Rabbit	2/8/2008
3	Spencer	TH100	Crystal Cat	2/8/2008
4	Madewell	RX300	Praying Statue	2/10/2008
2	Fields	CE300	Miniature Train Set	2/22/2008
6	Penn	OT100	Dancing Bird	2/20/2008
6	Penn	LF300	Friendly Lion	2/18/2008
1	Allison	BN200	Animated Rainbow	2/17/2008

6.3 SELF JOIN (RECURSIVE JOIN)

ប្រភេទទីពីរនៃការ Join គឺ Selft-Join។ Self-Join ជួយឱ្យយើងអាច Join Table ណាមួយជាមួយនិង Table ខ្លួនឯង។ ពួកវាមានប្រយោជន៍នៅពេលអ្នកចង់ស្វែងរក Records ដែលមានតម្លៃដូចគ្នាជាមួយជួរផ្សេងទៀតនៅក្នុងតារាងតែមួយ។

Table tbEmployees:

ID	firstName	lastName	phone	reportsTo	*Click to Add*
4	John	Smith	3434	5	
5	Tom	Jones	4544	0	
6	Mary	James	4566	5	
7	Harry	Thomas	4564	4	
8	Wilson	Barge	4343	4	
9	Ivan	Harry	4534	5	
10	Alice	Winn	4344	9	
11	Sam	Smith	4432	9	

EXAMPLE

ឧបមាថាយើងចង់បង្ហាញឈ្មោះរបស់បុគ្គលិក (firstName, lastName) និង ឈ្មោះរបស់ Manager (firstName, lastName) ដែលបុគ្គលិកម្នាក់ៗត្រូវធ្វើរបាយការណ៍ជូន។

```
SELECT S.firstName, S.lastName,
M.firstName AS ManagerFirstName,
M.lastName AS ManagerLastName
FROM tbEmployees S INNER JOIN
tbEmployees AS M ON S.reportsTo = M.ID;
```

firstName	lastName	ManagerFirstName	ManagerLastName
John	Smith	Tom	Jones
Mary	James	Tom	Jones
Harry	Thomas	John	Smith
Wilson	Barge	John	Smith
Ivan	Harry	Tom	Jones
Alice	Winn	Ivan	Harry
Sam	Smith	Ivan	Harry

EXAMPLE

ឧបមាថាអ្នកចង់សាកសួរ Table Customers ដើម្បីរក lastName, firstName, customerID ដែលរស់នៅក្នុង State ដូចនិង State របស់អតិថិជនដែលមាន customerID=2។

```
SELECT C1.Lastname, C1.Firstname,
C1.CustomerID, C1.State
FROM Customers AS C1 INNER JOIN
Customers AS C2
ON C1.State = C2.State
WHERE C2.CustomerID = 2;
```

Lastname	Firstname	CustomerID	State
Penn	Penny	6	FL
Collins	Reggie	5	FL
Spencer	Gene	3	FL
Fields	Devin	2	FL

6.4 THE OUTER JOIN KEYWORD

OUTER JOIN ត្រូវបានប្រើដើម្បីទាញយកកំណត់ត្រាទាំងអស់ពី Table ច្រើនទោះបីមិនមានកំណត់ត្រាត្រូវគ្នានៅក្នុង Table ដែលចូលរួមក៏ដោយ។ យើងអាចនិយាយបានម្យ៉ាងទៀតថា លទ្ធផលនៃ OUTER JOIN នឹងក្លាយជាកំណត់ត្រាលទ្ធផលនៃ INNER JOIN បូកនិងកំណត់ត្រាដែលមិនមានកំណត់ត្រាដែលត្រូវគ្នានៅក្នុង Table ទីពីរ។ OUTER JOIN មានពីរប្រភេទដែលត្រូវបានប្រើនៅក្នុង SQL: RIGHT OUTER JOIN និង LEFT OUTER JOIN។

6.4.1 RIGHT OUTER JOIN

RIGHT OUTER JOIN ជ្រើសរើសរាល់កំណត់ត្រាទាំងអស់ពី Table ដែលបានបញ្ជាក់ទៅខាងស្តាំពាក្យគន្លឹះ RIGHT JOIN ។

Table Customers2:

CustomerID	Firstname	Lastname	Address	City	State	Zipcode	Areacode	PhoneNumb
1	Tom	Evans	3000 2nd Ave S	Atlanta	GA	98718	301	232-9000
2	Larry	Genes	1100 23rd Ave S	Tampa	FL	33618	813	982-3455
3	Sherry	Jones	100 Free St S	Tampa	FL	33618	813	890-4231
4	April	Jones	2110 10th St S	Santa Fe	NM	88330	505	434-1111
5	Jerry	Jones	798 22nd Ave S	St. Pete	FL	33711	727	327-3323
6	John	Little	1500 Upside Loop N	St. Pete	FL	33711	727	346-1234
7	Gerry	Lexington	5642 5th Ave S	Atlanta	GA	98718	301	832-8912
8	Henry	Denver	8790 8th St N	Holloman	NM	88330	505	423-8900
9	Nancy	Kinn	4000 22nd St S	Atlanta	GA	98718	301	879-2345

CONT'D

Table Transactions:

TransactionI	ProductID	CustomerID	DateSold
1	VR300	2	2/3/2008
2	CT200	2	2/5/2008
3	ET100	5	2/6/2008
4	PO200	1	2/8/2008
5	TH100	3	2/8/2008
6	RX300	4	2/10/2008
7	CE300	2	2/22/2008
8	OT100	6	2/20/2008
9	LF300	6	2/18/2008
10	BN200	1	2/17/2008

ឧបមាថាអ្នកចង់សាកសួរ Table Customers2 និង Transactions ដើម្បីបង្ហាញអតិថិជននិងព័ត៌មានអំពីការទិញរបស់ពួកគេ។ លើសពីនេះទៀតអ្នកចង់បង្ហាញអតិថិជនដែលមាននៅក្នុង Table Customers2 ដែលមិនទាន់បានធ្វើការទិញ។

CONT'D

```
SELECT C.CustomerID, C.Lastname, T.ProductID, T.DateSold
FROM Transactions T RIGHT JOIN Customers2 C
ON C.CustomerID = T.CustomerID
ORDER BY C.CustomerID
```

CustomerID	Lastname	ProductID	DateSold
1	Evans	PO200	2/8/2008
1	Evans	BN200	2/17/2008
2	Genes	VR300	2/3/2008
2	Genes	CT200	2/5/2008
2	Genes	CE300	2/22/2008
3	Jones	TH100	2/8/2008
4	Jones	RX300	2/10/2008
5	Jones	ET100	2/6/2008
6	Little	OT100	2/20/2008
6	Little	LF300	2/18/2008
7	Lexington		
8	Denver		
9	Kinn		

6.4.2 LEFT OUTER JOIN

Left Outer Join ដំណើរការបានច្រើនដូចជា Right Outer Join លើកលែងតែវាជ្រើសរើសរាល់កំណត់ត្រាទាំងអស់ពី Table ដែលបានបញ្ជាក់ទៅខាងឆ្វេងនៃពាក្យគន្លឹះ LEFT JOIN ។

Example: ឧបមាថាយើងចង់សាកសួរ Table Customers2 និង Transactions ដើម្បីបង្ហាញអតិថិជននិងព័ត៌មានអំពីការទិញរបស់ពួកគេ។ លើសពីនេះទៀតអ្នកចង់បង្ហាញអតិថិជននៅក្នុង Table Customers2 ដែលមិនទាន់បានធ្វើការទិញ។

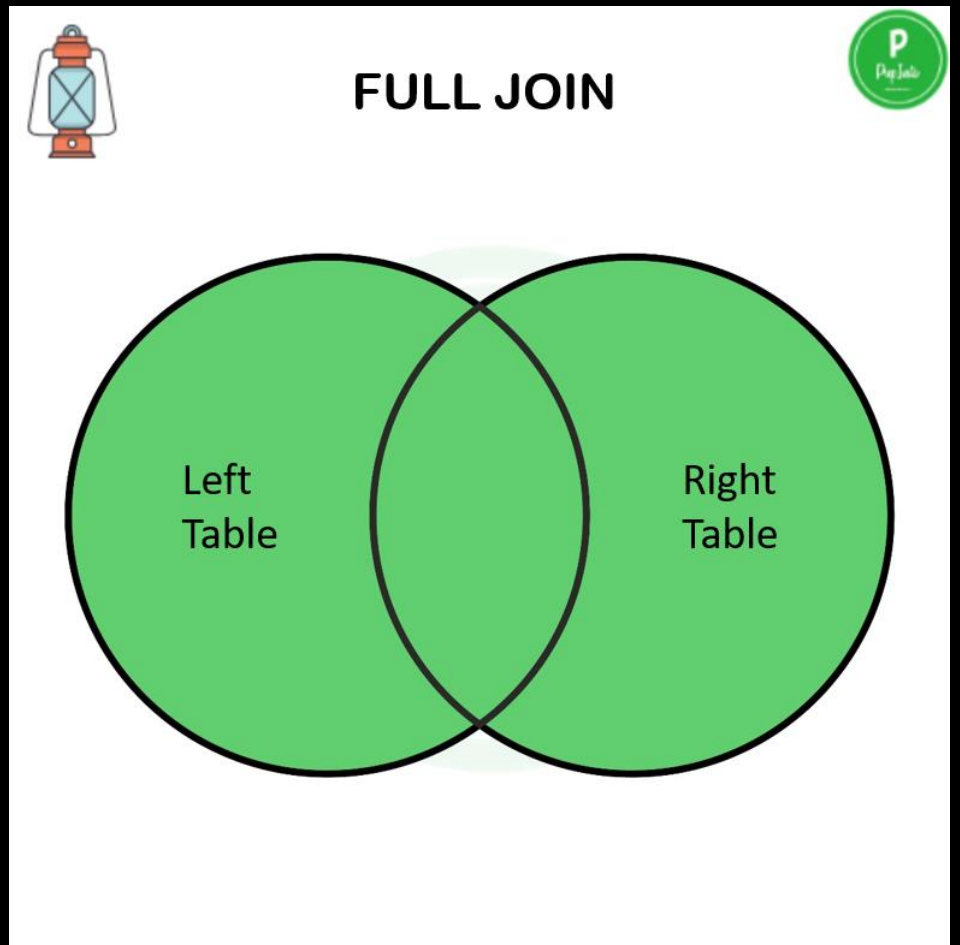
CONT'D

```
SELECT C.CustomerID, C.Lastname, T.ProductID, T.DateSold
FROM Customers2 C LEFT JOIN Transactions T
ON C.CustomerID = T.CustomerID
ORDER BY C.CustomerID
```

CustomerID	Lastname	ProductID	DateSold
1	Evans	PO200	2/8/2008
1	Evans	BN200	2/17/2008
2	Genes	VR300	2/3/2008
2	Genes	CT200	2/5/2008
2	Genes	CE300	2/22/2008
3	Jones	TH100	2/8/2008
4	Jones	RX300	2/10/2008
5	Jones	ET100	2/6/2008
6	Little	OT100	2/20/2008
6	Little	LF300	2/18/2008
7	Lexington		
8	Denver		
9	Kinn		

6.4.3 FULL OUTER JOIN

Full Outer Join គឺជាការបញ្ចូលគ្នានៃលទ្ធផល Right Join & Left Join ត្រឡប់មកវិញទាំងអស់ (ត្រូវគ្នាឬមិនត្រូវគ្នា) ពី Table ទាំងពីរ។



EXAMPLE

Table Client_First_Name

ClientID	FirstName
1	Jon
2	Maria
3	Bill
4	Mark
5	Jill

Table Client_Last_Name

ClientID	LastName
1	Smith
2	Jones
3	Brown
6	Wilson
7	Martin

EXAMPLE

```
SELECT F.ClientID, F.FirstName, L.LastName
FROM Client_First_Name F LEFT JOIN Client_Last_Name L
ON L.ClientID=F.ClientID

UNION


SELECT L.ClientID, F.FirstName, L.LastName
FROM Client_First_Name F RIGHT JOIN Client_Last_Name L
ON L.ClientID=F.ClientID
```

ClientID	FirstName	LastName
1	Jon	Smith
2	Maria	Jones
3	Bill	Brown
4	Mark	
5	Jill	
6		Wilson
7		Martin