**CS 445 Week 6**

**Matt Hartigan**

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**Initial Tables for E6.1**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 1 | Joe | E |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | N |
| 6 | Pat | N |
| 7 | Lee | N |
| 8 | Joe | E |

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| W | West |
| S | South |
| N | North |
| C | Central |

**E6.1a) If a DBMS enforces a DELETE RESTRICT option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to delete the fourth record (N, North) from TERRITORY.**

No records would be deleted because the fourth record in the TERRITORY relation is referenced by the fifth, sixth, and seventh records in the SALES\_REP relation.

**E6.1b) If a DBMS enforces a DELETE RESTRICT option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to delete the second record (W, West) from TERRITORY.**

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| --- | --- |
| **TerID** | **TerName** |
| E | East |
| S | South |
| N | North |
| C | Central |

The TERRITORY table would lose the second record (see above) and there would be no change to the SALES\_REP table because none of the records reference ‘West’ with their foreign key.

**E6.1c) If a DBMS enforces a DELETE RESTRICT option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to delete the first record (1, Joe, E) from SALES\_REP.**

The first record in SALES\_REP’s primary key value is not referenced by any foreign key; therefore, we can delete it without consequence (see table below). No change to the TERRITORY table.

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | N |
| 6 | Pat | N |
| 7 | Lee | N |
| 8 | Joe | E |

**E6.1d) If a DBMS enforces a DELETE CASCADE option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to delete the fourth record (N, North) from TERRITORY.**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 1 | Joe | E |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 8 | Joe | E |

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| W | West |
| S | South |
| C | Central |

All records in SALES\_REP referencing ‘North’ are deleted, along with the ‘North’ record in TERRITORY.

**E6.1e) If a DBMS enforces a DELETE CASCADE option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to delete the second record (W, West) from TERRITORY.**

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| S | South |
| N | North |
| C | Central |

The ‘West’ record is removed form TERRITORY, but there is no change to SALES\_REP since none of the records reference ‘West’.

**E6.1f) If a DBMS enforces a DELETE CASCADE option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to delete the first record (1, Joe, E) from SALES\_REP.**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | N |
| 6 | Pat | N |
| 7 | Lee | N |
| 8 | Joe | E |

The first record in SALES\_REP is deleted but there is no change to TERRITORY.

**E6.1g) If a DBMS enforces a DELETE SET TO NULL option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to delete the fourth record (N, North) from TERRITORY.**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 1 | Joe | E |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe |  |
| 6 | Pat |  |
| 7 | Lee |  |
| 8 | Joe | E |

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| W | West |
| S | South |
| C | Central |

Remove the ‘North’ record from TERRITORY and set the TerID value to null for the 5th, 6th, 7th record in SALES\_REP.

**E6.1h) If a DBMS enforces a DELETE SET TO NULL option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to delete the second record (W, West) from TERRITORY.**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 1 | Joe | E |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | N |
| 6 | Pat | N |
| 7 | Lee | N |
| 8 | Joe | E |

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| S | South |
| N | North |
| C | Central |

Remove ‘West’ record from TERRITORY, no change to SALES\_REP.

**E6.1i) If a DBMS enforces a DELETE SET TO NULL option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to delete the first record (1, Joe, E) from SALES\_REP.**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | N |
| 6 | Pat | N |
| 7 | Lee | N |
| 8 | Joe | E |

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| S | South |
| N | North |
| C | Central |

Remove first record from SALES\_REP, no change to TERRITORY.

**E6.1j) If a DBMS enforces a DELETE SET TO DEFAULT option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to delete the fourth record (N, North) from TERRITORY. Assume that the default value for the DeptID column in the SALES\_REP relation is ‘E’.**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 1 | Joe | E |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | E |
| 6 | Pat | E |
| 7 | Lee | E |
| 8 | Joe | E |

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| W | West |
| S | South |
| C | Central |

Delete fourth record from TERRITORY, change TerID for 5th, 6th, 7th record in SALES\_REP to E.

**E6.1k) If a DBMS enforces a DELETE SET TO DEFAULT option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to delete the second record (W, West) from TERRITORY. Assume that the default value for the DeptID column in the SALES\_REP relation is ‘E’.**

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| S | South |
| N | North |
| C | Central |

Remove second record from TERRITORY, no change to SALES REP.

**E6.1l) If a DBMS enforces a DELETE SET TO DEFAULT option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to delete the first record (1, Joe, E) from SALES\_REP. Assume that the default value for the DeptID column in the SALES\_REP relation is ‘E’.**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | N |
| 6 | Pat | N |
| 7 | Lee | N |
| 8 | Joe | E |

Remove first record from SALES\_REP, no change to TERRITORY.

**Initial Tables for E6.2**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 1 | Joe | E |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | N |
| 6 | Pat | N |
| 7 | Lee | N |
| 8 | Joe | E |

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| W | West |
| S | South |
| N | North |
| C | Central |

**E6.2a) If a DBMS enforces an UPDATE RESTRICT option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to change the fourth record (N, North) in TERRITORY to (NO, North).**

No changes can be made to either relation because records 5, 6, 7 in SALES\_REP reference the North record in TERRITORY.

**E6.2b) If a DBMS enforces an UPDATE RESTRICT option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to change the second record (W, West) in TERRITORY to (WE, West).**

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| WE | West |
| S | South |
| N | North |
| C | Central |

TERRITORY is updated as shown above. No change to SALES\_REP because no records reference West.

**E6.2c) If a DBMS enforces an UPDATE RESTRICT option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to change the first record (1, Joe, E) in SLAES\_REP to (1, Joe, C).**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 1 | Joe | C |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | N |
| 6 | Pat | N |
| 7 | Lee | N |
| 8 | Joe | E |

SALES\_REP is updated as shown above, but there is no change to TERRITORY.

**E6.2d) If a DBMS enforces an UPDATE CASCADE option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to change the fourth record (N, North) in TERRITORY to (NO, North).**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 1 | Joe | E |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | NO |
| 6 | Pat | NO |
| 7 | Lee | NO |
| 8 | Joe | E |

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| W | West |
| S | South |
| NO | North |
| C | Central |

Relations updated as shown above.

**E6.2e) If a DBMS enforces an UPDATE CASCADE option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to change the second record (W, West) in TERRITORY to (WE, West).**

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| WE | West |
| S | South |
| N | North |
| C | Central |

TERRITORY is updated as shown, but SALES\_REP is unchanged because there was no record referencing ‘West’.

**E6.2f) If a DBMS enforces an UPDATE CASCADE option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to change the first record (1, Joe, E) in SALES\_REP to (1, Joe, C).**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 1 | Joe | C |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | N |
| 6 | Pat | N |
| 7 | Lee | N |
| 8 | Joe | E |

SALES\_REP is updated as shown above, but there is no change to TERRITORY.

**E6.2g) If a DBMS enforces an UPDATE SET TO NULL option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to change the fourth record (N, North) in TERRITORY to (NO, North).**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 1 | Joe | E |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe |  |
| 6 | Pat |  |
| 7 | Lee |  |
| 8 | Joe | E |

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| W | West |
| S | South |
| NO | North |
| C | Central |

Tables updated as shown above.

**E6.2h) If a DBMS enforces an UPDATE SET TO NULL option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to change the second record (W, West) in TERRITORY to (WE, West).**

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| WE | West |
| S | South |
| N | North |
| C | Central |

TERRITORY is updated as shown, but SALES\_REP is unchanged because there was no record referencing ‘West’.

**E6.2i) If a DBMS enforces an UPDATE SET TO NULL option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to change the first record (1, Joe, E) in SLAES\_REP to (1, Joe, C).**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 1 | Joe | C |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | N |
| 6 | Pat | N |
| 7 | Lee | N |
| 8 | Joe | E |

SALES\_REP is updated as shown above, but there is no change to TERRITORY.

**E6.2j) If a DBMS enforces an UPDATE SET TO DEFAULT option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to change the fourth records (N, North) in TERRITORY to (NO, North). Assume that the default value for the DeptID column in the SALES\_REP relation is ‘E’.**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 1 | Joe | E |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | E |
| 6 | Pat | E |
| 7 | Lee | E |
| 8 | Joe | E |

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| W | West |
| S | South |
| NO | North |
| C | Central |

Tables updated as shown above.

**E6.2k) If a DBMS enforces an UPDATE SET TO DEFAULT option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to change the second record (W, West) in TERRITORY to (WE, West). Assume that the default value for the DeptID column in the SALES\_REP relation is ‘E’.**

|  |  |
| --- | --- |
| **TerID** | **TerName** |
| E | East |
| WE | West |
| S | South |
| N | North |
| C | Central |

TERRITORY is updated as shown, but SALES\_REP is unchanged because there was no record referencing ‘West’.

**E6.2l) If a DBMS enforces an UPDATE SET TO DEFAULT option on the referential integrity constraint between SALES\_REP and TERRITORY, show the records in tables SALES\_REP and TERRITORY after a user tries to change the first record (1, Joe, E) in SALES\_REP to (1, Joe, C). Assume that the default value for the DeptID column in the SALES\_REP relation is ‘E’.**

|  |  |  |
| --- | --- | --- |
| **SRID** | **SRName** | **TerID** |
| 1 | Joe | C |
| 2 | Sue | E |
| 3 | Meg | C |
| 4 | Bob | S |
| 5 | Joe | N |
| 6 | Pat | N |
| 7 | Lee | N |
| 8 | Joe | E |

SALES\_REP is updated as shown above, but there is no change to TERRITORY.