13. UPDATE

UPDATE
statement

---

13. UPDATE

Functionality

UPDATE statement modifies all rows that satisfy a given condition

The values of attributes modified by **UPDATE** statement **CAN** be restored by **ROLLBACK** statement unless **UPDATE** has been committed by **COMMIT** statement

---

13. UPDATE

Sample database

```
CREATE TABLE Department(
name              VARCHAR2(50),
code              CHAR(5),
total_staff_number NUMBER(2)           NOT NULL,
chair             VARCHAR2(50),
budget            NUMBER(9,1)          NULL,
CONSTRAINT dept_pkey PRIMARY KEY(name),
CONSTRAINT dept_ckey1 UNIQUE(code),
CONSTRAINT dept_ckey2 UNIQUE(chair),
CONSTRAINT dept_check1
CHECK (total_staff_number BETWEEN 1 AND 50)  );
```

```
CREATE TABLE Course(
c#                CHAR(7),
title             VARCHAR2(200)        NOT NULL,
credits           NUMBER(1)            NOT NULL,
offered_by        VARCHAR2(50)         NULL,
CONSTRAINT course_pkey PRIMARY KEY(c#),
CONSTRAINT course_check1
          CHECK (credits IN (6, 12) ),
CONSTRAINT course_fkey1 FOREIGN KEY(offered_by)
          REFERENCES Department(name) );
```

---

13. UPDATE

Example

```
UPDATE Course
SET credits = 12
WHERE c# IN ('CSCI235', 'CSCI205', 'CSCI203');
```

```
UPDATE Department
SET chair = 'Margaret',
    total_staff_number = total_staff_number + 1
WHERE name = 'Physics';
```

```
UPDATE Department
SET total_staff_number = total_staff_number + 2;
```

---

13. UPDATE

Computational model (UPDATE)

```
UPDATE <TABLE>
SET <ASSIGNMENTS>
WHERE <CONDITION>;
```

```
forall rows t in <TABLE>
   if evaluate(<CONDITION>, t) then
      perform all <ASSIGNMENTS> on t;
      save t in <TABLE>;
   endif;
endforall;
```

---

13. UPDATE

Computational model (UPDATE)

```
UPDATE Department
SET chair = 'Margaret',
    total_staff_number = total_staff_number + 1
WHERE name = 'Physics';
```

```
forall rows d in Department
   if d.name = 'Physics' then
      d.chair ← 'Margaret';
      d.total_staff_number ← total_staff_number + 1;
      save d in Department;
   endif;
endforall;
```

13. UPDATE

Keywords

```
UPDATE Course
SET credits = 12
WHERE c# IN ('CSCI235', 'CSCI205', 'CSCI203');

UPDATE Department
SET chair = 'Margaret',
    total_staff_number = total_staff_number + 1
WHERE name = 'Physics';

UPDATE Department
SET total_staff_number =total_staff_number + 1;
```

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13. UPDATE

Tables

```
UPDATE Course
SET credits = 12
WHERE c# IN ('CSCI235', 'CSCI205', 'CSCI203');

UPDATE Department
SET chair = 'Margaret',
    total_staff_number = total_staff_number + 1
WHERE name = 'Physics';

UPDATE Department
SET total_staff_number =total_staff_number + 1;
```

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13. UPDATE

Modifications

```
UPDATE Course
SET credits = 12
WHERE c# IN ('CSCI235','CSCI205', 'CSCI203');

UPDATE Department
SET chair = 'Margaret',
    total_staff_number = total_staff_number + 1
WHERE name = 'Physics';

UPDATE Department
SET total_staff_number =total_staff_number + 1;
```

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13. UPDATE

Conditions

```
UPDATE Course
SET credits = 12
WHERE c# IN ('CSCI235', 'CSCI205', 'CSCI203');

UPDATE Department
SET chair = 'Margaret',
    total_staff_number = total_staff_number + 1
WHERE name = 'Physics';

UPDATE Department
SET total_staff_number =total_staff_number + 1;
```

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13. UPDATE

BEWARE !!!

```
UPDATE Department SET name='IT' WHERE
name='Computer Science';

ERROR at line 1:
ORA-02292: integrity constraint
(SCOTT.COURSE_FKEY1) violated - child record
found
```

IF ON UPDATE CASCADE CLAUSE IS NOT USED IN A SPECIFICATION OF FOREIGN KEY THEN AN ORDER IN WHICH THE ROWS ARE UPDATED IS IMPORTANT !!!

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13. UPDATE

References

Elmasri R., Navathe S. B., *Database Systems*, chapter 4.4

```
https://sai.uow.edu.au/oradocs/
```
SQL Reference, UPDATE statement

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