



07. Sequence

● 1. Sequence

□ 정의

(고유한) **일련번호 생성기**

□ 용도

의미가 없지만 고유한 일련번호에 사용
ex) 접수번호, 배송번호, 등록번호

□ [참고] 식별자 4가지 특성

- ① 최소성
- ② 고유성
- ③ 존재성
- ④ 불변성

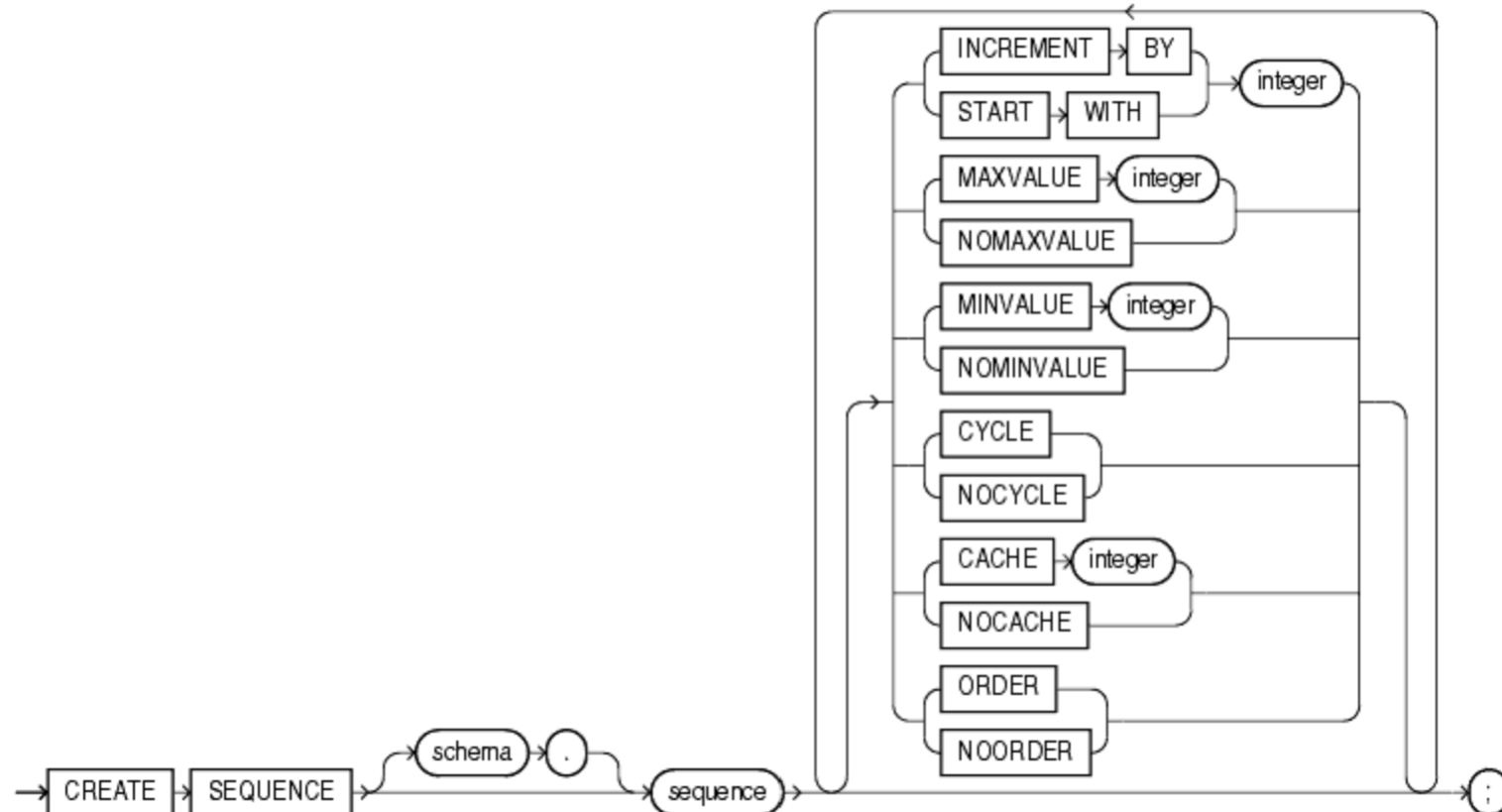
□ 일련번호 자동생성방식

- ① $\text{MAX}(\text{SEQ}) + 1$ 방식
- ② 채번 TABLE 방식
- ③ **SEQUENCE**

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❏ Syntax

`create_sequence ::=`



● 1. Sequence

❏ create sequence

① CREATE SEQUENCE SCOTT.ORDER_SEQ

```
INCREMENT BY      1
START      WITH    1
MAXVALUE          999999999999
MINVALUE          1
NOCYCLE
CACHE             30;
```

② SELECT ORDER_SEQ.CURRVAL FROM DUAL;

// error 발생 이유는?

③ SELECT ORDER_SEQ.NEXTVAL FROM DUAL;
SELECT ORDER_SEQ.CURRVAL FROM DUAL;
SELECT ORDER_SEQ.CURRVAL FROM DUAL;

// error 발생하지 않는 이유는?

④ SELECT ORDER_SEQ.NEXTVAL FROM DUAL;
SELECT ORDER_SEQ.NEXTVAL FROM DUAL;
ROLLBACK;
SELECT ORDER_SEQ.NEXTVAL FROM DUAL;

// 증가된 sequence는 rollback 되는가?

⑤ SELECT EMPNO,ENAME,ORDER_SEQ.NEXTVAL FROM EMP;

// Sequence 용도?

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❏ Session에서 sequence 테스트

Session1	Session2
⑥ SELECT ORDER_SEQ.NEXTVAL FROM DUAL;	⑦ SELECT ORDER_SEQ.NEXTVAL FROM DUAL;
⑧ SELECT ORDER_SEQ.NEXTVAL FROM DUAL;	⑨ SELECT ORDER_SEQ.NEXTVAL FROM DUAL;
⑩ SELECT ORDER_SEQ.CURRVAL FROM DUAL;	⑪ SELECT ORDER_SEQ.CURRVAL FROM DUAL;
⑬ SELECT ORDER_SEQ.CURRVAL FROM DUAL;	⑫ SELECT ORDER_SEQ.CURRVAL FROM DUAL;

// 각 Session에서 sequence object를 공유하는가?

// 각 Session에서 sequence.currval를 공유하는가?

//여러 세션(여러 Application)에서 독립적으로 동시에 사용할수 있는 공용 오브젝트

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❏ sequence 정보 조회

① CREATE SEQUENCE ORDER_SEQ2;

② SELECT * FROM USER_SEQUENCES;

SELECT sequence_name,min_value,max_value,increment_by,cycle_flag,cache_size,last_number
FROM USER_SEQUENCES;

* default value

* MAXVALUE : 28 or fewer digits

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❏ sequence 실습

C:\WSQL\WORDER_TBL.SQL

```
DROP TABLE SCOTT.ORDERS;

CREATE TABLE SCOTT.ORDERS      -- ORDER 테이블명을 사용할수 없는 이유는?
( ORDER_ID      NUMBER(12)      CONSTRAINT ORDER_ID_PK PRIMARY KEY,
  ORDER_DATE    DATE            DEFAULT SYSDATE CONSTRAINT ORDER_DATE_NN NOT NULL,
  ORDER_MODE    VARCHAR2(8)     CONSTRAINT ORDER_MODE_CHK CHECK(ORDER_MODE IN ('direct','online')),
  CUSTOMER_ID   NUMBER(6)       CONSTRAINT ORDER_CUSTOMER_ID_NN NOT NULL,
  ORDER_STATUS  NUMBER(2),      /* 0: 주문중 , 1: 주문완료, 2: 취소 , 3: 발송 4: 수취 */
  SALES_ID      NUMBER(6),      -- 판매사원번호
  CONSTRAINT ORDER_SALES_ID_FK FOREIGN KEY(SALES_ID) REFERENCES SCOTT.EMP(EMPNO)
);

DESC SCOTT.ORDERS
```

@ C:\WSQL\WORDER_TBL.SQL

// start C:\WSQL\WORDER_TBL.SQL

● 1. Sequence

❏ sequence 실습

① INSERT INTO ORDERS(ORDER_ID,ORDER_MODE,CUSTOMER_ID,ORDER_STATUS,SALES_ID)
VALUES(**ORDER_SEQ.NEXTVAL**, 'direct', 166, 1, 7499);

② INSERT INTO SCOTT.ORDERS(ORDER_ID,ORDER_DATE,ORDER_MODE,CUSTOMER_ID,ORDER_STATUS,SALES_ID)
VALUES(**SCOTT.ORDER_SEQ.NEXTVAL**, **SYSDATE**, 'online', 200, 3, 7521);

③ COMMIT;

④ INSERT INTO ORDERS(ORDER_ID,ORDER_DATE,ORDER_MODE,CUSTOMER_ID,ORDER_STATUS,SALES_ID)
VALUES(ORDER_SEQ.NEXTVAL,SYSDATE, 'online', 135, 2, 7844);

⑤ **ROLLBACK;** // ORDER_SEQ.NEXTVAL도 취소 되는가?

⑥ SELECT ORDER_ID FROM ORDERS;
SELECT ORDER_SEQ.CURRVAL FROM DUAL;

// Hole 발생

⑦ INSERT INTO ORDERS(ORDER_ID,ORDER_DATE,ORDER_MODE,CUSTOMER_ID,ORDER_STATUS,SALES_ID)
VALUES(ORDER_SEQ.NEXTVAL,SYSDATE, 'direct', 135, 4, 7844);

⑧ // MAX+1 방식 , 문제점은 ?

INSERT INTO scott.ORDERS(ORDER_ID,ORDER_MODE,CUSTOMER_ID,ORDER_STATUS,SALES_ID)
VALUES(**(SELECT MAX(ORDER_ID)+1 FROM scott.ORDERS)**, 'direct', 335, 1, 7654);

● 1. Sequence

❏ 채번 테이블 방식

C:\WSQL\WORDER_ID_TBL.SQL

```
DROP TABLE ORDER_ID;  
  
CREATE TABLE ORDER_ID  
( ORDER_SEQ NUMBER(12) );  
  
INSERT INTO SCOTT.ORDER_ID VALUES(100);  
COMMIT;
```

@ C:\WSQL\WORDER_ID_TBL.SQL // start C:\WSQL\WORDER_ID_TBL.SQL

DECLARE

V_ORDER_SEQ NUMBER(12);

BEGIN

SELECT ORDER_SEQ INTO V_ORDER_SEQ FROM ORDER_ID FOR UPDATE;

INSERT INTO ORDERS(ORDER_ID,ORDER_MODE,CUSTOMER_ID,ORDER_STATUS,SALES_ID)
VALUES(V_ORDER_SEQ,'direct',3320,2,7788);

UPDATE ORDER_ID SET ORDER_SEQ = ORDER_SEQ +1;

COMMIT;

END;

/

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□ 과제

- 1) SEQUENCE의 START 값을 10에서 다시 시작하는 방법은?
- 2) 서로 다른 SESSION에서 SEQUENCE를 공유하여 사용해보고 결과 발표
- 3) SEQUENCE를 생성하여 00000001, 00000002와 같은 8자리 접수번호를 사용하는 SQL작성 하십시오
- 4) 위의 주문(ORDERS) 테이블에 추가해야 할 컬럼을 고려해서 스크립트를 수정 하십시오