# LO6 –DML Statements

DML Statements – Data Manipulation Language

* Used to store, modify, delete, and retrieve data from a DB
* INSERT, UPDATE, DELETE, SELECT

Insert Statement – Add data

[] = optional

* Syntax: INSERT INTO tableName [(col1,col2…)] VALUES (col1Val, col2Val,…);
* If the column list is omitted, the values will be inserted in the order of the columns in the table.

ROLLBACK – Deletes any changes that have not been saved (committed)

COMMIT – saves the changes. Automatically occurs when logging off/out. Also happens whenever a DDL statement is executed (ie CREATE).

UPDATE statement

* Modify existing table rows
* Syntax: UPDATE tableName SET col1 = newVal [,col2 = newVal,…] [WHERE condition];
* If the WHERE clause is omitted, all rows in the table will attempt to update. Normally a PK field and value is used in the WHERE clause

DELETE statement

* Remove table rows
* Syntax: DELETE FROM tableName [WHERE condition];
* If you leave out where clause, it will try to delete everything( all rows)

Advanced insert/Inserting multiple rows at once

* A SELECT query can be used to get rows, and then those rows can be inserted into a table all at the same time (with insert), or inserted into a brand new table (With create).
* Syntax:
  + INSERT INTO tableName SELECT statement;
    - The fields selected must be compatible with the fields in the table
  + CREATE TABLE tableName AS SELECT statement;
    - Field types and names inferred from the SELECT statement
    - Useful for creating “snapshots” of data in a new table

SEQUENCES

* A sequence is a sequential list of numbers that Oracle generates, usually to create surrogate key values. (Auto increment)
* Syntax:
  + CREATE SEQUENCE sequenceName <- will start at 1 and increase by 1
  + CREATE SEQUENCE sequenceName [INCREMENT BY number] [START WITH startVal] [MAXVALUE maxVal] [MINVALUE minVal] [NOMAXVALUE] [NOMINVALUE] [CYCLE] [NOCYCLE] [CACHE numToCache] [NOCACHE] [ORDER] [NOORDER];
  + By default (no options), it start at 1 and increment by 1 will be created.
  + INCREMENT BY – how the values increase or decrease ( can be negative), must be an integer
  + START WITH – First sequence value. Can be positive or negative, default is 1.
  + MAXVALUE /MINVALUE – where the sequence will end when it reaches one of these.
  + CYCLE – Tells the sequence to restart at the MINVALUE or the MAXVALUE when the other is reached.
  + CACHE – Cache a number of values ahead of time, can increase performance if sequence is heavily used. NOCACHE is needed with CYCLE.
  + ORDER – granting sequence values in the exact chronological order they were requested.
* Use a sequence:
  + There are pseudoColumns called CURRVAL and NEXTVAL, current and next val, they act like columns but they are not.
  + CURRVAL – most recent sequence value retrieved urring the current user session.
  + NEXTVAL – moves to and returns the following sequence value
  + Used with sequenceName.CURRVAL or sequenceName.NEXTVAL
    - For ex: INSERT INTO table VALUES (sequenceName.NEXTVAL)