Module 4:
MERGE and INSERT OVER DML

Introducing MERGE

- **Four statements in one**
  - SELECT (with JOIN)
  - INSERT
  - UPDATE
  - DELETE
- **And even more…**
  - OUTPUT clause
  - INSERT OVER DML
- **Operates on a join**
  - Between source and target
  - Type of join based on merge clause(s)
- **More maintainable—and efficient—than individual statements**
  - 100% compatible with existing business logic
  - Existing triggers continue to work

MERGE Syntax

```
MERGE target
 USING source
 ON join
  WHEN MATCHED
   UPDATE | DELETE
  WHEN NOT MATCHED [BY TARGET]
   INSERT
  WHEN NOT MATCHED BY SOURCE
   UPDATE | DELETE
;
```

Demo

- **Using MERGE to manage a stock portfolio**

Demo

- Replicating Tables with MERGE

Demo

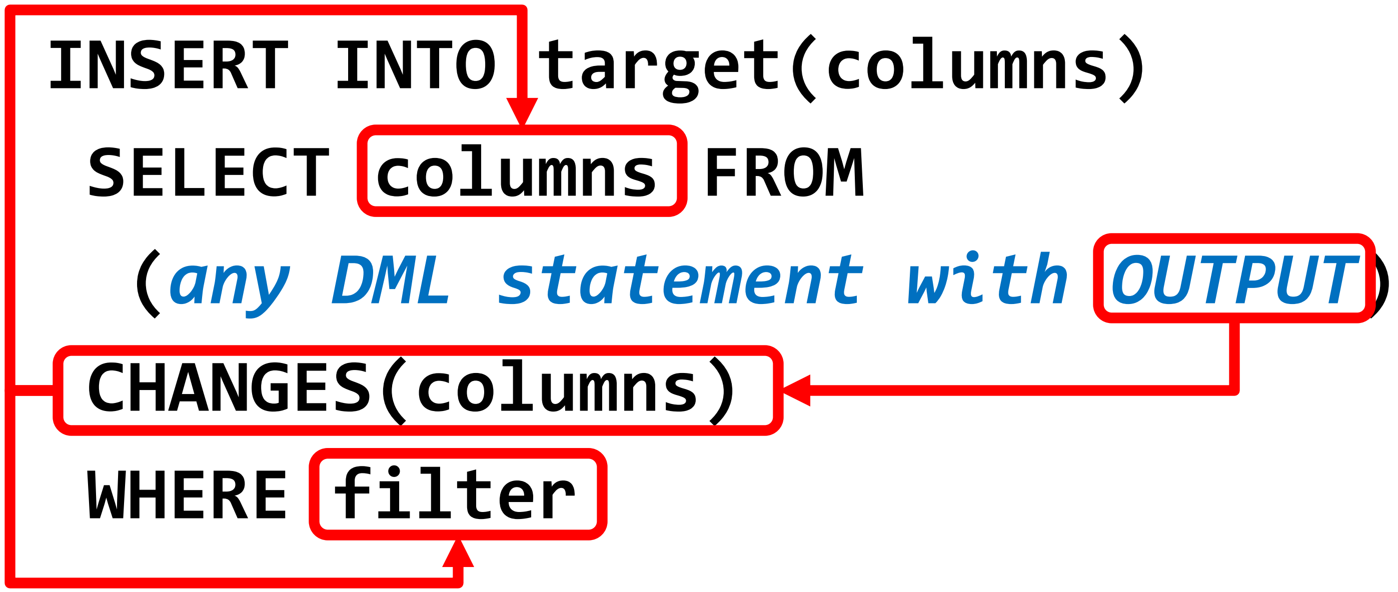
- **Examining the Query Execution Plan for MERGE**

Introducing INSERT OVER DML

DML Output

- **INSERT, UPDATE, DELETE, and MERGE all support the OUTPUT clause**
  - Captures before-and-after snapshots of modified data via INSERTED and DELETED pseudo-tables (just like triggers)
  - MERGE adds $action virtual column (returning INSERT, UPDATE or DELETE)
- **OUTPUT INTO can capture the change data to a table or table variable**
  - Suffers from one limitation – no filtering
  - Solution – use INSERT OVER DML
- **INSERT OVER DML Syntax**
  - Wrap an INSERT around any DML that has an OUTPUT (*not* OUTPUT INTO) clause
  - Use CHANGES to map OUTPUT columns from the inner DML statement for use in the outer INSERT statement

INSERT OVER DML Syntax



```
INSERT INTO target(columns)
 SELECT columns FROM
  (any DML statement with OUTPUT)
 CHANGES(columns)
 WHERE filter
```

Demo

- Capturing Change Data with OUTPUT INTO

Demo

- Capturing Change Data with INSERT OVER DML