

Practice: Using Annotations in Oracle Database 23ai

Practice Target

In this practice, you will learn how to use the new `ANNOTATIONS` clause in Oracle Database 23ai to add, update, and query annotations on schema objects. You will annotate tables, views, indexes, and columns using both key-value and name-only styles.

Practice Overview

In high level, you will perform the following tasks:

1. **Create annotations with different types on tables, views, indexes, and columns**
 2. **Modify and remove annotations**
 3. **Query annotations**
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Creating Annotations on Tables, Views, Indexes, and Columns

In this section, you will add annotations to schema objects using the correct DDL statements.

1. Open **SQL Developer** and connect to the PDB as **HR**.
2. Create sample objects:

```
CREATE TABLE dept_demo (  
    dept_id      NUMBER PRIMARY KEY,  
    dept_name VARCHAR2(100)  
);  
  
CREATE VIEW dept_view AS SELECT * FROM  
dept_demo;  
  
CREATE INDEX dept_name_idx ON dept_demo(dept_name);
```

3. Add a key-value annotation to the table:

```
ALTER TABLE dept_demo  
    ANNOTATIONS (ADD Purpose 'Stores department data');
```

4. Add a name-only annotation to the view:

```
ALTER VIEW dept_view  
    ANNOTATIONS (ADD user_accessible);
```

5. Add a key-value annotation to the index:

```
ALTER INDEX dept_name_idx  
    ANNOTATIONS (ADD Metadata  
    '{"indexed_column": "dept_name", "purpose": "search"}');
```

6. Add annotations to columns (key-value and name-only):

```
ALTER TABLE dept_demo  
    MODIFY (dept_name ANNOTATIONS (ADD Description 'Department full name'));  
  
ALTER TABLE dept_demo  
    MODIFY (dept_id ANNOTATIONS (ADD identifier));
```

Modifying and Dropping Annotations

Use ALTER...ANNOTATIONS to update or remove existing annotations.

7. Modify a table annotation:

```
ALTER TABLE dept_demo  
  ANNOTATIONS (SecurityLevel 'Internal');
```

8. Drop an annotation from the index:

```
ALTER INDEX dept_name_idx ANNOTATIONS (DROP  
  Metadata);
```

9. Drop a column annotation:

```
ALTER TABLE dept_demo  
  MODIFY (dept_name ANNOTATIONS (DROP Description));
```

Querying Annotations

Use the USER_ANNOTATIONS_USAGE dictionary view to list the annotations created in the schema.

10. View all annotations in your schema:

```
SELECT OBJECT_NAME,  
       OBJECT_TYPE,  
       COLUMN_NAME,  
       ANNOTATION_NAME,  
       ANNOTATION_VALUE  
FROM USER_ANNOTATIONS_USAGE;
```

11. As a cleanup, drop the testing table and view.

```
DROP VIEW dept_view;  
DROP TABLE hr.dept_demo PURGE;
```