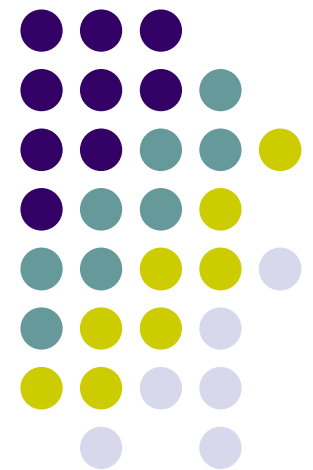


Introduction to Oracle SQL

**CIS 331:
Introduction to
Database Systems**





Topics:

- **Create and drop table**
- **Data types**
- **Insert, update, delete**
- **Operators**
- **Precedence of operators**
- **Alter table**



Create table

- CREATE TABLE

Creates a table in the database.

```
CREATE TABLE departments  
(  
    dept# NUMBER(2) NOT NULL,  
    name VARCHAR2(14),  
    location VARCHAR2(13)  
);
```



Data types

- Speaking of VARCHAR2, these are the main data types in Oracle:
 - CHAR
 - VARCHAR2
 - NUMBER
 - LONG
 - DATE
- To get a complete list of data types in Oracle, check the Oracle SQL manual.



Drop table

- DROP TABLE

Deletes a table from the database.

```
DROP TABLE departments;
```



Insert

- INSERT
Populates the database.

```
INSERT INTO departments
VALUES (10, 'ACCOUNTING', 'NEW YORK');
INSERT INTO departments
VALUES (20, 'RESEARCH', 'DALLAS');
INSERT INTO departments
VALUES (30, 'SALES', 'CHICAGO');
INSERT INTO departments
VALUES (40, 'OPERATIONS', 'BOSTON');
```



Select

- SELECT

Displays data from the database.

```
SELECT name
```

```
    FROM departments;
```

```
SELECT dept#, name, location
```

```
    FROM departments;
```

```
SELECT *
```

```
    FROM departments;
```



Update

- UPDATE
Modifies data in a table.

```
UPDATE departments  
  SET location = 'PHILADELPHIA`  
;
```

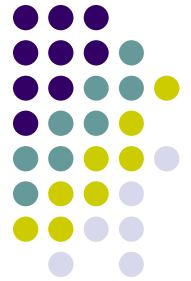


Delete

- DELETE

Removes a row or several rows from a table.

```
DELETE FROM departments;
```

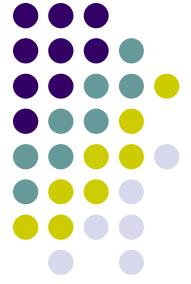


Where clause

- WHERE
Adds more power of SQL:

```
SELECT *  
  FROM departments  
   WHERE name = 'SALES`  
   OR name = 'RESEARCH`  
;
```

```
UPDATE departments  
  SET location = 'NEW ORLEANS`  
   WHERE name = 'SALES`  
   OR name = 'RESEARCH`  
;
```



More selects

- Comparisons do not necessarily have to be “equal to:”

```
SELECT *  
    FROM departments  
        WHERE dept# <= 20  
  
;
```

```
SELECT *  
    FROM departments  
        WHERE name != 'RESEARCH`  
  
;
```



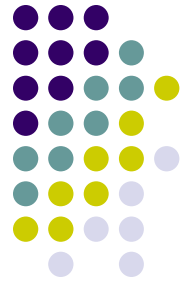
Operators in Oracle

- Arithmetic (+, -, *, /)
- Concatenation (||)
- Comparison (=, !=, <, >, <=, >=, IN, NOT IN, ANY, SOME, ALL, EXISTS, BETWEEN, LIKE, IS NULL)
- Logical (NOT, AND, OR)
- Set Operators (UNION, MINUS, INTERSECT)



Operator precedence

	Operator
high →	+, - (unary, as in +2, -3)
	*, /
	+, - (binary, as in 2+3), (string concatenation)
← low	=, !=, <, >, <=, >=, IS NULL, LIKE, BETWEEN, IN
	NOT
	AND
	OR



Alter table

- ALTER TABLE
Modifies an already existing table.

```
ALTER TABLE departments  
    ADD manager VARCHAR(32)  
;
```

```
DESC departments;
```

```
ALTER TABLE departments  
    DROP COLUMN manager  
;
```