

The right mindset to approach your practical classes

This is an **active learning** class. You are **required to prepare** (reading, completion of exercises, etc) before coming to each class.

Students will be evaluated on the ability to complete tasks assigned during each class.

Purpose of practical class

- For students to practice and apply their theoretical learning from lectures using a commercial product i.e. Oracle DBMS.
- To be aware of the actual product implementation of the SQL as compared to the standard ANSI SQL.
- To implement a physical model of a database from a previously completed logical design (DFD, ERD, UML, etc.) model.

Tools/Software required

- Oracle DBMS (currently version 20c)
- Oracle Developer (optional)
- Relevant Oracle user guide manuals (download from Oracle website)
 - SQLPlus (<https://docs.oracle.com/en/database/oracle/oracle-database/18/sqlplus/index.html>)
 - SQL (<https://docs.oracle.com/en/database/oracle/oracle-database/18/sqlrf/sql-language-reference.pdf>)
 - PL/SQL (<https://docs.oracle.com/en/database/oracle/oracle-database/18/plsql/database-pl-sql-language-reference.pdf>)
 - Database Administration
- Relevant reference books/manuals
 - SQL books
 - PL/SQL books

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Practical 1: Getting Familiar With SQL Plus

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Learning Objectives

1. Common SqlPlus commands
2. View the structure of a table
3. Edit a SQL statement
4. Save and run scripts

SQL Statement Categories

SQL statements are divided into categories based on the function that they serve.

- **Data Definition Language (DDL)**
 - CREATE, ALTER, DROP
- **Data Query Language (DQL)**
 - SELECT
- **Data Manipulation Language (DML)**
 - INSERT, UPDATE, DELETE
- **Data Control Language**
 - GRANT, REVOKE, ALTER
- **Transaction Control**
 - COMMIT, ROLLBACK

Tasks

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1. Oracle Express 18c Installation

Download Oracle Database Express Edition 18c

<https://www.oracle.com/database/technologies/xe-downloads.html>

Oracle Database Express Edition Installation Guide

<https://docs.oracle.com/en/database/oracle/oracle-database/18/xeinw>

2. Exploring Oracle Express 18c**3. Create tablespace and users****Setting up a user tablespace****Creating a role****Creating user and granting system privileges****Automate work using scripts**

- More efficient in executing multiple similar commands.

4. Login to a Pluggable database (pdb)

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```
CONNECT <username>/<password>@localhost:1521/<pdb>
```

5. Creating your sample database

- Copy the script to C:\
- Execute the scripts

6. Viewing the Structure of a Table

- Display the structure of all the tables
(*customers, employees, offices, products, productlines, orders, orderdetails*)

Syntax:

```
DESC[RIBE] table_name;
```

- Display data of your tables
- Try the various forms of the SELECT statement.

7. Introducing Stored Procedure

Refer to the Practical1-Exercise.doc file

8. Editing SQL Statements

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Each command entered at the SQLPlus will be stored in a temporary buffer. The buffer will store only the latest SQL command.

Use the default editor to edit your command (i.e. notepad for Windows OS).

Common SQLPlus commands (refer to the SQLPlus manual)

Command	Description
EDIT	
GET <file-name>	
SAVE <file-name>	
List	
RUN (or r or /)	
START (or @)	
SET	
SHOW	
SPOOL	

Adjusting width of output display

Homework:

Write SQLPlus commands to do the following:

- Formatting Columns
- Clearing Column Formatting
- Setting the Page Size
- Setting the Line Size
- Adding a Header and Footer
- Computing Subtotals