CP 215: OBJECT ORIENTED PROGRAMMING IN JAVA

Reading on Database and JDBC

Deadline: Friday 20th February, 2026

Group Work (5 Marks)

Introduction

A database is an organized collection of logically related data. The databases use Database Management Systems (DBMS) software to provide mechanism for storing, organizing, retrieving and modifying data for many users. The DBMS also provides programming interface (API) to enable application program to use database services. In this activity you will use JDBC and MySql as your DBMS to: -

  i.   To understand the concepts of databases, database management systems and SQL.
  ii.   To learn how to load a driver, connect to a database, execute statements, and process result sets using JDBC.
  iii. To use prepared statements to execute precompiled SQL statements.
  iv.   To explore database metadata using the DatabaseMetaData and ResultSetMetaData interfaces

Tasks

Read on Java Database Connectivity (JDBC) and perform the following task: - (Use MySql or SQL Server as your DBMS)

  1) In diagram, indicate the relationship between Java code, JDBC API and Database Driver (of your choice).
  2) Itemize requirements necessary to use JDBC and any DBMS (Install all packages and drivers).
  3) Understand the **steps** involved when using JDBC to connect to the DBMS and retrieve data from database into command line, or inserting/update data into tables (i.e packages, classes, methods , object etc) i.e
       - Loading driver
       - Establishing connection
       - Creating a statement
       - Executing statements

- Processing ResultSet and closing your connection

4) Make sure your handle exception
5) Write a SQL query for

- To create database called StudentData

- Create table called Student and Course

- Use java code to Insert/ update in your code / retrieve on command line data into/ from database tables.

6) Use preparedStatement to insert, select, update and delete operation
7) Use JDBC to perform batch insert, batch update and dynamically insert multiple rows into your databases.

Note: Make sure you install all necessary packages and programs.

You may also assume your database server can be accessed remotely. (Use any IP address)