Programming Assignment – 4
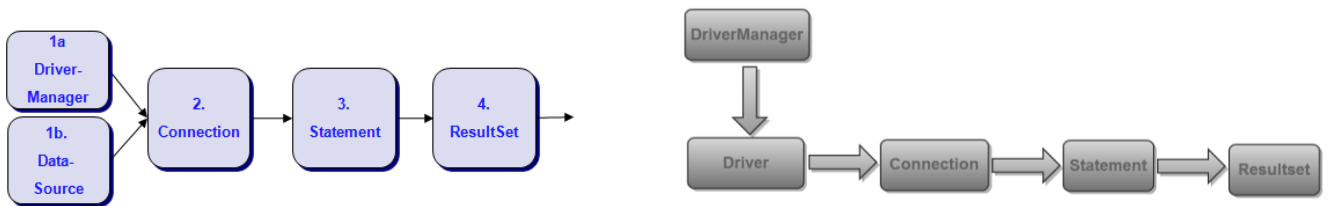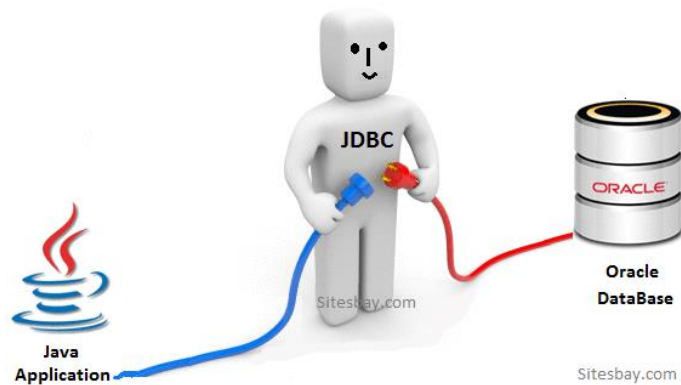
JDBC

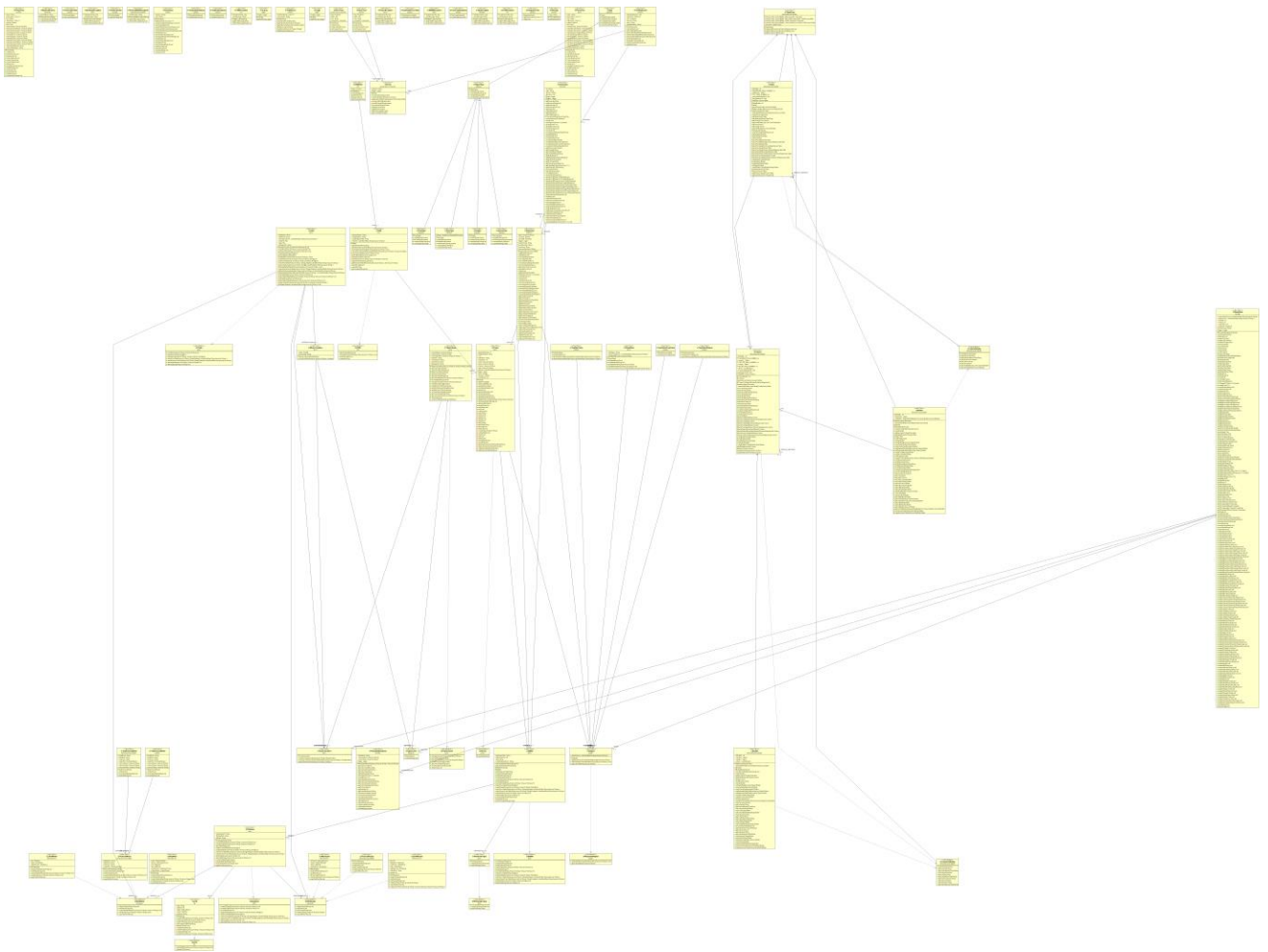# Prepared by:

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- **UML Diagram:**

- ## **User guide:**
    - JDBC stands for Java Database Connectivity. It is an API for Java that defines how the client may access a database.
    - Client has to login with his username and password which are already saved in a configuration file. This is done by calling the DriverManager which manages the driver connection since the user has no access to the driver.
    - A url, username and password are passed to the driver manager and then the connection is created.
    - After creating a connection a statement can be executed easily by using the methods in the statement class.
    - A statement has to be closed before adding another statement and a connection has to be closed on ending the connection.

- ## Queries added:

Alter table: This query used to add, delete or modify columns in an existing table.

>> **ALTER TABLE tableName ADD columnName columnType;**

>> **ALTER TABLE tableName ADD (columnNameOne columnTypeOne, columnNameTwo columnTypeTwo,…);**

>> **ALTER TABLE tableName DROP COLUMN columnName;**

>> **ALTER TABLE tableName DROP COLUMN (columnNameOne , columnNameTwo,…);**

Select Distinct from table: This query returns only distinct (different) values.

>> **SELECT DISTINCT columnNameOne, columnNameTwo,… FROM tableName ;**

>> **SELECT DISTINCT columnNameOne, columnNameTwo,… FROM tableName WHERE columnName (> - < - =) someValue ;**

- ## **Design decisions and Assumptions:**
  1. This project has the following design patterns:
     - Adapter
     - Factory
     - Strategy
     - Singleton
     - Builder (Used in the protocol buffer)
  2. We support writing the files of the database tables in (xml – json – google protocol buffer)
  3. For writing the table files, the user has to choose one way from two, either "xml" or "alt" (alternative). "alt" is mapped either to json or protocol buffer.

- ## **Division of labor:**
  1. Aya and Salma:
     - Google Protocol Buffer
     - Driver
     - Connection
     - Statement
  2. Bassent and Mira:
     - Extra queries added (Alter table, Select distinct)
     - Handling extra data types
     - JSON
     - Result Set
     - Result Set Meta Data