1. JDBC – JDBC Driver is a software component that enables java applications to interact with the database.
   1. A JDBC program comprises the following steps
      1. allocate a connection object, for connecting to the database
      2. allocate a statement object, based on the connection
      3. write sql query, execute query
      4. process the query result
      5. close the statement and connection object to free up the resources
   2. Connection, Statement, executeQuery()
   3. CRUD operations
   4. Commit/rollback
   5. SQL injection
   6. Statement, PreparedStatement, CallableStatement
2. Hibernate
   1. ORM – object relational mapping

Diagram

Description automatically generated

* 1. Implementation of ORM: Hibernate, Sequelize, MyBatis, Doctrine 2, SQLAlchemy…
  2. JPA: Java persistence API
     1. Specification
  3. Hibernate Framework
     1. Chart, diagram, box and whisker chart

        Description automatically generated
  4. Fetch type
     1. Eager loading
     2. Lazy loading
  5. Mapping
     1. One to one
     2. One to many
     3. Many to one
     4. Many to many
  6. Cascade
     1. Persist
     2. Merge
     3. Refresh
     4. Remove detach
     5. All
  7. Cache
     1. first level cache: session level (open by default)
     2. second level cache: session factory level (close by default)