Week 2 Day 4

JDBC

Java: Maven

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Java dependency manager and build automation tool

- Project configuration handled in the pom.xml

Maven Project Coordinates:

- What identify the project itself
  - group-id
  - artifact-id
  - version

Maven: Project Object Model

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The POM (Project object Model) contains:

- Project Coordinates
- Project specific properties
- Dependencies

Dependencies come from the Maven Repository

- Project will look first locally for preloaded dependencies
- Project will download any missing dependencies from the Maven Repository

Maven: LifeCycles

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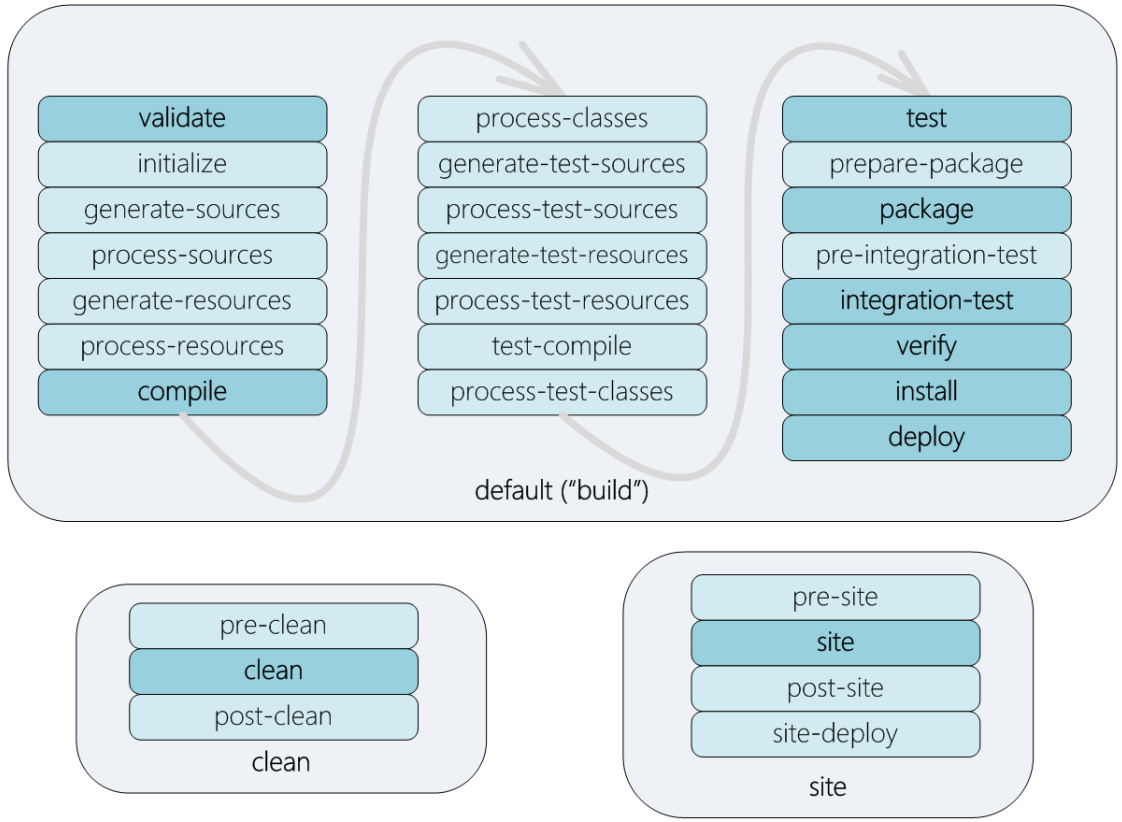
- Building a project takes your java code and packages it into a jar/war
- When building the developer can choose one of three built in lifecyles
  - Default
  - Clean
  - Site

Maven: Life Cycle Phases

When building your project, the default build life cycle goes through these phases

1. Validate
2. Compile
3. Test
4. Package
5. Integration
6. Verify
7. Install
8. Deploy



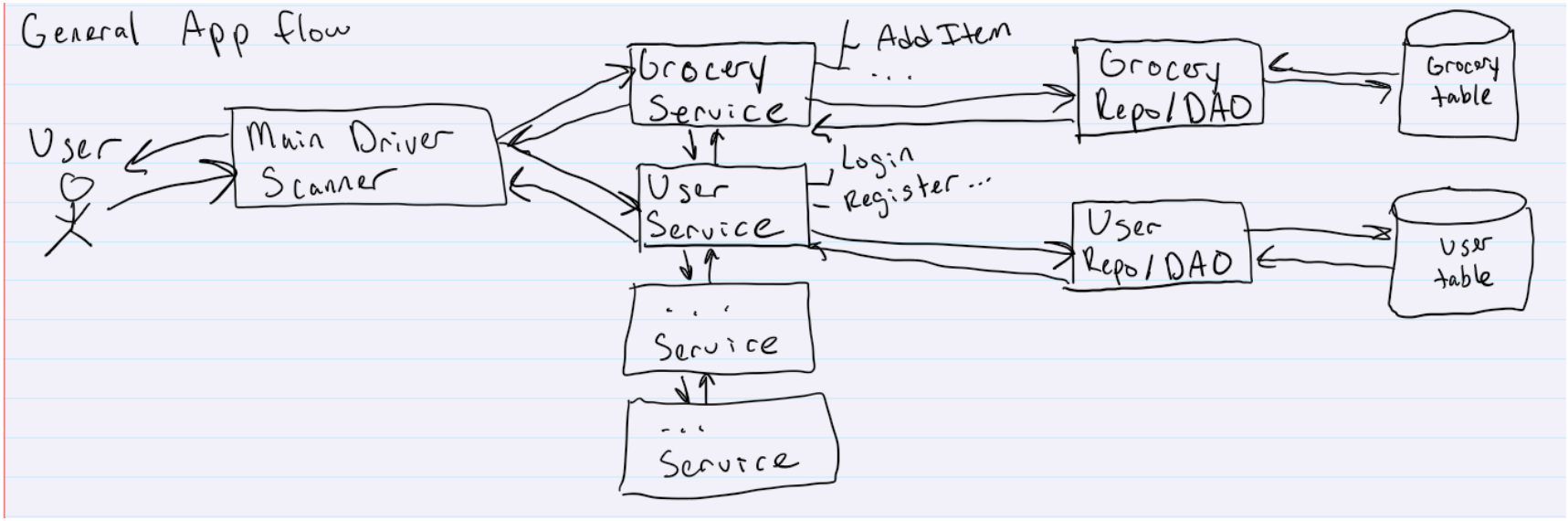
Source: https://i.stack.imgur.com/yg0mZ.png

JDBC

Java Database Conectivity

Design Pattern: Data Access Object

- Separates your business logic from your database connectivity
- More reusable code
- Cleaner project structure



JDBC: Overview

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Java Database Connectivity

- Allows java code to interact with RDBMS
- Important Interfaces of the API
  - DriverManager<I>
  - DataSource<I>
  - Connection<I>
  - SQLException<C>
  - Statement<I>
  - PreparedStatement<I>
  - CallableStatement<I>
  - ResultSet<I>

JDBC: Configuration

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- Must include the Driver dependency
  - https://mvnrepository.com/artifact/org.postgresql/postgresql/42.5.0
- Must provide the following to the Connection Manager
  - URL to the database (jdbc:postgresql://hostname:port/database)
  - username
  - password

JDBC: Statement and ResultSet

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Statement interface allows you to perform static SQL queries

- Use the .createStatement() method of the Connection object
- Include the SQL string to executed

ResultSet objects are returned from the execution of a query

- Contain all the results in rows
- Must loop through every result and convert to an object

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Configure JDBC and create Statements

JDBC: PreparedStatements

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Interface which executes pre-compiled SQL statements

- Protects against SQL Injection attacks
- Allows for parameterized SQL queries
- Also returns a ResultSet object

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Continued JDBC Demo