Java (JVM) will automatically add the default constructor only when no other parameterized constructors are defined.

3 types of Constructor

1. No Argument/ Default constructor (JVM will add it if no other is defined)
2. All-Args Constructor/ Fully Parameterized constructor (Auto Generated/Manually added)
3. Partially parameterized constructor (Auto Generated/Manually added)

Spring DI types

1. Constructor based Injection ( Parameterized Constructor) – xml (constructor-arg)
2. Setter Based Injection (Default constructor, setter methods to set the values) – property

Day1 Revisit

1. Spring Basic
   1. Spring is a Popular JAVA based framework
   2. It uses two important design patterns IoC (Inversion Of Control), DI (Dependency Injection)
   3. Spring is used to create Java based Enterprise Applications easily and quickly
   4. Spring uses POJO class to make Enterprise Application
   5. POJO (Plain Old Java Object) is a class which is not extending other class nor implementing any interfaces.
   6. Spring framework is also called as Framework of Frameworks (It supports and integrates well with other frameworks like Struts, Hibernate)
   7. Bean is the important thing in Spring framework.
   8. Helps to create loosely coupled application
2. Spring Boot
   1. SpringBoot is the way of creating Spring based applications very easily and quickly
   2. SpringBoot is a Opinionated framework
   3. Text based configurations makes the life simple (application.properties, application.yml file)
   4. Most of the tasks are automated
   5. Spring boot will automatically configure everything by reading application.properties file, annotations and component scan.
   6. Microservice Based applications, WebService, Cloud based applications, Reactive (Asynchronous) Java Application
   7. 3 Ways of creating SpringBoot Application (Using Spring Initializr [https://start.spring.io], Using STS[ Spring Tool Suite], Using SpringBoot CLI [Command Line Interface]

Agenda

* Challenges in Tight Coupling
* Types of Injection
* Setter VS Constructor Injection
* DI concepts
* Types of Configurations (XML based, Annotations based & Java based)
* MySQL RDBMS (Mac) (8.0.x) Installation and connecting using Spring

A class with properties, constructors & getter,setter methods is called as Bean Class.

If it is representing a Database entity(table) then it is called as Entity Bean Class.

Dependency Injection –

It is a way of managing the life cycle of beans. (Injecting the object at the runtime whenever necessary)

Two ways of creating object

1. Using Default constructor – (Will create an empty object)
2. Using Parameterized constructor – (Will create an object with all or few initialized properties)

MySQL (Community Edition) – RDBMS (Relational Database Management System)

* Open Source SQL based Database
* SQL – Structured Query Language ( Language to interact with the Database)
* In Database everything is called as entities. (Table, schema, database, triggers, sequence, stored procedures, functions)
* Database is nothing but organizing the data in a proper row and column format.
* Database helps to store and retrieve the data efficiently.
* Database Management System(DBMS) is a software which help us to interact with the database
* Primary Entity in database is Table (This is the place where the data gets stored)
* Table is the combinations of rows and column.
* RDBMS – Relational Database Management System [ Intersections,Unions, Set, Venn diagram] – [Relationship between two or more tables]
* RDBMS works using Client/Server concept [Restaurant/Hotel Servers]
* There will be a Client (MySQL workbench (GUI), MySQL command line Editor (CLI)) and a Server [MySQL Server]
* Primary Operation in RDBMS is CRUD Operation [Create/Insert, Read, Update, Delete]

<https://www.sourcecodeexamples.net/2020/05/java-jdbc-crud-example.html>

JDBC – Java Database Connectivity API (It’s JAVA API used to interact with any RDBMS – MySQL, Oracle, MSSQL, H2)

Connecting Printer with your laptop

1. Powering ON, Installing the Driver
2. Establish connection between the system and the printer
3. Take a sample print
4. Actual print
5. Power off

JDBC Steps

1. Loading & Registering the Driver (Database developers will provide) – Add driver jar to build path
2. Establish Connection between Java and RDBMS (Connection) (username/password, url)
3. Statement/PreparedStatement/CallableStatement obj to store the Query.
4. ResultSet stores the query result and process it
5. Closing all the resource

DAO – Data Access Object [findAll(), findById(int id), save(User user), delete(int id),update(int id, User user)]

<https://www.sourcecodeexamples.net/2020/05/java-jdbc-crud-example.html> -SpringBoot

<https://www.javatpoint.com/spring-mvc-crud-example> - SpringMVC

Spring Web MVC ( MVC implementation of Spring )

Web.xml ---- Deployment Descriptor (URL Mappings, Servlet Mappings, Servlet Details)

Web.xml file is compulsory when we use java version 1.4 and below

In Java 1.5 they introduces concepts of Annotations. (Annotations replace the XML configuration)

Web.xml is optional when we use java 1.5 and above.

But In Spring MVC application, web.xml is mandatory, which informs the Server, the application is a Spring based application.

(If provided) Web.xml is entry point of web application

Entry point of core java application is main() method

In Spring MVC --- Dispatcher Servlet will act as Front Controller (Backbone)

Spring MVC flow

1. Web.xml 🡪 Spring Application 🡪 Spring Configurations (spring-servlet.xml)
2. Index.jsp 🡪 corresponding jsp page (by reading and appending prefix and suffix to requested url
3. Spring will see the URL and check for a mapping in the controller class. (@RequestMapping)
4. Model – Data(table content) View – HTML(Template/User Interface) – ModelAndView object
5. Execute the Code from DAO.