Day1

Environment

1. JDK 1.8 (Java 8)
2. IDE (Integrated Development Environment) – Eclipse/STS/IntelliJ IDEA
3. POSTMAN (Web based version/ Stand alone)
4. Any RDBMS (MySQL/Oracle/Postgres/H2)

Java Installation Location -- C:\Program Files\Java

<https://www.oracle.com/java/technologies/downloads/#java8-mac>

Eclipse EE IDE - <https://www.eclipse.org/downloads/packages/> (Download Eclipse EE version)

STS – <https://spring.io/tools>

IntelliJ IDEA – <https://www.jetbrains.com/idea/download/#section=windows>

Postman – <https://www.postman.com/downloads/>

RDBMS – MySQL Community Version - <https://dev.mysql.com/downloads/mysql/>

Spring – Spring is a Java based Framework.

* Create Enterprise based applications very easily.
* It uses two important design patterns (IoC, DI)
* Helps to create Loosely coupled Java Applications

Types of Applications ( Stand-alone applications, Web based applications)

Stand-alone (Download & Install it) MS-Office , Visual Studio, AutoCAD, Photoshop

Web based Application (Can be accessed using a browser – valid subscriptions/credentials) O365,

Enterprise Application (Plenty of ways to access it – Command prompt, web browsers, stand-alone version)

JAVA Applications format

1. JAR – Java Archieve
2. WAR – Web Archieve
3. EAR – Enterprise Archieve (JAR+WAR)

Design Patterns – It’s a way of solving a challenge in a proven method. (Selecting optimal solution for a particular challenge)

MVC (Model, View, Controller)

Factory Pattern

Façade Pattern

IoC – Inversion of Control

DI – Dependency Injection

Challenges in JAVA Enterprise Application

1. Lot of XML based configurations (XML is case and space sensitive)
2. Configuring EJB (Enterprise JAVA Beans)

Spring make use of POJO class to create enterprise applications.

POJO – Plain Old Java Object ( A Class which is not extending other class nor implementing any interface)

Types of Classes in JAVA

1. Simple Class/ Concrete Class/Pojo Class
2. Base Class/Parent Class/ Super Class
3. Bean Class (Entity Bean/Message Bean)
4. Wrapper Class
5. Inner Class ( A class defined inside another class)
6. Anonymous (Name lesss) Inner Class
7. Sub/Derived/Child
8. Starter Class (A Class with the main method)

IoC – Inversion of Control

DI – Dependency Injection

Creating the objects –

Class Employee {

Code is available in github ….

Spring framework is divided into different modules

1. Spring Core
2. Spring Web-MVC
3. Spring Data
4. Spring Security
5. Spring Batch
6. Spring Cloud
7. Spring Boot
8. Spring Test

applicationContext.xml

<?xml version=*"1.0"* encoding=*"UTF-8"*?>

<beans xmlns=*"http://springframework.org/schema/beans"*

xmlns:xsi=*"http://w3.org/2001/XMLSchema-instance"*

xmlns:p=*"http://www.springframework.org/schema/p"*

xsi:schemaLocation=*"http://springframework.org/schema/beans http://www.springframework/schema/beans/spring-beans-3.0.xsd"*>

<bean id=*"employeeBean"* class=*"com.rakuten.Employee"*>

<property name=*"id"* value=*"101"*></property>

<property name=*"name"* value=*"XYZ"*></property>

</bean>

</beans>

Spring boot – It’s a way of creating Spring based application

3 ways of creating Spring Boot Application

1. Using Spring Initializr (<https://start.spring.io> )
2. Using STS (Spring Tool Suite)
3. Using Spring Boot CLI (Command Line Interface)

Annotations – Annotations will Start with @symbol.

Annotations are meta-data (Provide more details about the code to the JVM)

Book (MetaData) Example – JAVA Complete Reference

1. TOC (Table of Contents) Page (Chapter wise details along with the page number for each sections)
2. Index Page

Spring Framework

* Framework of Frameworks (It supports other framework as well)
* Very Popular JAVA based framework for developing Enterprise web Applications
* It uses IoC and DI design Patterns
* It helps to create Loosely coupled applications
* Spring Framework contains many modules (spring core, web(mvc), aop(aspect oriented programming), data, security)
* Spring uses either constructor based injection or setter based injection

Spring Boot

* It’s a easy and simplified way of creating Spring based application
* It’s a opinionated method of developing Spring based application (text based configuration using application.properties file or application.yml file)
* It automatically configures everything based on the pom.xml file and annotations added in the class files
* @SpringBootApplication is the back-bone of Spring boot project.
* 3 ways of creating spring boot project (Using Initializr, Using STS, Using SpringBoot CLI)

Java – Build Tool (Maven)

Maven Tool, helps to

* Build the Project
* Package the Project
* Test the Project
* Deploy the Project
* Generate Source code of the Project
* Manage dependencies of the Project

Maven uses xml based configuration file name pom.xml

POM – Project Object Model

Maven always use to properties to uniquely identify any java project.

groupId – package name (all should be in lower case)

artifactId – name of the project

version (optional)

Spring boot is a Opinionated Framework ( Instead of providing xml based configurations, we use text based configurations)