Phase 3

Total session 9

Spring framework and Spring boot, Unit testing, Rest full web service and micro service using Spring framework/spring boot

Day 1

Spring framework : Why

MVC : Model View Controller

View → HTML/JSP

Controller -→ Servlet

Model -→Normal java classes ie JavaBean, Service, Dao, Resource (hibernate.cfg.xml)

JSP and Servlet object creation taken care by web container. Ie part of tomcat server. But normal class ie java bean class, service and dao we are creating object using new keyword.

By default servlet and jsp are multithreaded. If we want to improve model layer

Old time we were using EJB . Enterprise java bean.

View is html or jsp or css or javacript

Controller -→ servlet

Model -→ EJB application

For EJB controller is client not end user. EJB is use to create high end distributed, high secured model layer using java technologies.

EJB is very complex. Lot of configuration we need to do to write simple ejb application and ejb application if we want to run we need ejb container which is part of application server.

To overcome this problem Spring framework came in picture.

Spring framework vs EJB.

Framework : framework provide set of api which internally connected to each others to do some task. If we develop any enterprise application with help of framework 70 to 80% task taken care by framework.

Framework is not a final product. It is a protocol or template which help to develop project. Which we need to customize according to our requirements.

If we develop any application using framework. All framework internally follow standard. Design pattern : best practise or solution for repeating problem.
Implementation of all design pattern is taken care by framework.

CSS Vs Bootstrap

Java framework

Struts it is an open source web framework provided by Apache. Which internally follow MVC architecture. It provided lot of api to improve view layer, controller layer and model layer. Struts is known as controller centric framework.

JSF it is an open source web framework provided by Oracle. Which internally follow MVC architecture. It provided lot of api to improve view layer, controller layer and model layer. JSF is known as view centric framework.

JSP VS JSF (Java Server Faces)

Hibernate : hibernat is an open source framework provided by jboss. Which help to improve dao.

Spring framework

Spring is an open-source layer architecture or onion architecture framework. It is light weighted. Spring framework provided lot of modules which help to improve all type of application or layers.

Spring modules

1. Core module
2. Context module
3. Spring web module spring mvc : it internally follow mvc provide lot of api to improve view layer, model layer and controller layer. Spring mvc is known as model centric framework.
4. Spring dao
5. Spring orm
6. Spring rest
7. Spring security
8. Spring boot
9. Spring cloud
10. Spring micro service

Etc

IOC : Inversion of control : It is a programming design pattern. It is a concept. According to IOC, in place of creating or maintaining any resource explicitly allow to create and maintain by container. From container pull it whenever required and use it and leave it.

DI : Dependency Injection : the implementation of IOC is taken care by DI.

Different types of di.

1. Constructor base di
2. Setter base di
3. Property base di

To achieve constructor base or setter base we need to configure using

1. Xml
2. Annotation

Open the eclipse IDE in new workspace as folder name as **spring framework programs**

Spring core and Spring context

DI using XML Configuration

Spring framework provide the DI for normal java bean class ie POJO class.

Web container part of web server ie tomcat it will create the object of only those classes if class is type of servlet or jsp. Nor for normal java classes.

EJB Container part of application server it will create the object of only those classes the class must be type of ejb.

Spring framework part of few annotation or xml configuration with jar file. Inside those annotation/xml with jar file spring container available. This container is light weighted. It will create the object of those classes which is not mandatory extends or implements any type of classes. Like Java Bean But in spring framework those classes we call as POJO. Plain Old Java Object. means that class not to extends or implements any pre defined class.

Class MyDemo extends HttpServlet {

Type of servlet

}

Class MyDemo extends Thread {

Type of thread

}

By default this class extends Object class.

Class My Demo {

It is POJO

}

By default spring container create the object as singleton.

Singleton : it is a type of design pattern. If we want to create only one object ie only one memory but more than one reference. Then we need to use the singleton.

If you want to new memory we need to use scope property inside bean tag with prototype. By default value is singleton.

Auto wired

By default spring container do the di for primitive property with default value. If class contains complex property ie user defined object. We need to do explicitly di for those complex property using ref property.

But with help of auto wired we can avoid ref property. Using autowired we can achieve di for complex property implicitly rather than explicitly using ref property.

We can use auto wired

1. byType : spring container scan the xml file to check bean configuration details and it will automatically inject it.

   In byType we need to only one bean configuration details for that type.

   If more than one bean configuration present then we need to use
2. byName: in byName we can write more than one bean configuration for that type. byName id name and reference name of that type must be match.
3.