1.For setter injection

**package** com.example;

**import** org.springframework.context.ApplicationContext;

**import** org.springframework.context.support.ClassPathXmlApplicationContext;

**public** **class** Main

{

@SuppressWarnings("unused")

**private** **static** ApplicationContext *context*;

**public** **static** **void** main(String[] args)

{

@SuppressWarnings("resource")

ApplicationContext context = **new** ClassPathXmlApplicationContext("file:src/main/resources/Address.xml");

Customer customer = (Customer)context.getBean("Customer");

System.***out***.println(customer);

}

}

**Address.java**

**package** com.example;

**public** **class** Address

{

**private** String city, street, state, country;

**private** **int** zip;

**public** String getCity()

{

**return** city;

}

**public** **void** setCity(String city)

{

**this**.city = city;

}

**public** String getStreet()

{

**return** street;

}

**public** **void** setStreet(String street)

{

**this**.street = street;

}

**public** String getState()

{

**return** state;

}

**public** **void** setState(String state)

{

**this**.state = state;

}

**public** String getCountry()

{

**return** country;

}

**public** **void** setCountry(String country)

{

**this**.country = country;

}

**public** **int** getZip()

{

**return** zip;

}

**public** **void** setZip(**int** zip)

{

**this**.zip = zip;

}

}

**Address.xml**

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

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

xsi:schemaLocation=*"http://www.springframework.org/schema/beans*

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

<bean id = *"Address"* class = *"com.example.Address"*>

<property name = *"zip"* value = *"221"*/>

<property name = *"city"* value = *"London"*/>

<property name = *"street"* value = *"Baker Street"*/>

<property name = *"state"* value = *"World"*/>

<property name = *"country"* value = *"England"*/>

</bean>

<bean id = *"Customer"* class = *"com.example.Customer"*>

<property name = *"customerId"* value = *"123"*/>

<property name = *"customercontact"* value = *"123456"*/>

<property name = *"customerAddress"* ref = *"Address"*/>

<property name = *"customerName"* value = *"Sherlock Holmes"*/>

</bean>

</beans>

**Customer.java**

**package** com.example;

**public** **class** Customer

{

**private** **int** customerId;

**private** **int** customercontact;

**private** String customerName;

**private** Address customerAddress;

**public** **int** getCustomerId()

{

**return** customerId;

}

**public** **void** setCustomerId(**int** customerId)

{

**this**.customerId = customerId;

}

**public** **int** getCustomercontact()

{

**return** customercontact;

}

**public** **void** setCustomercontact(**int** customercontact)

{

**this**.customercontact = customercontact;

}

**public** Address getCustomerAddress()

{

**return** customerAddress;

}

**public** **void** setCustomerAddress(Address customerAddress)

{

**this**.customerAddress = customerAddress;

}

**public** String getCustomerName()

{

**return** customerName;

}

**public** **void** setCustomerName(String customerName)

{

**this**.customerName = customerName;

}

**public** String toString()

{

**return** "Customer Id: "+getCustomerId()+ ", Customer Contact: "+getCustomercontact()+ ", Customer Address: {City: "+getCustomerAddress().getCity()+", Street: "+getCustomerAddress().getStreet()+", State: "+getCustomerAddress().getState()+", Country: "+getCustomerAddress().getCountry()+", Zip: "+getCustomerAddress().getZip()+"}, Customer Name: "+getCustomerName();

}

}

**For Constructor Main Class SpringQuestion1Test**

**package** com.example;

**import** org.springframework.context.ApplicationContext;

**import** org.springframework.context.support.ClassPathXmlApplicationContext;

**public** **class** SpringQuestion1

{

@SuppressWarnings("unused")

**private** **static** ApplicationContext *context*;

**public** **static** **void** main(String[] args)

{

@SuppressWarnings("resource")

ApplicationContext context1 = **new** ClassPathXmlApplicationContext("file:src/main/resources/Customer.xml");

Customer customer2 = (Customer)context1.getBean("Customer1");

System.***out***.println(customer2);

}

}

**For Constructor Address.java**

**Package** com.example;

**public** **class** Address

{

**private** String city, street, state, country;

**private** **int** zip;

**public** String getCity()

{

**return** city;

}

**public** **void** setCity(String city)

{

**this**.city = city;

}

**public** String getStreet()

{

**return** street;

}

**public** **void** setStreet(String street)

{

**this**.street = street;

}

**public** String getState()

{

**return** state;

}

**public** **void** setState(String state)

{

**this**.state = state;

}

**public** String getCountry()

{

**return** country;

}

**public** **void** setCountry(String country)

{

**this**.country = country;

}

**public** **int** getZip()

{

**return** zip;

}

**public** **void** setZip(**int** zip)

{

**this**.zip = zip;

}

**public** Address(String city, String street, String state, String country, **int** zip) {

**super**();

**this**.city = city;

**this**.street = street;

**this**.state = state;

**this**.country = country;

**this**.zip = zip;

}

}

**For Constructor Customer.java**

**package** com.example;

**public** **class** Customer

{

**private** **int** customerId;

**private** **int** customercontact;

**private** String customerName;

**private** Address customerAddress;

**public** Customer(**int** customerId, **int** customercontact, String customerName, Address customerAddress)

{

**this**.customerId = customerId;

**this**.customercontact = customercontact;

**this**.customerName = customerName;

**this**.customerAddress = customerAddress;

}

**public** **int** getCustomerId()

{

**return** customerId;

}

**public** **void** setCustomerId(**int** customerId)

{

**this**.customerId = customerId;

}

**public** **int** getCustomercontact()

{

**return** customercontact;

}

**public** **void** setCustomercontact(**int** customercontact)

{

**this**.customercontact = customercontact;

}

**public** Address getCustomerAddress()

{

**return** customerAddress;

}

**public** **void** setCustomerAddress(Address customerAddress)

{

**this**.customerAddress = customerAddress;

}

**public** String getCustomerName()

{

**return** customerName;

}

**public** **void** setCustomerName(String customerName)

{

**this**.customerName = customerName;

}

**public** String toString()

{

**return** "Customer Id: "+getCustomerId()+ ", Customer Contact: "+getCustomercontact()+ ", Customer Address: {City: "+getCustomerAddress().getCity()+", Street: "+getCustomerAddress().getStreet()+", State: "+getCustomerAddress().getState()+", Country: "+getCustomerAddress().getCountry()+", Zip: "+getCustomerAddress().getZip()+"}, Customer Name: "+getCustomerName();

}

}

**For Constructor Customer.xml**

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

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

xsi:schemaLocation=*"http://www.springframework.org/schema/beans*

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

<bean id = *"Address"* class = *"com.example.Address"*>

<constructor-arg index = *"0"* name = *"city"* type = *"java.lang.String"* value = *"London"*/>

<constructor-arg index = *"1"* name = *"street"* type = *"java.lang.String"* value = *"Baker Street"*/>

<constructor-arg index = *"2"* name = *"state"* type = *"java.lang.String"* value = *"World"*/>

<constructor-arg index = *"3"* name = *"country"* type = *"java.lang.String"* value = *"England"*/>

<constructor-arg index = *"4"* name = *"zip"* type = *"int"* value = *"221"*/>

</bean>

<bean id = *"Customer1"* class = *"com.example.Customer"*>

<constructor-arg index = *"0"* name = *"customerId"* type = *"int"* value = *"123"*/>

<constructor-arg index = *"1"* name = *"customercontact"* type = *"int"* value = *"123456"*/>

<constructor-arg index = *"2"* name = *"customerName"* type = *"java.lang.String"* value = *"Sherlock Holmes"*/>

<constructor-arg index = *"3"* name = *"customerAddress"* ref = *"Address"*/>

</bean>

</beans>

----------------------------------------------------------------------------------

**Question2:a**

**Main Class of list**

**package** com.example;

**import** **static** org.junit.jupiter.api.Assertions.\*;

**import** org.springframework.context.ApplicationContext;

**import** org.springframework.context.support.ClassPathXmlApplicationContext;

**import** org.junit.jupiter.api.Test;

**class** QuestionMain

{

@SuppressWarnings("unused")

**private** **static** ApplicationContext *context*;

**public** **static** **void** main(String[] args)

{

@SuppressWarnings("resource")

ApplicationContext context = **new** ClassPathXmlApplicationContext("list.xml");

List list = (List) context.getBean("list");

System.***out***.println("List: " + list.getList());

}

}

**Question2.java**

**package** com.example;

**public** **class** Question

{

**private** **int** questionId;

**private** String question, answers;

**public** **void** setQuestionId(**int** questionId) {

**this**.questionId = questionId;

}

**public** **void** setQuestion(String question) {

**this**.question = question;

}

**public** **void** setAnswers(String answers) {

**this**.answers = answers;

}

**public** String toString()

{

**return** "Question ID: "+questionId+ ", Questions: "+question+ ", Answers: "+answers+"\n";

}

}

**List.java**

package com.example;

import java.util.ArrayList;

import java.util.Map;

import java.util.Set;

public class List

{

private ArrayList<Object> list;

private Set<Object> set;

private Map<Object, Object> map;

public ArrayList<Object> getList() {

return list;

}

public void setList(ArrayList<Object> list) {

this.list = list;

}

public Set<Object> getSet() {

return set;

}

public void setSet(Set<Object> set) {

this.set = set;

}

public Map<Object, Object> getMap() {

return map;

}

public void setMap(Map<Object, Object> map) {

this.map = map;

}

}

**list.xml**

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

xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"* xmlns:p=*"http://www.springframework.org/schema/p"*

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

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

xmlns:task=*"http://www.springframework.org/schema/task"* xsi:schemaLocation=*"http://www.springframework.org/schema/aop http://www.springframework.org/schema/aop/spring-aop-3.2.xsd http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans-3.2.xsd http://www.springframework.org/schema/context http://www.springframework.org/schema/context/spring-context-3.2.xsd http://www.springframework.org/schema/jee http://www.springframework.org/schema/jee/spring-jee-3.2.xsd http://www.springframework.org/schema/tx http://www.springframework.org/schema/tx/spring-tx-3.2.xsd http://www.springframework.org/schema/task http://www.springframework.org/schema/task/spring-task-3.2.xsd"*>

<bean id=*"list"* class=*"com.example.List"*>

<property name=*"list"*>

<list>

<ref bean=*"answers"* />

<ref bean=*"answers1"* />

<ref bean=*"answers2"* />

</list>

</property>

</bean>

<bean id=*"answers"* class=*"com.example.Question"*>

<property name=*"answers"* value=*"Mounika"*/>

<property name = *"question"* value = *"What's your name?"*/>

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

</bean>

<bean id=*"answers1"* class=*"com.example.Question"*>

<property name=*"answers"* value=*"Sandhya"*/>

<property name = *"question"* value = *"What's your name?"*/>

<property name = *"questionId"* value = *"102"*/>

</bean>

<bean id=*"answers2"* class=*"com.example.Question"*>

<property name=*"answers"* value=*"Rajkumar"*/>

<property name = *"question"* value = *"What's your name?"*/>

<property name = *"questionId"* value = *"103"*/>

</bean>

</beans>

Question2:b

**Main Class foe set**

**package** com.example;

**import** **static** org.junit.jupiter.api.Assertions.\*;

**import** org.springframework.context.ApplicationContext;

**import** org.springframework.context.support.ClassPathXmlApplicationContext;

**import** org.junit.jupiter.api.Test;

**class** QuestionMain

{

@SuppressWarnings("unused")

**private** **static** ApplicationContext *context*;

**public** **static** **void** main(String[] args)

{

@SuppressWarnings("resource")

ApplicationContext context = **new** ClassPathXmlApplicationContext("set.xml");

List set = (List) context.getBean("set");

System.***out***.println("Set : " + set.getSet());

}

}

**set.xml**

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

xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"* xmlns:p=*"http://www.springframework.org/schema/p"*

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

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

xmlns:task=*"http://www.springframework.org/schema/task"* xsi:schemaLocation=*"http://www.springframework.org/schema/aop http://www.springframework.org/schema/aop/spring-aop-3.2.xsd http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans-3.2.xsd http://www.springframework.org/schema/context http://www.springframework.org/schema/context/spring-context-3.2.xsd http://www.springframework.org/schema/jee http://www.springframework.org/schema/jee/spring-jee-3.2.xsd http://www.springframework.org/schema/tx http://www.springframework.org/schema/tx/spring-tx-3.2.xsd http://www.springframework.org/schema/task http://www.springframework.org/schema/task/spring-task-3.2.xsd"*>

<bean id=*"set"* class=*"com.example.List"*>

<property name=*"set"*>

<set>

<ref bean=*"answers"* />

<ref bean=*"answers1"* />

<ref bean=*"answers2"* />

</set>

</property>

</bean>

<bean id=*"answers"* class=*"com.example.Question"*>

<property name=*"answers"* value=*"Mounika"*/>

<property name = *"question"* value = *"What's your name?"*/>

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

</bean>

<bean id=*"answers1"* class=*"com.example.Question"*>

<property name=*"answers"* value=*"Sandhya"*/>

<property name = *"question"* value = *"What's your name?"*/>

<property name = *"questionId"* value = *"102"*/>

</bean>

<bean id=*"answers2"* class=*"com.example.Question"*>

<property name=*"answers"* value=*"Rajkumar"*/>

<property name = *"question"* value = *"What's your name?"*/>

<property name = *"questionId"* value = *"103"*/>

</bean>

</beans>

Question2:c

**Main Class of map:**

**package** com.example;

**import** **static** org.junit.jupiter.api.Assertions.\*;

**import** org.springframework.context.ApplicationContext;

**import** org.springframework.context.support.ClassPathXmlApplicationContext;

**import** org.junit.jupiter.api.Test;

**class** QuestionMain

{

@SuppressWarnings("unused")

**private** **static** ApplicationContext *context*;

**public** **static** **void** main(String[] args)

{

@SuppressWarnings("resource")

ApplicationContext context = **new** ClassPathXmlApplicationContext("map.xml");

List map = (List) context.getBean("Map");

System.***out***.println("Map : " + map.getMap());

}

}

**Map.xml**

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

xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"* xmlns:p=*"http://www.springframework.org/schema/p"*

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

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

xmlns:task=*"http://www.springframework.org/schema/task"* xsi:schemaLocation=*"http://www.springframework.org/schema/aop http://www.springframework.org/schema/aop/spring-aop-3.2.xsd http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans-3.2.xsd http://www.springframework.org/schema/context http://www.springframework.org/schema/context/spring-context-3.2.xsd http://www.springframework.org/schema/jee http://www.springframework.org/schema/jee/spring-jee-3.2.xsd http://www.springframework.org/schema/tx http://www.springframework.org/schema/tx/spring-tx-3.2.xsd http://www.springframework.org/schema/task http://www.springframework.org/schema/task/spring-task-3.2.xsd"*>

<bean id=*"Map"* class=*"com.exampple.List"*>

<property name=*"map"*>

<map>

<entry key=*"1"* value-ref=*"answers"* />

<entry key=*"2"* value-ref=*"answers1"* />

<entry key=*"3"* value-ref=*"answers2"* />

</map>

</property>

</bean>

<bean id=*"answers"* class=*"com.example.Question"*>

<property name=*"answers"* value=*"Mounika"*/>

<property name = *"question"* value = *"What's your name?"*/>

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

</bean>

<bean id=*"answers1"* class=*"com.example.Question"*>

<property name=*"answers"* value=*"Sandhya"*/>

<property name = *"question"* value = *"What's your name?"*/>

<property name = *"questionId"* value = *"102"*/>

</bean>

<bean id=*"answers2"* class=*"com.example.Question"*>

<property name=*"answers"* value=*"Rajkumar"*/>

<property name = *"question"* value = *"What's your name?"*/>

<property name = *"questionId"* value = *"103"*/>

</bean>

</beans>

**Question2:d**

Package com.example;

public class BeanClass{

int questionid;

String question;

String answers;

public int getQuestionid() {

return questionid;

}

public void setQuestionid(int questionid) {

this.questionid = questionid;

}

public String getQuestion() {

return question;

}

public void setQuestion(String question) {

this.question = question;

}

public String getAnswers() {

return answers;

}

public void setAnswers(String answers) {

this.answers = answers;

}

}

XML FILE:

Beans.xml

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

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

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

xmlns:context="http://www.springframework.org/schema/context"

xsi:schemaLocation="http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans-4.3.xsd

http://www.springframework.org/schema/context http://www.springframework.org/schema/context/spring-context-4.3.xsd"

default-lazy-init="true">

<bean id="myid" class="test.BeanClass">

<property name="questionid" value="1"></property>

<property name="question" value="Java Spring"></property>

<property name="answer" value="Java Spring"></property>

</bean>

</beans>

Main Class

package test;

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

public class Tester {

public static void main(String[] args) {

ApplicationContext context=new ClassPathXmlApplicationContext("Beans.xml");

BeanClass beanClass=(BeanClass) context.getBean("myid");

beanClass.getName();

}

}

Question4:

@Bean

**package** com.example;

**import** org.springframework.context.annotation.Bean;

**import** org.springframework.context.annotation.Configuration;

//@Configuration

**public** **class** ApplicationConfiguration {

@Bean(name="demoService")

**public** DemoManager helloWorld()

{

**return** **new** DemoManagerImpl();

}

}

**package** com.example;

**public** **interface** DemoManager {

**public** String getServiceName();

}

**package** com.example;

**public** **class** DemoManagerImpl **implements** DemoManager

{

**public** String getServiceName()

{

**return** "Hello!!!!";

}

}

**package** com.example;

**import** org.springframework.context.ApplicationContext;

**import** org.springframework.context.annotation.AnnotationConfigApplicationContext;

**public** **class** VerifySpringCoreFeature {

**public** **static** **void** main(String[] args)

{

ApplicationContext context = **new** AnnotationConfigApplicationContext(ApplicationConfiguration.**class**);

DemoManager obj = (DemoManager) context.getBean("demoService");

System.***out***.println( obj.getServiceName() );

}

}

@Service

package com.example;

import org.springframework.stereotype.Component;

import org.springframework.stereotype.Service;

@Service("ms")

//@Component

public class MathService {

public int add(int x, int y) {

return x + y;

}

} **package** spring\_exp4;

**import** org.springframework.context.annotation.AnnotationConfigApplicationContext;

**public** **class** SpringMainClass {

**public** **static** **void** main(String[] args) {

AnnotationConfigApplicationContext context = **new** AnnotationConfigApplicationContext();

context.scan("com.example");

context.refresh();

MathService ms = context.getBean(MathService.**class**);

**int** result = ms.add(2, 2);

System.***out***.println("Addition of first and second = " + result);

context.close();

}

}

@contoller

**package** com.example;

**import** org.springframework.context.annotation.AnnotationConfigApplicationContext;

**public** **class** SpringMainClass {

**public** **static** **void** main(String[] args) {

AnnotationConfigApplicationContext context = **new** AnnotationConfigApplicationContext();

context.scan("com.example");

context.refresh();

MathController ms = context.getBean(MathController.**class**);

**int** result = ms.add(2, 2);

System.***out***.println("Addition of first and second = " + result);

context.close();

}

}

package spring\_exp4;

**package** spring\_exp4;

**import** org.springframework.stereotype.Controller;

**import** org.springframework.stereotype.Service;

//@Service("ms")

@Controller

**public** **class** MathController {

**public** **int** add(**int** x, **int** y) {

**return** x + y;

}

}

@Autowired

**package** com.example;

**import** org.springframework.beans.factory.BeanFactory;

**import** org.springframework.context.ApplicationContext;

**import** org.springframework.context.support.ClassPathXmlApplicationContext;

**import** org.springframework.stereotype.Repository;

//import org.springframework.core.io.FileSystemResource;

//@Repository

**public** **class** Mainbean {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

//BeanFactory factory= new XmlBeanFactory(new FileSystemResource("spring.xml"));

ApplicationContext context=**new** ClassPathXmlApplicationContext("spring.xml");

Shape shape=(Shape)context.getBean("circle");

shape.draw();

}

}

**package** com.example;

**public** **class** Triangle **implements** Shape {

**private** Point PointA;

**private** Point PointB;

**private** Point PointC;

**public** Point getPointA() {

**return** PointA;

}

**public** **void** setPointA(Point pointA) {

PointA = pointA;

}

**public** Point getPointB() {

**return** PointB;

}

**public** **void** setPointB(Point pointB) {

PointB = pointB;

}

**public** Point getPointC() {

**return** PointC;

}

**public** **void** setPointC(Point pointC) {

PointC = pointC;

}

**public** **void** draw()

{

System.***out***.println("Draw triangle");

System.***out***.println(getPointA().getX()+ " "+getPointA().getY());

System.***out***.println(getPointB().getX()+ " "+getPointB().getY());

System.***out***.println(getPointC().getX()+ " "+getPointC().getY());

}

}

Interface:

**package** com.example;

**public** **interface** Shape {

**public** **void** draw();

}

Class:

**package** com.example;

**public** **class** Point {

**private** **int** x;

**private** **int** y;

**public** **int** getX() {

**return** x;

}

**public** **void** setX(**int** x) {

**this**.x = x;

}

**public** **int** getY() {

**return** y;

}

**public** **void** setY(**int** y) {

**this**.y = y;

}

}

**import** org.springframework.beans.factory.annotation.Required;

**import** org.springframework.stereotype.Component;

**import** org.springframework.stereotype.Repository;

//@Component

//@Repository

**public** **class** Circle **implements** Shape {

**private** Point center;

**public** **void** draw()

{

System.***out***.println("draw circle");

System.***out***.println("circle point" +center.getX() +center.getY());

}

**public** Point getCenter() {

**return** center;

}

//@Autowired

**public** **void** setCenter(Point center) {

**this**.center = center;

}

}

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

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

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

xsi:schemaLocation = "http://www.springframework.org/schema/beans

http://www.springframework.org/schema/beans/spring-beans-3.0.xsd">

<bean id = "triangle" class="com.example.Triangle">

<property name="PointA" ref="pointA"/>

<property name="PointB" ref="pointB"/>

<property name="PointC" ref="pointC"/>

</bean>

<bean id = "pointA" class="com.example.Point">

<property name="x" value="0"/>

<property name="y" value="10"/>

</bean>

<bean id = "pointB" class="com.example.Point">

<property name="x" value="10"/>

<property name="y" value="10"/>

</bean>

<bean id = "pointC" class="com.example.Point">

<property name="x" value="20"/>

<property name="y" value="10"/>

</bean>

<bean id = "center" class="com.example.Point">

<property name="x" value="20"/>

<property name="y" value="10"/>

</bean>

<bean id = "circle" class="com.example.Circle">

<!-- <property names="center" ref="pointA"/> -->

</bean>

<bean class="org.springframework.beans.factory.annotation.AutowiredAnnotationBeanPostProcessor">

</bean>

</beans>

----------------------------------------------------------------------------------

QUESTION 5:

. **@Resource Annotation**

**CLASS 1**

**import** org.springframework.beans.factory.annotation.Required;

**public** **class** Employee {

**private** String id;

**private** String name;

@Resource(name="mycompany")

**private** Company company;

**public** String getId() {

**return** id;

}

**public** **void** setId(String id) {

**this**.id = id;

}

**public** String getName() {

**return** name;

}

@Required

**public** **void** setName(String name) {

**this**.name = name;

}

**public** Company getCompany() {

**return** company;

}

**public** **void** setCompany(Company company) {

**this**.company = company;

}

@Override

**public** String toString() {

**return** "Employee [id=" + id + ", name=" + name + ", company=" + company.toString() + "]";

}

}

CLASS 2

**package** New;

**public** **class** Company {

**private** String name;

**private** String location;

**public** String getName() {

**return** name;

}

**public** **void** setName(String name) {

**this**.name = name;

}

**public** String getLocation() {

**return** location;

}

**public** **void** setLocation(String location) {

**this**.location = location;

}

@Override

**public** String toString() {

**return** "Company [name=" + name + ", location=" + location + "]";

}

}

CLASS3

**package** New;

**import** org.springframework.context.ApplicationContext;

**import** org.springframework.context.support.ClassPathXmlApplicationContext;

**public** **class** Test {

@SuppressWarnings("resource")

**public** **static** **void** main(String[] args) {

ApplicationContext context = **new** ClassPathXmlApplicationContext("n.xml");

Employee emp=(Employee) context.getBean("myemployee");

System.***out***.println(emp.toString());

}

}

XML FILE

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

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

xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"* xmlns:context=*"http://www.springframework.org/schema/context"*

xsi:schemaLocation=*"*

*http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans.xsd*

*http://www.springframework.org/schema/context http://www.springframework.org/schema/context/spring-context.xsd"*>

<!-- To activate the '@Resource' annotation in the spring framework -->

<context:annotation-config />

<bean id=*"mycompany"* class=*"com.example.Company"*>

<property name=*"name"* value=*"Test Pvt. Ltd."* />

<property name=*"location"* value=*"India"* />

</bean>

<bean id=*"myemployee"* class=*"New.Employee"*>

<property name=*"id"* value=*"126"* />

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

</bean></beans>

@Inject Annotataion

Class 1

**public** **class** Employee {

**private** String id;

**private** String name;

@Inject

**private** Company company;

**public** String getId() {

**return** id;

}

**public** **void** setId(String id) {

**this**.id = id;

}

**public** String getName() {

**return** name;

}

@Required

**public** **void** setName(String name) {

**this**.name = name;

}

**public** Company getCompany() {

**return** company;

}

**public** **void** setCompany(Company company) {

**this**.company = company;

}

@Override

**public** String toString() {

**return** "Employee [id=" + id + ", name=" + name + ", company=" + company.toString() + "]";

}

}

CLASS 2

**Package** com.example;

**public** **class** Company {

**private** String name;

**private** String location;

**public** String getName() {

**return** name;

}

**public** **void** setName(String name) {

**this**.name = name;

}

**public** String getLocation() {

**return** location;

}

**public** **void** setLocation(String location) {

**this**.location = location;

}

@Override

**public** String toString() {

**return** "Company [name=" + name + ", location=" + location + "]";

}

}

CLASS 3

**package** com.example;

**import** org.springframework.context.ApplicationContext;

**import** org.springframework.context.support.ClassPathXmlApplicationContext;

**public** **class** Test {

@SuppressWarnings("resource")

**public** **static** **void** main(String[] args) {

ApplicationContext context = **new** ClassPathXmlApplicationContext("n.xml");

Employee emp=(Employee) context.getBean("myemployee");

System.***out***.println(emp.toString());

}

}

XML FILE

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

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

xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"* xmlns:context=*"http://www.springframework.org/schema/context"*

xsi:schemaLocation=*"*

*http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans.xsd*

*http://www.springframework.org/schema/context http://www.springframework.org/schema/context/spring-context.xsd"*>

<!-- To activate the '@Resource' annotation in the spring framework -->

<context:annotation-config />

<bean id=*"mycompany"* class=*"com.example.Company"*>

<property name=*"name"* value=*"Test Pvt. Ltd."* />

<property name=*"location"* value=*"India"* />

</bean>

<bean id=*"myemployee"* class=*"com.example.Employee"*>

<property name=*"id"* value=*"126"* />

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

</bean>

</beans>

Question7:

Test.java

**package** com.example;

**import** org.springframework.expression.Expression;

**import** org.springframework.expression.ExpressionParser;

**import** org.springframework.expression.spel.standard.SpelExpressionParser;

**public** **class** Test {

**public** **static** **void** main(String[] args) {

/\*

ExpressionParser parser = new SpelExpressionParser();

Expression exp = parser.parseExpression("'Hello Maven'");

String message = (String)exp.getValue();

System.out.println(message);

\*/

/\*

ExpressionParser parser = new SpelExpressionParser();

Expression exp = parser.parseExpression("'Welcome To'.concat('SpringExpression')");

String message = (String) exp.getValue(); System.out.println(message);

\*/

/\*

ExpressionParser parser = new SpelExpressionParser();

Expression exp = parser.parseExpression("'Hello Abhi'.bytes");

byte[] bytes = (byte[]) exp.getValue();

for(int i=0;i<bytes.length;i++) {

System.out.print(bytes[i]+" ");

}

\*/

/\*

ExpressionParser parser = new SpelExpressionParser();

Expression exp =

parser.parseExpression("new String('hello world').toUpperCase()");

String message = exp.getValue(String.class); System.out.println(message);

\*/

ExpressionParser parser = **new** SpelExpressionParser();

Expression exp = parser.parseExpression("'Hello Abhi'.bytes.length");

**int** length = (Integer) exp.getValue();

System.***out***.println(length);

}

}

--------------------------------------------------------------------------------------------------------------------------------------

8. Write a java program to demonstrate InitializingBean and DisponsableBean.

TRY different Ways:

(using init-method and Destroy method xml config file )

(Use @PostConstruct and @preDestroy)

1 Way:

**package** com.example;

**import** org.springframework.beans.factory.DisposableBean;

**import** org.springframework.beans.factory.InitializingBean;

**public** **class** CustomerService **implements** InitializingBean, DisposableBean {

**private** String msg;

**public** String getMsg() {

**return** msg;

}

**public** **void** setMsg(String msg) {

**this**.msg = msg;

}

**public** **void** destroy() **throws** Exception {

// **TODO** Auto-generated method stub

System.***out***.println("Spring Container is destroy! Customer clean up");

}

**public** **void** afterPropertiesSet() **throws** Exception {

// **TODO** Auto-generated method stub

System.***out***.println("Init method after properties are set : " + msg);

}}

**Class 2:**

**package** com.example;

**import** org.springframework.context.ConfigurableApplicationContext;

**import** org.springframework.context.support.ClassPathXmlApplicationContext;

**public** **class** Main {

**public** **static** **void** main(String[] args) {

ConfigurableApplicationContext context = **new** ClassPathXmlApplicationContext(

**new** String[] { "SpringCustomer.xml" });

CustomerService cust = (CustomerService) context.getBean("customerService");

System.***out***.println(cust);

context.close();

}

}

**XML FILE**

**Springcustomer.xml:**

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

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

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

xsi:schemaLocation=*"http://www.springframework.org/schema/beans*

*http://www.springframework.org/schema/beans/spring-beans-2.5.xsd"*>

<bean id=*"customerService"* class=*"com.example.CustomerService"*>

<property name=*"msg"* value=*"This is property message"* />

</bean>

</beans>

**2nd Way:**

**Class 1:**

**package** com.example;

**import** javax.annotation.PostConstruct;

**import** javax.annotation.PreDestroy;

**import** org.springframework.beans.factory.annotation.Autowired;

**import** org.springframework.stereotype.Component;

@Component

**public** **class** MyBean {

**public** MyBean() {

System.***out***.println("MyBean instance created");

}

@PostConstruct

**private** **void** init() {

System.***out***.println("Verifying Resources");

}

@PreDestroy

**private** **void** shutdown() {

System.***out***.println("Shutdown All Resources");

}

**public** **void** close() {

System.***out***.println("Closing All Resources");

}

}

**Class 2:**

**package** co;m.example

**import** org.springframework.context.annotation.Bean;

**import** org.springframework.context.annotation.Configuration;

**import** org.springframework.context.annotation.Scope;

@Configuration

**public** **class** MyConfiguration {

@Bean

@Scope(value = "singleton")

**public** MyBean myBean() {

**return** **new** MyBean();

}

}

**Class 3:**

**Package** com.example;

**import** org.springframework.context.annotation.AnnotationConfigApplicationContext;

**public** **class** SpringApp {

**public** **static** **void** main(String[] args) {

AnnotationConfigApplicationContext ctx = **new** AnnotationConfigApplicationContext();

ctx.register(MyConfiguration.**class**);

ctx.refresh();

MyBean mb1 = ctx.getBean(MyBean.**class**);

System.***out***.println(mb1.hashCode());

MyBean mb2 = ctx.getBean(MyBean.**class**);

System.***out***.println(mb2.hashCode());

ctx.close();

}

}

**-------------------------------------------------------------------------------------------**

**9. Write a Java program to demonstrate complete Bean Life cycle .**

**public** **class** HelloWorld {

**public** **void** init() **throws** Exception

{

System.***out***.println(

"Bean HelloWorld has been "

+ "instantiated and I'm "

+ "the init() method");

}

// This method executes

// when the spring container

// is closed

**public** **void** destroy() **throws** Exception

{

System.***out***.println(

"Container has been closed "

+ "and I'm the destroy() method");

}

}

Class 2: Main method Class

**import** org.springframework.context.ConfigurableApplicationContext;

**import** org.springframework.context.support.ClassPathXmlApplicationContext;

**public** **class** Client {

**public** **static** **void** main(String[] args) **throws** Exception {

// Loading the Spring XML configuration

// file into the spring container and

// it will create the instance of

// the bean as it loads into container

ConfigurableApplicationContext cap = **new** ClassPathXmlApplicationContext("spring.xml");

// It will close the spring container

// and as a result invokes the

// destroy() method

cap.close();

}

}

XML file :

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

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

xsi:schemaLocation=*"http://www.springframework.org/schema/beans*

*http://www.springframework.org/schema/beans/spring-beans.xsd"*>

<bean id=*"HelloBean"* class=*"com.example.HelloBean"*>

<property name =*"name"* value=*"Mounika"*>

</property>

</bean>

</beans>

**----------------------------------------------------------------------------------------------**

**10. Write a Java program to demonstrate ApplicationContextAware interface .**

**Main class:**

package com.example;

import org.springframework.beans.factory.BeanFactory;

import org.springframework.beans.factory.xml.XmlBeanFactory;

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

import org.springframework.core.io.FileSystemResource;

public class DrawingApp {

public static void main(String[] args) {

// TODO Auto-generated method stub

//Triangle triangle=new Triangle();

//BeanFactory factory=new XmlBeanFactory(new FileSystemResource("spring.xml"));

ApplicationContext context=new ClassPathXmlApplicationContext("spring.xml");

Triangle triangle=(Triangle) context.getBean("triangle");

triangle.draw();

}

}

TRIANGLE CLASS:

package com.example;

import org.springframework.beans.BeansException;

import org.springframework.beans.factory.BeanNameAware;

import org.springframework.context.ApplicationContext;

import org.springframework.context.ApplicationContextAware;

import java.util.List;

public class Triangle implements ApplicationContextAware, BeanNameAware {

private Point pointA;

private Point pointB;

private Point pointC;

private ApplicationContext context=null;

/\*private String type;

private int height;

public int getHeight() {

return height;

}

public Triangle(String type) {

this.type=type;

}

public Triangle(int height) {

this.height=height;

}

public Triangle(String type,int height) {

this.type=type;

this.height=height;

}

public Triangle(String type) {

this.type=type;

}

public Triangle(int height) {

this.height=height;

}

public Triangle(String type,int height) {

this.type=type;

this.height=height;

}

public String getType() {

return type;

}\*/

/\*public void setType(String type) {

this.type = type;

}

\*/

public Point getPointA() {

return pointA;

}

public void setPointA(Point pointA) {

this.pointA = pointA;

}

public Point getPointB() {

return pointB;

}

public void setPointB(Point pointB) {

this.pointB = pointB;

}

public Point getPointC() {

return pointC;

}

public void setPointC(Point pointC) {

this.pointC = pointC;

}

public void draw() {

//System.out.println(getType()+" triangle drawn of height" + getHeight());

System.out.println("Point A= ( " + getPointA().getX() +" ,"+ getPointA().getY() + ")");

System.out.println("Point B= ( " + getPointB().getX() +" ,"+ getPointB().getY() + ")");

System.out.println("Point C= ( " + getPointC().getX() +" ,"+ getPointC().getY() + ")");

}

@Override

public void setApplicationContext(ApplicationContext context) throws BeansException {

// TODO Auto-generated method stub

this.context=context;

}

@Override

public void setBeanName(String beanName) {

// TODO Auto-generated method stub

System.out.println("Bean name is:" + beanName);

}

}

XML FILE:

Spring.xml:

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

<!DOCTYPE beans PUBLIC "-//SPRING//DTD BEAN 2.0//EN" "http://www.springframework.org/dtd/spring-beans-2.0.dtd">

<beans>

<bean id="triangle" class="com.example.Triangle" autowire="byName">

</bean>

<bean id="pointA" class="com.example.Point">

<property name="x" value="0" />

<property name="y" value="0" />

</bean>

<bean id="pointB" class="com.example.Point">

<property name="x" value="-20" />

<property name="y" value="0" />

</bean>

<bean id="pointC" class="com.example.Point">

<property name="x" value="0" />

<property name="y" value="20" />

</bean>

</beans>

POINT CLASS:

package com.example;

public class Point {

private int x;

private int y;

public int getX() {

return x;

}

public void setX(int x) {

this.x = x;

}

public int getY() {

return y;

}

public void setY(int y) {

this.y = y;

}

}