**Spring Assignment**

**Question 1:**

**For Setter Injection Main Class SpringQuestion1Test**

**package** Spring\_Core;

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

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

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

}

}

Address.java

**package** Spring\_Core;

**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;

}

}

AddressBean.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 = *"Spring\_Core.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 = *"Spring\_Core.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** Spring\_Core;

**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** Spring\_Core;

**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);

}

}

ConstructorAddress.java

**package** Spring\_Core;

**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;

}

}

ConstructorCustomer.java

**package** Spring\_Core;

**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();

}

}

ConstructorCustomer.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 = *"Spring\_Core.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 = *"Spring\_Core.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>

**2.Example of Injecting collections (List,Set and Map)**

Question2.java

**package** Spring\_Core;

**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** Question2

{

@SuppressWarnings("unused")

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

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

{

@SuppressWarnings("resource")

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

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

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

}

}

SetQuestion.java

**package** Spring\_Core;

**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 Spring\_Core;

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;

}

}

Coll.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=*"Collections"* class=*"Spring\_Core.List"*>

<property name=*"list"*>

<list>

<ref bean=*"answers"* />

<ref bean=*"answers1"* />

<ref bean=*"answers2"* />

</list>

</property>

</bean>

<bean id=*"answers"* class=*"Spring\_Core.Question"*>

<property name=*"answers"* value=*”Teja"*/>

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

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

</bean>

<bean id=*"answers1"* class=*"Spring\_Core.Question"*>

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

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

<property name = *"questionId"* value = *"456"*/>

</bean>

<bean id=*"answers2"* class=*"Spring\_Core.Question"*>

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

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

<property name = *"questionId"* value = *"789"*/>

</bean>

</beans>

Question2.java

**package** Spring\_Core;

**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** Question2

{

@SuppressWarnings("unused")

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

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

{

@SuppressWarnings("resource")

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

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

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

}

}

SetQuestion.java

**package** Spring\_Core;

**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";

}

}

Set.java

package Spring\_Core;

import java.util.ArrayList;

import java.util.Map;

import java.util.Set;

public class Set

{

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;

}

}

Coll.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=*"Collections"* class=*"Spring\_Core.Set"*>

<property name=*"set"*>

<list>

<ref bean=*"answers"* />

<ref bean=*"answers1"* />

<ref bean=*"answers2"* />

</list>

</property>

</bean>

<bean id=*"answers"* class=*"Spring\_Core.Question"*>

<property name=*"answers"* value=*”Teja"*/>

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

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

</bean>

<bean id=*"answers1"* class=*"Spring\_Core.Question"*>

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

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

<property name = *"questionId"* value = *"456"*/>

</bean>

<bean id=*"answers2"* class=*"Spring\_Core.Question"*>

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

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

<property name = *"questionId"* value = *"789"*/>

</bean>

</beans>

Question2.java

**package** Spring\_Core;

**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** Question2

{

@SuppressWarnings("unused")

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

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

{

@SuppressWarnings("resource")

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

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

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

}

}

SetQuestion.java

**package** Spring\_Core;

**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";

}

}

Map.java

package Spring\_Core;

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;

}

}

Coll.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=*"Collections"* class=*"Spring\_Core.Map"*>

<property name=*"map"*>

<list>

<ref bean=*"answers"* />

<ref bean=*"answers1"* />

<ref bean=*"answers2"* />

</list>

</property>

</bean>

<bean id=*"answers"* class=*"Spring\_Core.Question"*>

<property name=*"answers"* value=*”Teja"*/>

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

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

</bean>

<bean id=*"answers1"* class=*"Spring\_Core.Question"*>

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

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

<property name = *"questionId"* value = *"456"*/>

</bean>

<bean id=*"answers2"* class=*"Spring\_Core.Question"*>

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

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

<property name = *"questionId"* value = *"789"*/>

</bean>

</beans>

**5.Write a program to demonstrate use of @Resource,@inject and Required annotations**

TestDemonstrate.java

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

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

**public** **class** TestDemonstrate {

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

ApplicationContext con=**new** ClassPathXmlApplicationContext("Spring5Eg.xml");

Demonstrate demo=(Demonstrate) con.getBean("msg1");

System.***out***.println(demo.getMsgID()+" "+demo.getMsg() );

}

}

ResourceEg.java

**public** **class** ResourceEg {

**private** String recID;

**public** String getRecID() {

**return** recID;

}

**public** **void** setRecID(String recID) {

**this**.recID = recID;

}

}

Demonstrate.java

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

**public** **class** Demonstrate {

**private** String msg;

**private** **int** msgID;

**private** ResourceEg recEg;

**public** **int** getMsgID() {

**return** msgID;

}

**public** **void** setMsgID(**int** msgID) {

**this**.msgID = msgID;

}

**public** String getMsg() {

**return** msg;

}

@Required

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

**this**.msg = msg;

}

}

Spring.xml

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

<beans 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"*

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

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

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

<context:annotation-config/>

<bean class=*"Demonstrate"* id=*"msg1"*>

<property value=*"2021"* name=*"msgID"*/>

<property value=*"Spring Q.5"* name=*"msg"*/>

</bean>

</beans>

**7.Write a Java Program to demonstrate SPEL Expression**

Test.java

**package** com.maven7;

**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);

}

}

Pom.xml

<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-4.0.0.xsd">

<modelVersion>4.0.0</modelVersion>

<groupId>com.maven7</groupId>

<artifactId>SPELexpression</artifactId>

<version>0.0.1-SNAPSHOT</version>

<dependencies>

<!-- https://mvnrepository.com/artifact/org.springframework/spring-core -->

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-core</artifactId>

<version>5.3.15</version>

</dependency>

<!-- https://mvnrepository.com/artifact/org.springframework/spring-expression -->

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-expression</artifactId>

<version>5.3.15</version>

</dependency>

</dependencies>

</project>

Output:

Hello Maven

Concat : Welcome To SpringExpression

StringtoByte : 72 101 108 108 111 32 87 111 114 108 100

UpperCase : HELLO WORLD

Length : 10

**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:**

CustomerService.java

**package** QuestionEight;

**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);

}}

Snippet.java

**package** QuestionEight;

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

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

**public** **class** Snippet {

**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();

}

}

Spring.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=*"QuestionEight.CustomerService"*>

<property name=*"msg"* value=*"i'm property message"* />

</bean>

</beans>

OUTPUT:

Init method after properties are set : i'm property message

Spring Container is destroy! Customer clean up

**2nd Way:**

MyBean.java

**package** EightB;

**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");

}

}

MyConfiguration.java

**package** EightB;

**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();

}

}

SpringApp.java

**package** EightB;

**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();

}

}

OUTPUT:

MyBean instance created

Verifying Resources

2145970759

2145970759

Shutdown All Resources

Closing All Resources

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

Drawing.java

package com.abhi;

import org.springframework.beans.factory.BeanFactory;

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

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.AbstractApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

import org.springframework.core.io.FileSystemResource;

public class DrawingApp {

public static void main(String[] args) {

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

context.registerShutdownHook();

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

triangle.draw();

}

}

Triangle.java

package com.abhi;

import java.util.List;

import org.springframework.beans.BeansException;

import org.springframework.beans.factory.BeanNameAware;

import org.springframework.beans.factory.DisposableBean;

import org.springframework.beans.factory.InitializingBean;

import org.springframework.context.ApplicationContext;

import org.springframework.context.ApplicationContextAware;

//import javax.annotation.PostConstruct;

//import javax.annotation.PreDestroy;

public class Triangle implements InitializingBean, DisposableBean {

private Point pointA;

private Point pointB;

private Point pointC;

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("Drawing Triangle");

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

//@PostConstruct

public void afterPropertiesSet() throws Exception {

System.out.println("InitializingBean init method called for Triangle");

}

@Override

//@PreDestroy

public void destroy() throws Exception {

System.out.println("DisposableBean destroy method called for triangle");

}

}

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 >

<!--

activate the @PostConstruct and

@PreDestroy annotation

<bean class="org.springframework.context.annotation.CommonAnnotationBeanPostProcessor"/>

configure the bean

<bean class="beans.HelloWorld"/>

-->

<bean id=*"triangle"* class=*"com.abhi.Triangle"* init-method=*"myInit"* destroy-method=*"cleanUp"*>

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

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

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

</bean>

<bean id=*"pointA"* class = *"com.abhi.Point"*>

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

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

</bean>

<bean id=*"pointB"* class = *"com.abhi.Point"*>

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

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

</bean>

<bean id=*"pointC"* class = *"com.abhi.Point"*>

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

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

</bean>

<bean id=*"circle"* class=*"com.abhi.Circle"*>

<property name=*"center"* ref=*"pointA"*/>

</bean>

<!-- <bean class="org.springframework.beans.factory.annotation.RequiredAnnotationBeanPostProcessor"/> -->

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

</beans>

Output:

My init method called for triangle

Drawing Triangle

Point A =(0, 0)

Point B =(-20, 0)

Point C =(20, 0)

my cleanup method called for triangle

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

Employee.java

**package** AplicationContextAware;

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

**private** String Name;

**public** String getName() {

**return** Name;

}

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

Name = name;

}

@Override

**public** String toString() {

**return** "employee [Name=" + Name + "]";

}

}

AppContextAwareImpl.java

**import** org.springframework.beans.BeansException;

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

**import** org.springframework.context.ApplicationContextAware;

**public** **class** AppContextAwareImpl **implements** ApplicationContextAware {

**private** ApplicationContext applicationContext;

**public** **void** setApplicationContext(ApplicationContext applicationContext) **throws** BeansException {

System.***out***.println("set Application Context method is called by the spring container");

**this**.applicationContext = applicationContext;

}

**public** **void** displayEmployeeDetails() {

Employee employee = applicationContext.getBean("employee", Employee.**class**);

System.***out***.println("Got employee object from the applicationContext(Spring Container)=" + employee);

System.***out***.println("is employee object Singleton =" +

applicationContext.isSingleton("employee"));

}

}

App.java

**package** AplicationContextAware;

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

**public** **class** App {

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

ClassPathXmlApplicationContext applicationContext= **new** ClassPathXmlApplicationContext("applicationContext.xml");

AppContextAwareImpl applicationContextAwareImpl= applicationContext.getBean("applicationContextAware",AppContextAwareImpl.**class**);

applicationContextAwareImpl.displayEmployeeDetails();

applicationContext.close();

}

}

Spring.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.xsd"*>

<bean id=*"employee"* class=*"AplicationContextAware.Employee"*>

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

</bean>

<bean id=*"applicationContextAware"* class=*"AplicationContextAware.AppContextAwareImpl"*></bean>

</beans>

OUTPUT:

set Application Context method is called by the spring container

Got employee object from the applicationContext(Spring Container)=employee [Name=Abhi]

is employee object Singleton =true