Spring ASSIGNMENT Day_2

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1. Create custom init() and destroy() methods in Customer Bean. Use the init() method to validate if all phoneNumberList in the list starts with +91. If not add +91 to the phone number which is not prefixed with +91.

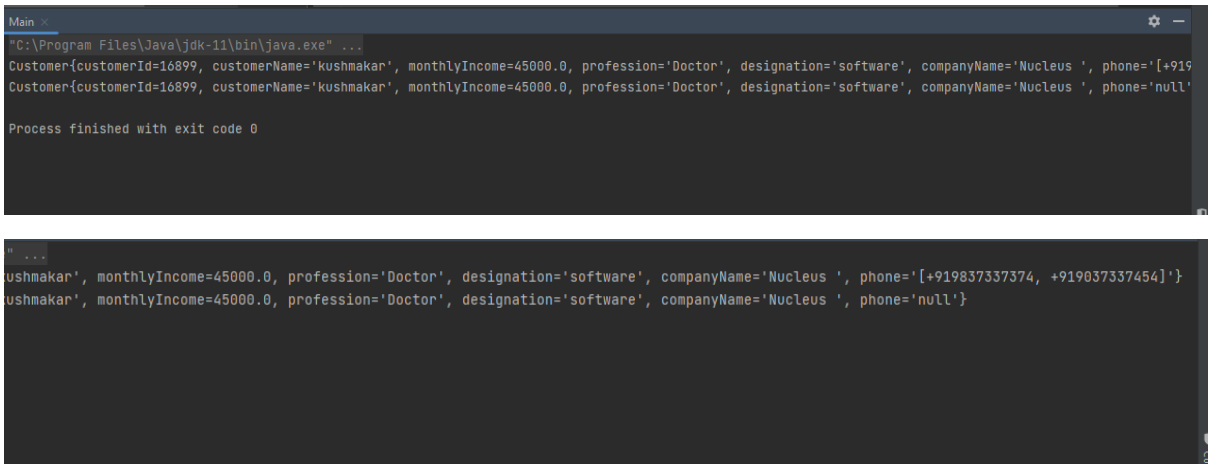
Use destroy method to empty both phoneNumberList and emailAddressSet.

```
package com.springcore;

import java.util.List;
import java.util.Set;

public class Customer {
    private int customerId;

    public String getCustomerName() {
        return customerName;
    }

    private String customerName;
    private double monthlyIncome;
    private String profession;
    private String designation;
    private String companyName;
    private List<String> phoneNumbers;
    private Set<String> emailAdressSet;


    public void setEmailAdressSet(Set<String> emailAdressSet) {
        this.emailAdressSet = emailAdressSet;
    }

    public void showPersonPhoneEmail() {
        for (String  emailAdressSet : emailAdressSet) {
            System.out.println(emailAdressSet);
        }
    }
    public void showPersonPhoneNumbers() {
        for (String phoneNumber : phoneNumbers) {
            System.out.println(phoneNumber);
        }
    }

    public Customer(Set<String> emailAdressSet) {
        this.emailAdressSet = emailAdressSet;
    }

    public void setCustomerId(int customerId) {
```

```
        this.customerId = customerId;
    }

    public Customer(List<String> phoneNumbers) {
        this.phoneNumbers = phoneNumbers;
    }

    public void setCustomerName(String customerName) {
        this.customerName = customerName;
    }

    public void setMonthlyIncome(double monthlyIncome) {
        this.monthlyIncome = monthlyIncome;
    }

    public void setProfession(String profession) {
        this.profession = profession;
    }

    public void setDesignation(String designation) {
        this.designation = designation;
    }

    public void setCompanyName(String companyName) {
        this.companyName = companyName;
    }

    @Override
    public String toString() {
        return "Customer{" +
                "customerId=" + customerId +
                ", customerName='" + customerName + '\'' +
                ", monthlyIncome=" + monthlyIncome +
                ", profession='" + profession + '\'' +
                ", designation='" + designation + '\'' +
                ", companyName='" + companyName + '\'' +
                ", phone='" + phoneNumbers + '\'' +
                '}';
    }


    public Customer(int customerId, String customerName, double
monthlyIncome, String profession, String designation, String companyName,
List<String> phoneNumbers) {
        this.customerId = customerId;
        this.customerName = customerName;
        this.monthlyIncome = monthlyIncome;
        this.profession = profession;
        this.designation = designation;
        this.companyName = companyName;
        this.phoneNumbers = phoneNumbers;
    }

    public Customer() {

    }

    public void init(){
       for(int i =0; i<phoneNumbers.size(); i++) {
           String phoneno = phoneNumbers.get(i);
          if(!phoneno.startsWith("+91")){
```

```
                phoneNumbers.set(i,"+91"+ phoneno);
            }
        }
    }
    public void destroy(){
        phoneNumbers = null;
    }
}
```

```
package com.springcore;

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

public class Main {
    public static void main(String[] args) {
        ApplicationContext context = (ApplicationContext) new
ClassPathXmlApplicationContext("Beans1.xml");
        Customer cust = (Customer) context.getBean("customer");

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

    }
}
```



2. Create a class Address as per the class diagram below:

The relationship between Customer and Address class is One-To-One. Use manual wiring to inject the dependency of Address in Customer.

```java
package com.springcore;

import java.util.List;
import java.util.Set;

public class Customer {
    private int customerId;
    private String customerName;
    private double monthlyIncome;
    private String profession;
    private String designation;
    private String companyName;
    private List<String> phoneNumbers;
    private Set<String> emailAdressSet;

    private  ClassAddress classAddress;

    public ClassAddress getClassAddress() {
        return classAddress;
    }

    public String getCustomerName() {
        return customerName;
    }

    public void setEmailAdressSet(Set<String> emailAdressSet) {
        this.emailAdressSet = emailAdressSet;
    }

    public void showPersonPhoneEmail() {
        for (String  emailAdressSet : emailAdressSet) {
            System.out.println(emailAdressSet);
        }
    }
    public void showPersonPhoneNumbers() {
        for (String phoneNumber : phoneNumbers) {
            System.out.println(phoneNumber);
        }
    }

    public Customer(Set<String> emailAdressSet) {
        this.emailAdressSet = emailAdressSet;
    }

    public void setCustomerId(int customerId) {
        this.customerId = customerId;
    }

    public Customer(List<String> phoneNumbers) {
        this.phoneNumbers = phoneNumbers;
    }

    public void setCustomerName(String customerName) {
        this.customerName = customerName;
    }

    public void setMonthlyIncome(double monthlyIncome) {
        this.monthlyIncome = monthlyIncome;
    }

    public void setProfession(String profession) {
```

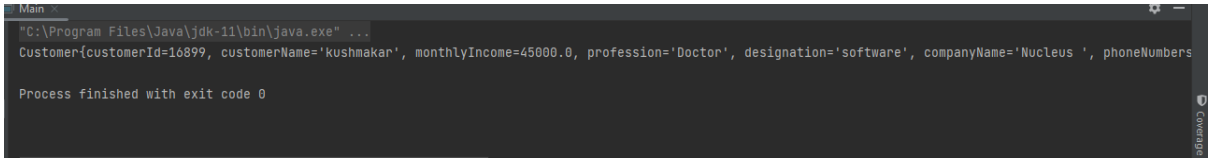
```
        this.profession = profession;
    }

    public void setDesignation(String designation) {
        this.designation = designation;
    }

    public void setCompanyName(String companyName) {
        this.companyName = companyName;
    }

    public void setClassAddress(ClassAddress classAddress) {
        this.classAddress = classAddress;
    }

    public Customer(int customerId, String customerName, double
monthlyIncome, String profession, String designation, String companyName,
List<String> phoneNumbers, Set<String> emailAdressSet, ClassAddress
classAddress) {
        this.customerId = customerId;
        this.customerName = customerName;
        this.monthlyIncome = monthlyIncome;
        this.profession = profession;
        this.designation = designation;
        this.companyName = companyName;
        this.phoneNumbers = phoneNumbers;
        this.emailAdressSet = emailAdressSet;
        this.classAddress = classAddress;
    }

    @Override
    public String toString() {
        return "Customer{" +
                "customerId=" + customerId +
                ", customerName='" + customerName + '\'' +
                ", monthlyIncome=" + monthlyIncome +
                ", profession='" + profession + '\'' +
                ", designation='" + designation + '\'' +
                ", companyName='" + companyName + '\'' +
                ", phoneNumbers=" + phoneNumbers +
                ", emailAdressSet=" + emailAdressSet +
                ", classAddress=" + classAddress +
                '}';
    }

    public Customer() {

    }

    public void init(){
       for(int i =0; i<phoneNumbers.size(); i++) {
           String phoneno = phoneNumbers.get(i);
          if(!phoneno.startsWith("+91")){
              phoneNumbers.set(i,"+91"+ phoneno);
          }
        }
    }
    public void destroy(){
        phoneNumbers = null;
    }
} package com.springcore;
```

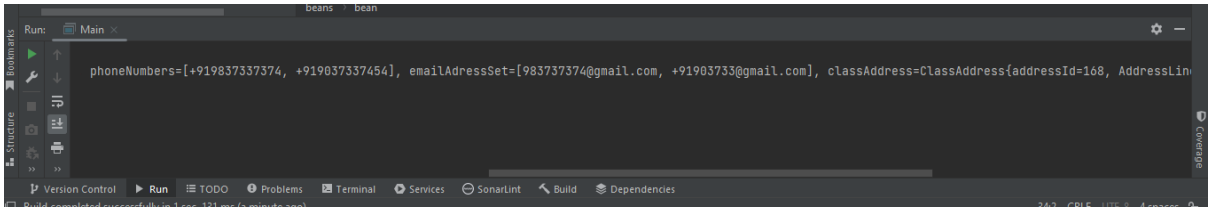
```
public class ClassAddress {
    private int addressId;
    private String AddressLine1;
    private String AddressLine2;
    private String City;
    private String state;
    private int Zip;

    public ClassAddress(int addressId, String addressLine1, String
addressLine2, String city, String state, int zip) {
        this.addressId = addressId;
        AddressLine1 = addressLine1;
        AddressLine2 = addressLine2;
        City = city;
        this.state = state;
        Zip = zip;
    }

    @Override
    public String toString() {
        return "ClassAddress{" +
                "addressId=" + addressId +
                ", AddressLine1='" + AddressLine1 + '\'' +
                ", AddressLine2='" + AddressLine2 + '\'' +
                ", City='" + City + '\'' +
                ", state='" + state + '\'' +
                ", Zip=" + Zip +
                '}';
    }

    public int getAddressId() {
        return addressId;
    }

    public void setAddressId(int addressId) {
        this.addressId = addressId;
    }

    public String getAddressLine1() {
        return AddressLine1;
    }

    public void setAddressLine1(String addressLine1) {
        AddressLine1 = addressLine1;
    }

    public String getAddressLine2() {
        return AddressLine2;
    }

    public void setAddressLine2(String addressLine2) {
        AddressLine2 = addressLine2;
    }

    public String getCity() {
        return City;
    }

    public void setCity(String city) {
```

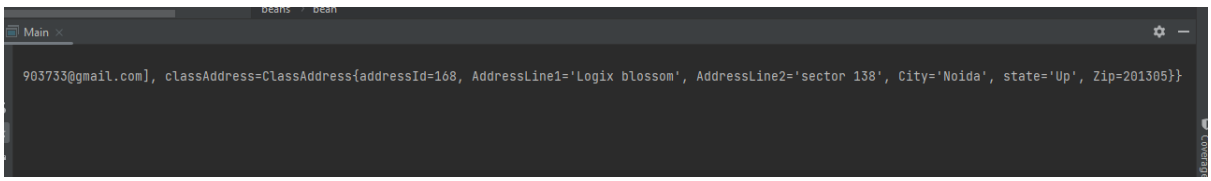
```
        City = city;
    }

    public String getState() {
        return state;
    }

    public void setState(String state) {
        this.state = state;
    }

    public int getZip() {
        return Zip;
    }

    public void setZip(int zip) {
        Zip = zip;
    }

    public ClassAddress() {

    }
}
```

```
<?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 = "customer" class = "com.springcore.Customer" init-
method="init" destroy-method="destroy">

        <constructor-arg value="16899" index="0" type="int"/>
        <constructor-arg value="kushmakar" index="1" type="String"/>
        <constructor-arg value="45000" index="2" type="double"/>
        <constructor-arg value="Doctor" index="3" type="String"/>
        <constructor-arg value="software" index="4" type="String"/>
        <constructor-arg value="Nucleus " index="5" type="String"/>

        <constructor-arg index="6">
            <list value-type="java.lang.String">
                <value>9837337374</value>
                <value>+919037337454</value>
            </list>
        </constructor-arg>

        <constructor-arg index="7">
            <set>
                <value>983737374@gmail.com</value>
                <value>+91903733@gmail.com</value>
            </set>
        </constructor-arg>
```

```
        <constructor-arg index="8" ref="address"/>
A
    </bean>


    <bean id = "address" class = "com.springcore.ClassAddress" >

                <property name="addressId" value="168"></property>
                <property name="addressLine1" value="Logix
blossom"></property>
                <property name="addressLine2" value="sector
138"></property>
                <property name="city" value="Noida"></property>
                <property name="state" value="Up"></property>
                <property name="zip" value="201305"></property>


    </bean>

</beans>
```







3. Use the class LoanAgreement created during the Java Day-2 Assignment. The relationship \between Customer and LoanAgreement is One-To-Many. Create a List of LoanAgreements in the Customer class and inject the dependency of LoanAgreements in the Customer bean.

```java
package com.springcore;

import java.time.LocalDate;
import java.util.List;
import java.util.Set;

public class Customer {
    private int customerId;
    private String customerName;
    private double monthlyIncome;
    private String profession;
    private String designation;
    private String companyName;
    private List<String> phoneNumbers;
    private Set<String> emailAdressSet;

    private LocalDate dateOfBirth;

   private List<LoanAgreement> loanAgreement;

    private  ClassAddress classAddress;

    public int getCustomerId() {
        return customerId;
    }

    public void setCustomerId(int customerId) {
        this.customerId = customerId;
    }

    public String getCustomerName() {
        return customerName;
    }

    public void setCustomerName(String customerName) {
        this.customerName = customerName;
    }

    public double getMonthlyIncome() {
        return monthlyIncome;
    }

    public void setMonthlyIncome(double monthlyIncome) {
        this.monthlyIncome = monthlyIncome;
    }

    public String getProfession() {
        return profession;
    }

    public void setProfession(String profession) {
        this.profession = profession;
    }

    public String getDesignation() {
        return designation;
    }

    public void setDesignation(String designation) {
        this.designation = designation;
    }
```

```
    public String getCompanyName() {
        return companyName;
    }

    public void setCompanyName(String companyName) {
        this.companyName = companyName;
    }

    public List<String> getPhoneNumbers() {
        return phoneNumbers;
    }

    public void setPhoneNumbers(List<String> phoneNumbers) {
        this.phoneNumbers = phoneNumbers;
    }

    public Set<String> getEmailAdressSet() {
        return emailAdressSet;
    }

    public void setEmailAdressSet(Set<String> emailAdressSet) {
        this.emailAdressSet = emailAdressSet;
    }

    public List<LoanAgreement> getLoanAgreement() {
        return loanAgreement;
    }

    public void setLoanAgreement(List<LoanAgreement> loanAgreement) {
        this.loanAgreement = loanAgreement;
    }

    public ClassAddress getClassAddress() {
        return classAddress;
    }

    public void setClassAddress(ClassAddress classAddress) {
        this.classAddress = classAddress;
    }

    public Customer(int customerId, String customerName, double
monthlyIncome, String profession, String designation, String companyName,
List<String> phoneNumbers, Set<String> emailAdressSet,  ClassAddress
classAddress,List<LoanAgreement> loanAgreement) {
        this.customerId = customerId;
        this.customerName = customerName;
        this.monthlyIncome = monthlyIncome;
        this.profession = profession;
        this.designation = designation;
        this.companyName = companyName;
        this.phoneNumbers = phoneNumbers;
        this.emailAdressSet = emailAdressSet;
        this.classAddress = classAddress;
        this.loanAgreement = loanAgreement;
    }

    @Override
    public String toString() {
        return "Customer{" +
                "customerId=" + customerId +
```

```
                ", customerName='" + customerName + '\'' +
                ", monthlyIncome=" + monthlyIncome +
                ", profession='" + profession + '\'' +
                ", designation='" + designation + '\'' +
                ", companyName='" + companyName + '\'' +
                ", phoneNumbers=" + phoneNumbers +
                ", emailAdressSet=" + emailAdressSet +
                ", loanAgreement=" + loanAgreement +
                ", classAddress=" + classAddress +
                '}';
    }

    public Customer() {

    }

    public void init(){
       for(int i =0; i<phoneNumbers.size(); i++) {
           String phoneno = phoneNumbers.get(i);
          if(!phoneno.startsWith("+91")){
              phoneNumbers.set(i,"+91"+ phoneno);
          }
        }
    }
    public void destroy(){
        phoneNumbers = null;
    }
}
```

```
package com.springcore;

import java.time.LocalDate;

public class LoanAgreement {

    private int loanAgreementId;
    private double loanAmount;
        private int tenure;
        private double roi;
        private LoansStatus loansStatus;
        private double emiPerMonth;
        private LocalDate loanDisbursalDate;
        private int repaymentFrequecy;
        static int count = 0;

    public LoanAgreement(String loanDisbursalDate) {
        this.loanDisbursalDate = LocalDate.parse(loanDisbursalDate);
    }

    public int getLoanAgreementId() {
            return loanAgreementId;
        }

        public void setLoanAgreementId(int loanAgreementId) {
            this.loanAgreementId = loanAgreementId;
        }

        public double getLoanAmount() {
            return loanAmount;
        }
```

```java
    public void setLoanAmount(double loanAmount) {
        this.loanAmount = loanAmount;
    }

    public int getTenure() {
        return tenure;
    }

    public void setTenure(int tenure) {
        this.tenure = tenure;
    }

    public double getRoi() {
        return roi;
    }

    public void setRoi(double roi) {
        this.roi = roi;
    }

    public LoansStatus getLoansStatus() {
        return loansStatus;
    }

    public void setLoansStatus(LoansStatus loansStatus) {
        this.loansStatus = loansStatus;
    }

    public double getEmiPerMonth() {
        return emiPerMonth;
    }

    public void setEmiPerMonth(double emiPerMonth) {
        this.emiPerMonth = emiPerMonth;
    }

    public LocalDate getLoanDisbursalDate() {
        return loanDisbursalDate;
    }

    public void setLoanDisbursalDate(LocalDate loanDisbursalDate) {
        this.loanDisbursalDate = loanDisbursalDate;
    }

    public int getRepaymentFrequecy() {
        return repaymentFrequecy;
    }

    public void setRepaymentFrequecy(int repaymentFrequecy) {
        this.repaymentFrequecy = repaymentFrequecy;
    }

    public static int getCount() {
        return count;
    }

    public static void setCount(int count) {
        LoanAgreement.count = count;
    }
```

```
        public LoanAgreement(int loanAgreementId, double loanAmount, int
tenure, double roi, LoansStatus loansStatus, double emiPerMonth, String
loanDisbursalDate, int repaymentFrequecy) {
            this.loanAgreementId = loanAgreementId;
            this.loanAmount = loanAmount;
            this.tenure = tenure;
            this.roi = roi;
            this.loansStatus = loansStatus;
            this.emiPerMonth = emiPerMonth;
            this.loanDisbursalDate = LocalDate.parse(loanDisbursalDate);
            this.repaymentFrequecy = repaymentFrequecy;


            if(loansStatus.equals("ACTIVE{")){
                this.loansStatus = LoansStatus.ACTIVE;
            }
            else if(loansStatus.equals("APPROVED")){
                this.loansStatus = LoansStatus.APPROVAL;

            }
            else if(loansStatus.equals("REJECTED")) {
                this.loansStatus = LoansStatus.REJECTED;
            }
            else {
                this.loansStatus = LoansStatus.CLOSED;
            }

        }



        @Override
        public String toString() {
            return "LoanAgreement{" +
                    "loanAgreementId=" + loanAgreementId +
                    ", loanAmount=" + loanAmount +
                    ", tenure=" + tenure +
                    ", roi=" + roi +
                    ", loansStatus=" + loansStatus +
                    ", emiPerMonth=" + emiPerMonth +
                    ", loanDisbursalDate=" + loanDisbursalDate +
                    ", repaymentFrequecy=" + repaymentFrequecy +
                    '}';
        }
    }
```

4. Add one more property in the class Customer as mentioned below:

LocalDate dateOfBirth

Use Property Editor to configure the property value once being assigned via setter Injection in XML configuration file

5. Repeat the Questions – 2 & 3 with Autowiring concept. Use all different types of autowiring.

Also explain different types of auto-wiring modes with the help of demo code.

```
package com.springcore;


import
org.springframework.context.annotation.AnnotationConfigApplicationContext;

public class Main {
    public static void main(String[] args) {
        AnnotationConfigApplicationContext context = new
AnnotationConfigApplicationContext();
        context.scan("com.springcore");
        context.refresh();
        Customer cust = (Customer) context.getBean(Customer.class);
        cust.setCustomerName("Harshit");
        ClassAddress add = (ClassAddress)
context.getBean(ClassAddress.class);
        add.setCity("noida");
        System.out.println(cust);



    }
}
```

```
package com.springcore;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Component;

import javax.annotation.PostConstruct;
import javax.annotation.PreDestroy;
import java.time.LocalDate;
import java.util.List;
import java.util.Set;
@Component
public class Customer {
    private int customerId;
    private String customerName;
```

```
    private double monthlyIncome;
    private String profession;
    private String designation;
    private String companyName;
    private List<String> phoneNumbers;
    private Set<String> emailAdressSet;

    private LocalDate dateOfBirth;


   private List<LoanAgreement> loanAgreement;
     @Autowired
    private  ClassAddress classAddress;


    public void setCustomerId(int customerId) {
        this.customerId = customerId;
    }

    public void setCustomerName(String customerName) {
        this.customerName = customerName;
    }

    public void setMonthlyIncome(double monthlyIncome) {
        this.monthlyIncome = monthlyIncome;
    }

    public void setProfession(String profession) {
        this.profession = profession;
    }

    public void setDesignation(String designation) {
        this.designation = designation;
    }

    public void setCompanyName(String companyName) {
        this.companyName = companyName;
    }

    public void setPhoneNumbers(List<String> phoneNumbers) {
        this.phoneNumbers = phoneNumbers;
    }

    public void setEmailAdressSet(Set<String> emailAdressSet) {
        this.emailAdressSet = emailAdressSet;
    }

    public void setDateOfBirth(LocalDate dateOfBirth) {
        this.dateOfBirth = dateOfBirth;
    }

    public void setLoanAgreement(List<LoanAgreement> loanAgreement) {
        this.loanAgreement = loanAgreement;
    }

    public void setClassAddress(ClassAddress classAddress) {
        this.classAddress = classAddress;
    }


    public Customer(int customerId, String customerName, double
```

```
monthlyIncome, String profession, String designation, String companyName,
List<String> phoneNumbers, Set<String> emailAdressSet, LocalDate
dateOfBirth, List<LoanAgreement> loanAgreement, ClassAddress classAddress)
{
        this.customerId = customerId;
        this.customerName = customerName;
        this.monthlyIncome = monthlyIncome;
        this.profession = profession;
        this.designation = designation;
        this.companyName = companyName;
        this.phoneNumbers = phoneNumbers;
        this.emailAdressSet = emailAdressSet;
        this.dateOfBirth = dateOfBirth;
        this.loanAgreement = loanAgreement;
        this.classAddress = classAddress;
    }

    @Override
    public String toString() {
        return "Customer{" +
                "customerId=" + customerId +
                ", customerName='" + customerName + '\'' +
                ", monthlyIncome=" + monthlyIncome +
                ", profession='" + profession + '\'' +
                ", designation='" + designation + '\'' +
                ", companyName='" + companyName + '\'' +
                ", phoneNumbers=" + phoneNumbers +
                ", emailAdressSet=" + emailAdressSet +
                ", dateOfBirth=" + dateOfBirth +
                ", loanAgreement=" + loanAgreement +
                ", classAddress=" + classAddress +
                '}';
    }

    public Customer() {

    }

    public void init(){
       for(int i =0; i<phoneNumbers.size(); i++) {
           String phoneno = phoneNumbers.get(i);
          if(!phoneno.startsWith("+91")){
              phoneNumbers.set(i,"+91"+ phoneno);
          }
        }
    }

    public void destroy(){
        phoneNumbers.clear();
        emailAdressSet.clear();
    }
}
```

```
package com.springcore;

import org.springframework.stereotype.Component;

@Component
public class ClassAddress {
    private int addressId;
```

```
    private String AddressLine1;
    private String AddressLine2;
    private String City;
    private String state;
    private int Zip;


    public ClassAddress(int addressId, String addressLine1, String
addressLine2, String city, String state, int zip) {
        this.addressId = addressId;
        AddressLine1 = addressLine1;
        AddressLine2 = addressLine2;
        City = city;
        this.state = state;
        Zip = zip;
    }

    @Override
    public String toString() {
        return "ClassAddress{" +

                "addressId=" + addressId +

                ", AddressLine1='" + AddressLine1 + '\'' +

                ", AddressLine2='" + AddressLine2 + '\'' +

                ", City='" + City + '\'' +

                ", state='" + state + '\'' +

                ", Zip=" + Zip +
                '}';
    }

    public int getAddressId() {
        return addressId;
    }

    public void setAddressId(int addressId) {
        this.addressId = addressId;
    }

    public String getAddressLine1() {
        return AddressLine1;
    }

    public void setAddressLine1(String addressLine1) {
        AddressLine1 = addressLine1;
    }

    public String getAddressLine2() {
        return AddressLine2;
    }

    public void setAddressLine2(String addressLine2) {
        AddressLine2 = addressLine2;
    }

    public String getCity() {
        return City;
```

```
    }

    public void setCity(String city) {
        City = city;
    }

    public String getState() {
        return state;
    }

    public void setState(String state) {
        this.state = state;
    }

    public int getZip() {
        return Zip;
    }

    public void setZip(int zip) {
        Zip = zip;
    }

    public ClassAddress() {

    }
}
```

6. Change the custom init and destroy method created in Question-1 with @PostConstruct and @PreDestroy annotated methods.

```
package com.springcore;

import javax.annotation.PostConstruct;
import javax.annotation.PreDestroy;
import java.time.LocalDate;
import java.util.List;
import java.util.Set;

public class Customer {
    private int customerId;
    private String customerName;
    private double monthlyIncome;
    private String profession;
    private String designation;
    private String companyName;
    private List<String> phoneNumbers;
    private Set<String> emailAdressSet;

    private LocalDate dateOfBirth;
```

```
    private List<LoanAgreement> loanAgreement;

    private  ClassAddress classAddress;

    public int getCustomerId() {
        return customerId;
    }

    public void setCustomerId(int customerId) {
        this.customerId = customerId;
    }

    public String getCustomerName() {
        return customerName;
    }

    public void setCustomerName(String customerName) {
        this.customerName = customerName;
    }

    public double getMonthlyIncome() {
        return monthlyIncome;
    }

    public void setMonthlyIncome(double monthlyIncome) {
        this.monthlyIncome = monthlyIncome;
    }

    public String getProfession() {
        return profession;
    }

    public void setProfession(String profession) {
        this.profession = profession;
    }

    public String getDesignation() {
        return designation;
    }

    public void setDesignation(String designation) {
        this.designation = designation;
    }

    public String getCompanyName() {
        return companyName;
    }

    public void setCompanyName(String companyName) {
        this.companyName = companyName;
    }

    public List<String> getPhoneNumbers() {
        return phoneNumbers;
    }

    public void setPhoneNumbers(List<String> phoneNumbers) {
        this.phoneNumbers = phoneNumbers;
    }

    public Set<String> getEmailAdressSet() {
```

```
        return emailAdressSet;
    }

    public void setEmailAdressSet(Set<String> emailAdressSet) {
        this.emailAdressSet = emailAdressSet;
    }

    public List<LoanAgreement> getLoanAgreement() {
        return loanAgreement;
    }

    public void setLoanAgreement(List<LoanAgreement> loanAgreement) {
        this.loanAgreement = loanAgreement;
    }

    public ClassAddress getClassAddress() {
        return classAddress;
    }

    public void setClassAddress(ClassAddress classAddress) {
        this.classAddress = classAddress;
    }

    public Customer(int customerId, String customerName, double
monthlyIncome, String profession, String designation, String companyName,
List<String> phoneNumbers, Set<String> emailAdressSet,  ClassAddress
classAddress,List<LoanAgreement> loanAgreement) {
        this.customerId = customerId;
        this.customerName = customerName;
        this.monthlyIncome = monthlyIncome;
        this.profession = profession;
        this.designation = designation;
        this.companyName = companyName;
        this.phoneNumbers = phoneNumbers;
        this.emailAdressSet = emailAdressSet;
        this.classAddress = classAddress;
        this.loanAgreement = loanAgreement;
    }

    @Override
    public String toString() {
        return "Customer{" +
                "customerId=" + customerId +
                ", customerName='" + customerName + '\'' +
                ", monthlyIncome=" + monthlyIncome +
                ", profession='" + profession + '\'' +
                ", designation='" + designation + '\'' +
                ", companyName='" + companyName + '\'' +
                ", phoneNumbers=" + phoneNumbers +
                ", emailAdressSet=" + emailAdressSet +
                ", loanAgreement=" + loanAgreement +
                ", classAddress=" + classAddress +
                '}';
    }

    public Customer() {

    }
    @PostConstruct
    public void init(){
       for(int i =0; i<phoneNumbers.size(); i++) {
```

```
            String phoneno = phoneNumbers.get(i);
            if(!phoneno.startsWith("+91")){
                phoneNumbers.set(i,"+91"+ phoneno);
            }
        }
    }
    @PreDestroy
    public void destroy(){
        phoneNumbers.clear();
        emailAdressSet.clear();
    }
}
```

```
package com.springcore;

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

public class Main {
    public static void main(String[] args) {
        ApplicationContext context = (ApplicationContext) new
ClassPathXmlApplicationContext("Beans6.xml");
        Customer cust = (Customer) context.getBean("customer");

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

    }
}
```

```
Main
"C:\Program Files\Java\jdk-11\bin\java.exe" ...
Customer{customerId=16899, customerName='kushmakar', monthlyIncome=45000.0, profession='Doctor', designation='software', companyName='Nucleus ', phone='[+919
Customer{customerId=16899, customerName='kushmakar', monthlyIncome=45000.0, profession='Doctor', designation='software', companyName='Nucleus ', phone='null'

Process finished with exit code 0
```

```
" ...
ushmakar', monthlyIncome=45000.0, profession='Doctor', designation='software', companyName='Nucleus ', phone='[+919837337374, +919037337454]'}
ushmakar', monthlyIncome=45000.0, profession='Doctor', designation='software', companyName='Nucleus ', phone='null'}
```

7. Create a demo application showing all the methods called during Spring bean life cycle.

```
package core.ioc;
```

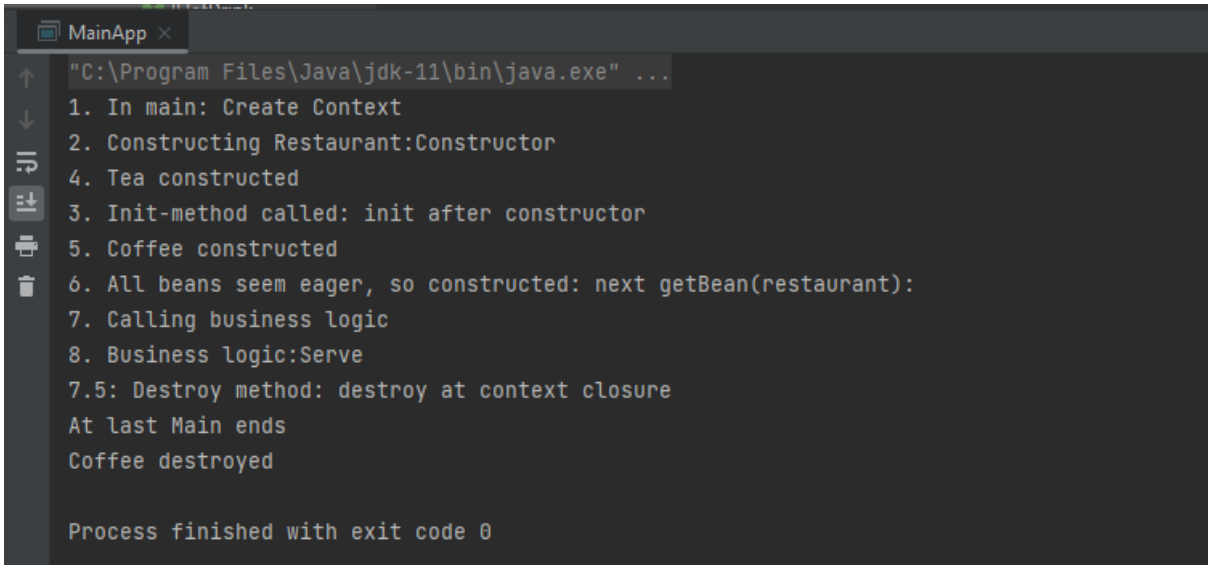
```java
import org.springframework.context.support.AbstractApplicationContext;
import org.springframework.context.support.ClassPathXmlApplicationContext;

public class MainApp {



        public static void main(String[] args) {
            System.out.println("1. In main: Create Context");
            ClassPathXmlApplicationContext context = new
                    ClassPathXmlApplicationContext("Bean7.xml");
            ((AbstractApplicationContext)context).registerShutdownHook();
            System.out.println("6. All beans seem eager, so constructed:
next getBean(restaurant):");
            Restaurant r=(Restaurant) context.getBean("restaurantBean");
            System.out.println("7. Calling business logic");
            r.serve();
            r=null;
            context.close();
            System.gc();
            System.out.println("At last Main ends");
        }
    }

package core.ioc;

public class Restaurant {

        public void serve(){
            System.out.println("8. Business logic:Serve");
        }
        public Restaurant(){
            System.out.println("2. Constructing Restaurant:Constructor");
        }
        @Override
        protected void finalize() {
            System.out.println("9. Cleaning the Restaurant: finalize");
        }
        public void init(){
            System.out.println("3. Init-method called: init after
constructor");
        }
        public void destroy(){
            System.out.println("7.5: Destroy method: destroy at context
closure");
        }
        IHotDrink iHotDrink;
        public void setiHotDrink(IHotDrink iHotDrink) {
            this.iHotDrink = iHotDrink;
        }
    }


package core.ioc;
public class Coffee implements IHotDrink {
    public Coffee(){
        System.out.println("5. Coffee constructed");
    }
    @Override
    protected void finalize() throws Throwable {
        System.out.println("Coffee destroyed");
```

```
    }
    public void prepare(){
        System.out.println("Coffee is prepared");
    }
}
```

```
package core.ioc;

public interface IHotDrink {
    void prepare();
}
```

```
package core.ioc;

public class Tea implements IHotDrink {
    public Tea(){
        System.out.println("4. Tea constructed");
    }
    @Override
    protected void finalize() throws Throwable {
        System.out.println("Tea destroyed");
    }
    public void prepare(){
        System.out.println("Tea is prepared");
    }
}
```

```
<?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="restaurantBean" class="core.ioc.Restaurant" init-
method="init"
    destroy-method="destroy">
    <property name="iHotDrink" ref="teaBean"/>
</bean>
<bean id="teaBean" class="core.ioc.Tea"></bean>
<bean id="coffeeBean" class="core.ioc.Coffee"></bean>
    </beans>
```


MainApp
"C:\Program Files\Java\jdk-11\bin\java.exe" ...
1. In main: Create Context
2. Constructing Restaurant:Constructor
4. Tea constructed
3. Init-method called: init after constructor
5. Coffee constructed
6. All beans seem eager, so constructed: next getBean(restaurant):
7. Calling business logic
8. Business logic:Serve
7.5: Destroy method: destroy at context closure
At last Main ends
Coffee destroyed
Process finished with exit code 0