Program No:	
Roll No :	**1525**
Title of Program :	
Objective :	Circular Dependency

SOURCE CODE:
appctx.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:aop="http://www.springframework.org/schema/aop"
xsi:schemaLocation="http://www.springframework.org/schema/beans
http://www.springframework.org/schema/beans/spring-beans.xsd
http://www.springframework.org/schema/aop
 http://www.springframework.org/schema/aop/spring-aop.xsd">

<aop:aspectj-autoproxy />
<bean id="acBean" class="edu.met.p1.BankAccount">
        <property name="acno" value="101"></property>
        <property name="acname" value="bhairav"></property>
        <property name="acbal" value="2000"></property>

</bean>

 </beans>
```

BankMain.java

```
package edu.met.p1;
import org.springframework.context.ApplicationContext;
import
org.springframework.context.support.ClassPathXmlApplicationConte
xt;

public class BankMain {

     static ApplicationContext ctx;
     public static void main(String[] args)
     {
        // TODO Auto-generated method stub
        ctx=new ClassPathXmlApplicationContext("appctx.xml");
        BankAccount b1 = (BankAccount)ctx.getBean("acBean");
        System.out.println(b1.toString());

    }



}
```

BankAspect.java

```
package edu.met.p1;

import org.aspectj.lang.annotation.*;
import org.aspectj.lang.JoinPoint;

@Aspect
public class BankAspect
{
    // Define a pointcut for all setter methods in BankAccount
    @Pointcut("execution(* edu.met.p1.BankAccount.set*(..))")
    public void getPC()
    {
        // This method is empty because it's just a pointcut
    }

    // Advice that runs before the matched methods
    @Before("getPC()")
    public void beforeMethod(JoinPoint joinPoint)
    {
        // Log the method being called
        System.out.println("Before calling: "  );
    }
}
```

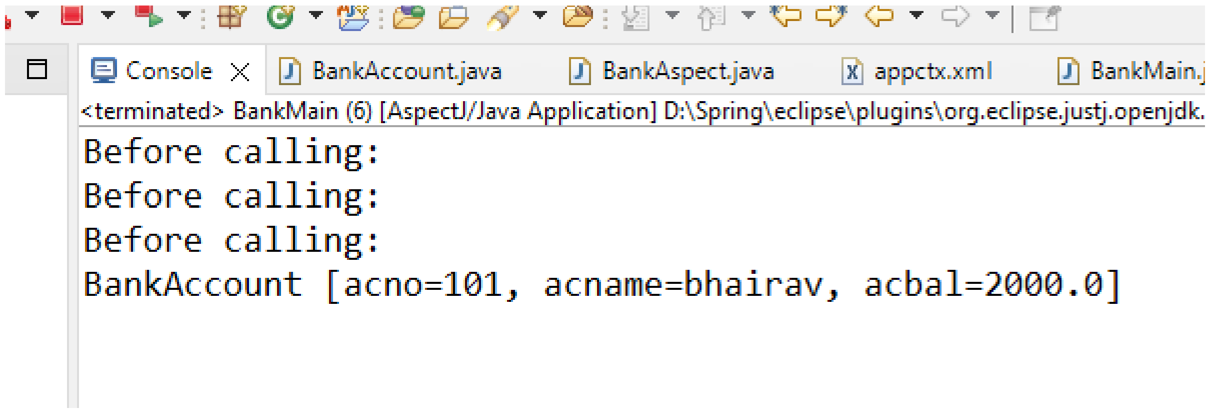
BankAccount.java

```
package edu.met.p1;
```

```java
public class BankAccount {
	int acno;
	String acname;
	double acbal;



	public int getAcno() {
		return acno;
	}



	public void setAcno(int acno) {
		this.acno = acno;
	}



	public String getAcname() {
		return acname;
	}



	public void setAcname(String acname) {
		this.acname = acname;
	}



	public double getAcbal() {
		return acbal;
	}



	public void setAcbal(double acbal) {
		this.acbal = acbal;
	}
	public BankAccount() {
		// TODO Auto-generated constructor stub
	}

	public void deposit(double amt)
	{
		System.out.println("Amount Deposited");
		this.acbal+=amt;
	}
	public void withdraw(double amt)
	{
		if(this.acbal-amt>=0)
		{
			System.out.println("Amount withdrawn");
			this.acbal-=amt;

		}
		else
			throw new RuntimeException();
	}



	@Override
	public String toString() {
		return "BankAccount [acno=" + acno + ", acname=" + 
acname + ", acbal=" + acbal + "]";
	}



}
```

OUTPUT:

}



```
<terminated> BankMain (6) [AspectJ/Java Application] D:\Spring\eclipse\plugins\org.eclipse.justj.openjdk.
Before calling:
Before calling:
Before calling:
BankAccount [acno=101, acname=bhairav, acbal=2000.0]
```

FOR WITHDRAWL

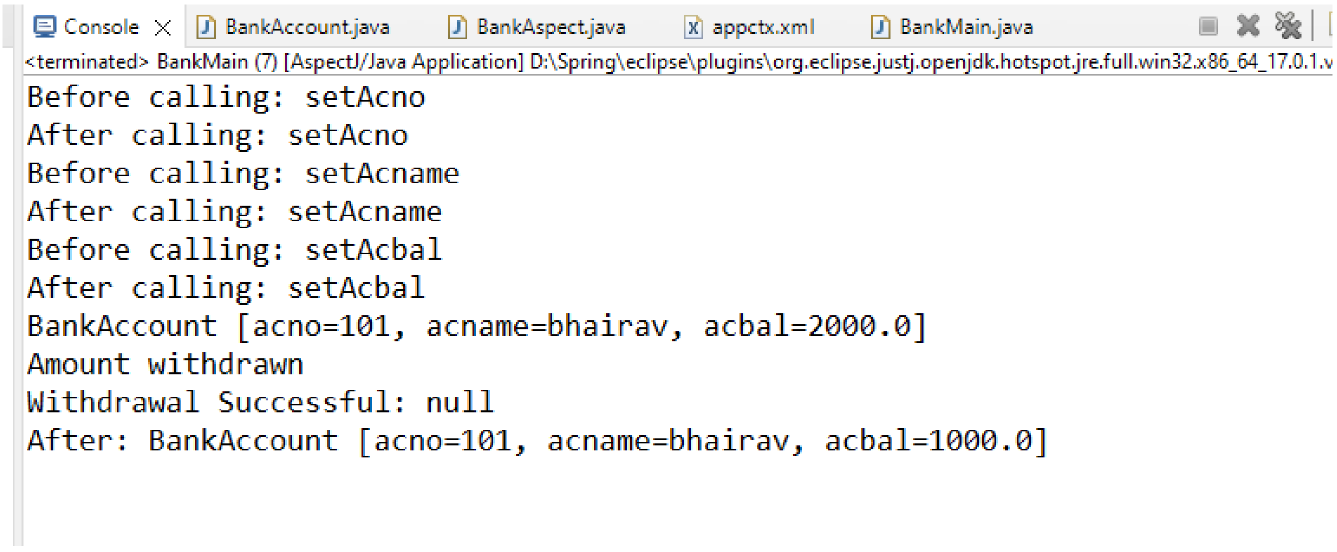
BankMain.java

```
package edu.met.p1;
import org.springframework.context.ApplicationContext;
import
org.springframework.context.support.ClassPathXmlApplicationConte
xt;

public class BankMain {

	static ApplicationContext ctx;
	public static void main(String[] args)
	{
		// TODO Auto-generated method stub
		ctx=new ClassPathXmlApplicationContext("appctx.xml");
		BankAccount b1 = (BankAccount)ctx.getBean("acBean");
		System.out.println(b1.toString());
		b1.withdraw(1000);
		System.out.println("After: "+b1);

	}



}
```

BankAspect.java

```java
package edu.met.p1;

import org.aspectj.lang.annotation.*;
import org.aspectj.lang.JoinPoint;

@Aspect
public class BankAspect
{
    // Define a pointcut for all setter methods in BankAccount
    @Pointcut("execution(* edu.met.p1.BankAccount.set*(..))")
    public void setterMethods()
    {
        // This method is empty because it's just a pointcut
    }

    // Advice that runs before the matched methods
    @Before("setterMethods()")
    public void beforeSetterMethod(JoinPoint joinPoint)
    {
        // Log the method being called
        System.out.println("Before calling: " +
joinPoint.getSignature().getName());
    }

    @After("setterMethods()")
    public void afterSetterMethod(JoinPoint joinPoint)
    {
        // Log the method being called
        System.out.println("After calling: " +
joinPoint.getSignature().getName());
    }

    // Pointcut for the withdraw method
    @Pointcut("execution(*
edu.met.p1.BankAccount.withdraw(..))")
    public void withdrawMethod()
    {
        // This method is empty because it's just a pointcut
    }
    // Advice for successful withdrawal
    @AfterReturning(pointcut = "withdrawMethod()", returning =
"result")
    public void afterSuccessfulWithdrawal(JoinPoint joinPoint,
Object result)
    {
        System.out.println("Withdrawal Successful: " + result);
    }

    // Advice for unsuccessful withdrawal
    @AfterThrowing(pointcut = "withdrawMethod()", throwing =
"ex")
    public void afterFailedWithdrawal(JoinPoint joinPoint,
Throwable ex)
    {
        System.out.println("Withdrawal Unsuccessful: " +
ex.getMessage());
    }
}
```

LATEST:



```
<terminated> BankMain (7) [AspectJ/Java Application] D:\Spring\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.1.v
Before calling: setAcno
After calling: setAcno
Before calling: setAcname
After calling: setAcname
Before calling: setAcbal
After calling: setAcbal
BankAccount [acno=101, acname=bhairav, acbal=2000.0]
Amount withdrawn
Withdrawal Successful: null
After: BankAccount [acno=101, acname=bhairav, acbal=1000.0]
```