3.Create a Java program to demonstrate JDBC and Spring Integration.

```
index.jsp:
```

```
<html>
<body>
<h3><a href="listProducts">List Products</a></h3>
</body>
</html>
```

listProduct.jsp:

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
  pageEncoding="UTF-8"%>
 < @ taglib uri="http://www.springframework.org/tags/form"
prefix="form"%>
 <% @ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>List Products</title>
</head>
<body>
<c:forEach var="product" items="${list}">
 ${product.name}, ${product.price}, ${product.dateAdded} < br>
</c:forEach>
</body>
</html>
```

ProductController.java:

import java.util.List;

import org.springframework.beans.factory.annotation.Autowired; import org.springframework.stereotype.Controller; import org.springframework.ui.ModelMap;

```
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RequestMethod;
import com.ecommerce.EProduct;
import ecommerce.dao.EProductDAO;
@Controller
public class ProductController {
      @Autowired
      EProductDAO eproductDAO;
      @RequestMapping(value = "/listProducts", method =
RequestMethod.GET)
      public String listProducts(ModelMap map) {
           List<EProduct> list = eproductDAO.getProducts();
           map.addAttribute("list", list);
           return "listProducts";
}
EProductdao.java:
package ecommerce.dao;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.util.List;
import org.springframework.jdbc.core.JdbcTemplate;
import org.springframework.jdbc.core.RowMapper;
import com.ecommerce.EProduct;
public class EProductDAO {
      JdbcTemplate template;
      public void setTemplate(JdbcTemplate template) {
            this.template = template;
```

```
// Business methods
public List<EProduct> getProducts() {
return template.query("select * from eproduct", new RowMapper<EProduct>()
public EProduct mapRow(ResultSet rs, int row) throws SQLException {
                         EProduct e = new EProduct();
                         e.setID(rs.getInt(1));
                         e.setName(rs.getString(2));
                         e.setPrice(rs.getBigDecimal(3));
                         e.setDateAdded(rs.getDate(4));
                         return e;
                   }
            });
}
EProduct.java:
package com.ecommerce;
import java.math.BigDecimal;
import java.util.Date;
public class EProduct {
private long ID;
  private String name;
  private BigDecimal price;
  private Date dateAdded;
  public long getID() {return this.ID; }
  public String getName() { return this.name;}
  public BigDecimal getPrice() { return this.price;}
  public Date getDateAdded() { return this.dateAdded;}
  public void setID(long id) { this.ID = id;}
```

```
public void setPrice(BigDecimal price) { this.price = price;}
     public void setDateAdded(Date date) { this.dateAdded = date;}
}
main-servlet.xml:
<?xml version="1.0" encoding="UTF-8"?>
<beans xmlns="http://www.springframework.org/schema/beans"</pre>
             xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
             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:lang="http://www.springframework.org/schema/lang"
             xmlns:p="http://www.springframework.org/schema/p"
             xmlns:tx="http://www.springframework.org/schema/tx"
             xmlns:util="http://www.springframework.org/schema/util"
             xsi:schemaLocation="http://www.springframework.org/schema/beans
http://www.springframework.org/schema/beans/spring-beans-2.5.xsd
http://www.springframework.org/schema/aop
http://www.springframework.org/schema/aop/spring-aop-2.5.xsd
http://www.springframework.org/schema/context
http://www.springframework.org/schema/context/spring-context-2.5.xsd
http://www.springframework.org/schema/tx
http://www.springframework.org/schema/tx/spring-tx-2.5.xsd">
             <bean id="jspViewResolver"</pre>
             class = "org.spring framework.web.servlet.view. Internal Resource View Resource View
lver">
                           cproperty name="viewClass"
             value="org.springframework.web.servlet.view.JstlView"></property>
                           cproperty name="prefix" value="/WEB-INF/view/"></property>
                           cproperty name="suffix" value=".jsp"></property>
             </bean>
             <bean id="messageSource"</pre>
             class="org.springframework.context.support.ReloadableResourceBundle
MessageSource">
```

public void setName(String name) { this.name = name;}

```
cproperty name="basename" value="classpath:messages"></property>
cproperty name="defaultEncoding" value="UTF-8">
     </bean>
<context:annotation-config />
<context:component-scan</pre>
base-package="com.ecommerce" />
<context:component-scan</pre>
base-package="ecommerce.dao" />
<context:component-scan</pre>
base-package="com.ecommerce.controller" />
<bean id="dataSource"</pre>
class="org.apache.commons.dbcp.BasicDataSource" destroy-method="close"
           p:driverClassName="${jdbc.driverClassName}"
           p:url="${jdbc.databaseurl}" p:username="${jdbc.username}"
           p:password="${jdbc.password}"></bean>
     <ben id="ds"
     class="org.springframework.jdbc.datasource.DriverManagerDataSource"
>
           property name="driverClassName"
                 value="com.mysql.jdbc.Driver"></property>
           cproperty name="url"
     value="jdbc:mysql://localhost:3306/ecommerce"></property>
     cproperty name="username" value="root"></property>
     cproperty name="password" value="Karthik@30112000">/property>
     </bean>
     <bean id="jt" class="org.springframework.jdbc.core.JdbcTemplate">
           cproperty name="dataSource" ref="ds"></property>
     </bean>
     <bean id="dao" class="ecommerce.dao.EProductDAO">
           cproperty name="template" ref="jt"></property>
     </bean>
     <tx:annotation-driven/>
</beans>
```

```
web.xml:
<?xml version="1.0" encoding="UTF-8"?>
<web-app xmlns="http://java.sun.com/xml/ns/javaee" version="2.5"</pre>
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/web-app_2_5.xsd">
      <display-name>Archetype Created Web Application</display-name>
      <welcome-file-list>
    <welcome-file >/WEB-INF/view/index.jsp</welcome-file >
  </welcome-file-list>
      <context-param>
            <param-name>contextConfigLocation</param-name>
            <param-value>/WEB-INF/main-servlet.xml</param-value>
      </context-param>
      <servlet>
           <servlet-name>main</servlet-name>
            <servlet-
class>org.springframework.web.servlet.DispatcherServlet</servlet-class>
      <load-on-startup>1</load-on-startup>
      </servlet>
      <servlet-mapping>
           <servlet-name>main</servlet-name>
           <url-pattern>/</url-pattern>
      </servlet-mapping>
      listener>
listener-
class>org.springframework.web.contextLoaderListener</listener-
class>
      </listener>
</web-app>
pom.xml:
<?xml version="1.0" encoding="UTF-8"?>
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"
http://maven.apache.org/xsd/maven-4.0.0.xsd">
 <modelVersion>4.0.0</modelVersion>
 <groupId>com</groupId>
 <artifactId>ecommerce</artifactId>
```

```
<version>0.0.1-SNAPSHOT</version>
<packaging>war</packaging>
<name>ecommerce Maven Webapp</name>
<!-- FIXME change it to the project's website -->
<url>http://www.example.com</url>
cproperties>
    <org.springframework.version>6.0.4</org.springframework.version>
          <maven.compiler.source>1.8</maven.compiler.source>
          <maven.compiler.target>1.8</maven.compiler.target>
    </properties>
    <dependencies>
          <dependency>
                <groupId>junit
                <artifactId>junit</artifactId>
                <version>3.8.1</version>
                <scope>test</scope>
          </dependency>
          <dependency>
                <groupId>org.springframework</groupId>
                <artifactId>spring-core</artifactId>
                <version>${org.springframework.version}</version>
          </dependency>
          <dependency>
                <groupId>org.springframework</groupId>
                <artifactId>spring-expression</artifactId>
                <version>${org.springframework.version}</version>
          </dependency>
          <dependency>
                <groupId>org.springframework</groupId>
                <artifactId>spring-beans</artifactId>
                <version>${org.springframework.version}</version>
          </dependency>
          <dependency>
                <groupId>org.springframework</groupId>
                <artifactId>spring-context</artifactId>
                <version>${org.springframework.version}</version>
          </dependency>
          <dependency>
                <groupId>org.springframework</groupId>
                <artifactId>spring-context-support</artifactId>
```

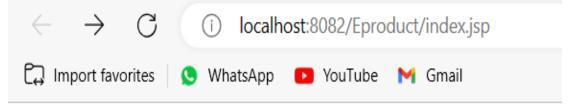
```
</dependency>
            <dependency>
                  <groupId>org.springframework</groupId>
                  <artifactId>spring-jdbc</artifactId>
                  <version>${org.springframework.version}</version>
            </dependency>
            <dependency>
                  <groupId>org.springframework</groupId>
                  <artifactId>spring-orm</artifactId>
                  <version>${org.springframework.version}</version>
            </dependency>
            <dependency>
                  <groupId>org.springframework</groupId>
                  <artifactId>spring-web</artifactId>
                  <version>${org.springframework.version}</version>
            </dependency>
            <dependency>
                  <groupId>org.springframework</groupId>
                  <artifactId>spring-webmvc</artifactId>
                  <version>${org.springframework.version}</version>
            </dependency>
            <dependency>
                  <groupId>javassist</groupId>
                  <artifactId>javassist</artifactId>
                  <version>3.12.1.GA</version>
            </dependency>
            <dependency>
                  <groupId>taglibs</groupId>
                  <artifactId>standard</artifactId>
                  <version>1.1.2</version>
                  <scope>runtime</scope>
            </dependency>
            <dependency>
                  <groupId>commons-dbcp</groupId>
                  <artifactId>commons-dbcp</artifactId>
                  <version>1.4</version>
            </dependency>
            <!--
      https://mvnrepository.com/artifact/jakarta.servlet.jsp/jakarta.servlet.jsp-
api -->
            <!--<dependency>
```

<version>\${org.springframework.version}</version>

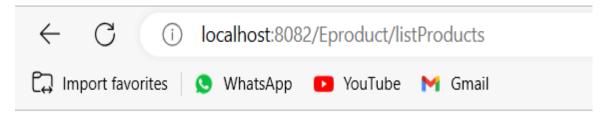
```
<groupId>jakarta.servlet</groupId>
                  <artifactId>jakarta.servlet-api</artifactId>
                  <version>6.0.0</version>
            </dependency>-->
            <!-- https://mvnrepository.com/artifact/javax.servlet/javax.servlet-
api -->
            <dependency>
                  <groupId>javax.servlet
                  <artifactId>javax.servlet-api</artifactId>
                  <version>3.0.1</version>
                  <scope>provided</scope>
            </dependency>
            <!--
      https://mvnrepository.com/artifact/jakarta.servlet.jsp.jstl/jakarta.servlet.js
p.jstl-api -->
            <dependency>
                  <groupId>jakarta.servlet.jsp.jstl</groupId>
                  <artifactId>jakarta.servlet.jsp.jstl-api</artifactId>
                  <version>3.0.0</version>
            </dependency>
            <dependency>
                  <groupId>mysql</groupId>
                  <artifactId>mysql-connector-java</artifactId>
                  <version>8.0.32</version>
            </dependency>
            <dependency>
                  <groupId>javax.persistence/groupId>
                  <artifactId>persistence-api</artifactId>
                  <version>1.0.2</version>
                  <scope>provided</scope>
            </dependency>
      </dependencies>
 <build>
  <finalName>ecommerce</finalName>
  <pluginManagement><!-- lock down plugins versions to avoid using Maven</pre>
defaults (may be moved to parent pom) -->
   <plugins>
    <plugin>
      <artifactId>maven-clean-plugin</artifactId>
      <version>3.1.0</version>
    </plugin>
```

```
<!-- see http://maven.apache.org/ref/current/maven-core/default-
bindings.html#Plugin_bindings_for_war_packaging -->
    <plugin>
      <artifactId>maven-resources-plugin</artifactId>
      <version>3.0.2</version>
    </plugin>
    <plugin>
     <artifactId>maven-compiler-plugin</artifactId>
      <version>3.8.0</version>
    </plugin>
    <plugin>
      <artifactId>maven-surefire-plugin</artifactId>
      <version>2.22.1</version>
    </plugin>
    <plugin>
      <artifactId>maven-war-plugin</artifactId>
      <version>3.2.2</version>
    </plugin>
    <plugin>
      <artifactId>maven-install-plugin</artifactId>
      <version>2.5.2</version>
    </plugin>
    <plugin>
      <artifactId>maven-deploy-plugin</artifactId>
      <version>2.8.2</version>
    </plugin>
   </plugins>
  </pluginManagement>
 </build>
</project>
```

OUTPUT:



List Products



HP Laptop ABC, 21900.00, 2019-06-04 Acer Laptop ABC, 23300.00, 2019-06-04 Lenovo Laptop ABC, 33322.00, 2019-06-04