1 Environmental Setup

pom.xml

```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 http://maven.apache.org/maven-
v4_0_0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <groupId>SpringSetup</groupId>
  <artifactId>SpringSetup</artifactId>
  <packaging>war</packaging>
  <version>0.0.1-SNAPSHOT</version>
  <name>SpringSetup Maven Webapp</name>
  <url>http://maven.apache.org</url>

  <properties>
   <org.springframework.version>5.1.6.RELEASE</org.springframework.version>
  </properties>

  <dependencies>
   <dependency>
     <groupId>junit</groupId>
     <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>
```

```xml
    <groupId>org.springframework</groupId>
    <artifactId>spring-context</artifactId>
    <version>${org.springframework.version}</version>
</dependency>

<dependency>
    <groupId>org.springframework</groupId>
    <artifactId>spring-context-support</artifactId>
    <version>${org.springframework.version}</version>
</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>

 <dependency>
<groupId>javax.servlet</groupId>
<artifactId>jstl</artifactId>
<version>1.2</version>
</dependency>

<dependency>
<groupId>javax.servlet</groupId>
<artifactId>jstl</artifactId>
 <version>1.2</version>
</dependency>

<dependency>
<groupId>javax.persistence</groupId>
<artifactId>persistence-api</artifactId>
<version>1.0.2</version>
<scope>provided</scope>
 </dependency>


  </dependencies>
  <build>
    <finalName>SpringSetup</finalName>
  </build>
</project>
```

2 Default and Custom Event Handling

StartEventHandler

package com.ecommerce.beans;

import org.springframework.context.ApplicationListener;
import org.springframework.context.event.ContextStartedEvent;

```java
public class StartEventHandler implements
ApplicationListener<ContextStartedEvent>{

    public void onApplicationEvent(ContextStartedEvent event) {
      System.out.println("ContextStartedEvent Received");
    }
}
```

StopEventHandler

```java
package com.ecommerce.beans;

import org.springframework.context.ApplicationListener;
import org.springframework.context.event.ContextStoppedEvent;



public class StopEventHandler implements
ApplicationListener<ContextStoppedEvent>{

    public void onApplicationEvent(ContextStoppedEvent event) {
      System.out.println("ContextStoppedEvent Received");
    }
}
```

CustomEvent
```java
package com.ecommerce.beans;

import org.springframework.context.ApplicationEvent;

public class CustomEvent extends ApplicationEvent{

    public CustomEvent(Object source) {
   super(source);
 }
 public String toString(){
   return "This is a custom event";
 }
```

```
}
```

CustomEventPublisher

```java
package com.ecommerce.beans;

import org.springframework.context.ApplicationEventPublisher;
import org.springframework.context.ApplicationEventPublisherAware;

public class CustomEventPublisher implements ApplicationEventPublisherAware {
  private ApplicationEventPublisher publisher;

  public void setApplicationEventPublisher (ApplicationEventPublisher publisher) {
    this.publisher = publisher;
  }
  public void publish() {
    CustomEvent ce = new CustomEvent(this);
    publisher.publishEvent(ce);
  }
}
```

CustomEventListener

```java
package com.ecommerce;

import org.springframework.context.ApplicationListener;

public class CustomEventListener implements ApplicationListener<CustomEvent>
{

  public void onApplicationEvent(CustomEvent event) {
    System.out.println(event.toString());
  }
}
```

MainController

```java
package com.ecommerce.controller;

import org.apache.log4j.Logger;
```

```java
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Controller;
import org.springframework.ui.ModelMap;
import org.springframework.validation.BindingResult;
import org.springframework.web.bind.annotation.ModelAttribute;
import org.springframework.web.bind.annotation.PathVariable;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RequestMethod;
import org.springframework.web.bind.annotation.RequestParam;

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




@Controller
public class MainController {



    @RequestMapping(value = "/customevent", method = RequestMethod.GET)
     public String customEvent(ModelMap map)
    {
         String confFile = "main-servlet.xml";
        ApplicationContext context = new
ClassPathXmlApplicationContext(confFile);
        CustomEventPublisher cvp =
            (CustomEventPublisher) context.getBean("customEventPublisher");

         cvp.publish();
         cvp.publish();
        return "customEvent";
    }

}
```

index.jsp

```
<html>
<body>
<h2>Spring Application</h2>

<a href="customevent">Custom Event Handling</a>
</body>
</html>
```

customEvent.jsp

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Custom Event</title>
</head>
<body>
    Custom Event has been generated in the Java Console.
</body>
</html>
```

3 JDBC Framework

Eproduct

```
package com.ecommerce.entity;

import java.math.BigDecimal;
import java.util.Date;
import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.Id;
import javax.persistence.Table;
```

```java
public class EProductEntity {

    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 setName(String name) { this.name = name;}
    public void setPrice(BigDecimal price) { this.price = price;}
    public void setDateAdded(Date date) { this.dateAdded = date;}
}
```

EProductDAO

```java
package com.ecommerce.dao;

import java.sql.ResultSet;
import java.sql.SQLException;
import java.util.List;
import org.springframework.jdbc.core.BeanPropertyRowMapper;
import org.springframework.jdbc.core.JdbcTemplate;
import org.springframework.jdbc.core.RowMapper;
import com.ecommerce.entity.EProduct;

public class EProductDAO {

    JdbcTemplate template;

    public void setTemplate(JdbcTemplate template) {
        this.template = template;
    }
```

```java
    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;
        }
    });
    }
}
```

MainController

```java
package com.ecommerce.controller;

import org.apache.log4j.Logger;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Controller;
import org.springframework.ui.ModelMap;
import org.springframework.validation.BindingResult;
import org.springframework.web.bind.annotation.ModelAttribute;
import org.springframework.web.bind.annotation.PathVariable;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RequestMethod;
import org.springframework.web.bind.annotation.RequestParam;

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

import com.ecommerce.entity.EProduct;
import com.ecommerce.dao.EProductDAO;

@Controller
```

```java
public class MainController {


    @Autowired
     EProductDAO eproductDAO;
    @RequestMapping(value = "/listProducts", method = RequestMethod.GET)
     public String listProducts(ModelMap map)
    {
         List<EProduct> list= eproductDAO.getProducts();
       model.addAttribute("list",list);
       return "listProducts";

    }
    }
```

index.jsp
```html
<html>
<body>
<h2>Spring Application</h2>

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

listProducts.jsp
```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>
```