

# CPSC 476: ASSIGNMENT 2

## SHARED EVENTS CALENDAR

CSPC 476 Assignment 2

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### DESCRIPTION

The assignment use Spring Framework and persist data in relational database. Assignment 1 is refactored to put in the Spring Framework. The main component in Spring Framework is application context. ContextLoaderListener creates a application context and puts it in the ServletContext. Web.xml is modified to do that by:

- Add listener “org.springframework.web.context.ContextLoaderListener”
- Add context parameter “contextConfigLocation” to specify the application context xml file

```
<context-param>
  <param-name>contextConfigLocation</param-name>
  <param-value>/META-INF/applicationContext*.xml</param-value>
</context-param>

<listener>
  <listener-class>
    org.springframework.web.context.ContextLoaderListener
  </listener-class>
</listener>
```

For persistence data, assignment uses HSQLDB. First of all, I create tables for users, events, and interested events. The DDL.sql for create this schema is:

```
DROP TABLE Mussa.InterestedEvents IF EXISTS;
DROP TABLE Mussa.Event IF EXISTS;
DROP TABLE Mussa.User IF EXISTS;
DROP SCHEMA Mussa IF EXISTS;

CREATE SCHEMA Mussa AUTHORIZATION dba;

CREATE TABLE Mussa.User (
  id bigint GENERATED BY DEFAULT AS IDENTITY (START WITH 1) PRIMARY KEY,
  name varchar(100) NOT NULL,
  email varchar(100) NOT NULL,
  password varchar(100) NOT NULL
);
GRANT SELECT ON Mussa.User TO PUBLIC ;

CREATE TABLE Mussa.Event (
  id bigint GENERATED BY DEFAULT AS IDENTITY (START WITH 1) PRIMARY KEY,
  title varchar(100) NOT NULL,
  description varchar(500) NOT NULL,
  location varchar(100) NOT NULL,
  eventTime TIMESTAMP NOT NULL,
  createdBy int NOT NULL,
  FOREIGN KEY (createdBy) REFERENCES User(id)
);
GRANT SELECT ON Mussa.Event TO PUBLIC;
CREATE TABLE Mussa.InterestedEvents (
  userId bigint NOT NULL,
  eventId bigint NOT NULL,
  PRIMARY KEY (userId,eventId),
  FOREIGN KEY (userId) REFERENCES Mussa.User(id),
  FOREIGN KEY (eventId) REFERENCES Mussa.Event(id)
);
GRANT SELECT ON Mussa.InterestedEvents TO PUBLIC ;
```

Also, we create initial data by following DML.sql:

```
insert into Mussa.User(name,email,password) values (
    'Mussa Mubarki','mmubarki@gmail.com','123456');

insert into Mussa.Event(title,description,location,eventTime,createdBy)
    values ('Summit Event Productions',
    'We are a boutique lighting design production company based in the MD/DC/VA area',
    '2627 e la palma ave',
    '2017-01-21 13:00:00',1);
```

DataSource is the preferred means of getting a connection to database. In applicationContext.xml: define data source and initialization sqls:

```
<bean id="dataSource" class="org.apache.commons.dbcp.BasicDataSource">
    <property name="driverClassName" value="org.hsqldb.jdbcDriver"/>
    <property name="url" value="jdbc:hsqldb:hsqldb:/localhost/test"/>
    <property name="username" value="A"/>
    <property name="password" value=""/>
    <property name="initialSize" value="10"/>
    <property name="testOnBorrow" value="true"/>
</bean>
<jdbc:initialize-database data-source="dataSource" ignore-failures="ALL">
    <jdbc:script execution="INIT" location="/META-INF/schema.sql" />
    <jdbc:script execution="INIT" location="/META-INF/test-data.sql" />
</jdbc:initialize-database>
```

We note that the data source class is “org.apache.commons.dbcp.BasicDataSource”. It used in order to perform a database transaction by share a "pool" of open connections between all users. (see <http://commons.apache.org/proper/commons-dbcp/>). To using DBCP DataSource in Tomcat, I create pooled connection dataSource by add the following segment to Tomcat/config/context.xml file:

```
<resources name="jdbc/dataSource" type="javax.sql.DataSource"
    maxActive="25" maxIdle="5" maxWait="10000"
    username="A" password=""
    driverClassName="org.hsqldb.jdbcDriver"
    url="jdbc:hsqldb:hsqldb:/localhost/test" />
```

The assignment use Data Access Object Pattern or DAO pattern to separate data accessing API from business layer. Two DAO interfaces and their classes add: UserDAO and EventDAO. Each DAO require to inject dataSource in applicationContext.xml as following:

```
<bean name="EventDAOImp" class="master.cpsc476.dao.EventDAOImp" >
    <property name="dataSource" ref="dataSource" />
</bean>
<bean name="UserDAOImp" class="master.cpsc476.dao.UserDAOImp" >
    <property name="dataSource" ref="dataSource" />
</bean>
```

In UserDAO, there are the following operations:

1. public User findById(Long id);
2. public User findByEmail(String email);
3. public User createUser(User user);
4. public User isMatch(String email, String password);
5. public boolean likeEvent(User user, Long eventId);
6. public boolean unlikeEvent(User user, Long eventId);

In EventDAO, there are the following operations:

```
1. public List<Event> findAll();
2. public List<Event> findAllEventsActive();
3. public List<Event> findEventsCreatedByUser(Long userId);
4. public List<Event> findEventsInterestedByUser(Long userId);
5. public Event findById(Long id);
6. public Event createEvent(Event event);
```

In each DAO implementations: it extends Spring's JdbcDaoSupport that "Convenient super class for JDBC-based data access objects". Simply, use

- getJdbcTemplate().queryForObject(sql) or .query(sql) : for retrieve record from database
- getJdbcTemplate().update(dml) : for insert or update to database

Finally, EventServlet is Modified to use DAOs to persist and retrieve users and events.

```
private ApplicationContext applicationContext;

private EventDAO eventDAO;
private UserDAO userDAO;
```

Also, to centralizing authentication, I add filter AuthFilter for EventServlet to ensure only authorized access instead of write same code in multiple place in EventServlet.

## BUILD INSTRUCTIONS

To packaging and deploying this assignment using Maven, we have to do the following:

- Update Assignment 1 pom.xml by add dependencies.
- update Tomcat config/context.xml file.
- for package execute

```
mvn package
```

- or for deploy execute after start tomcat manager

```
mvn tomcat7:deploy
```

Or because I set the default goal, you can just

```
mvn
```

```
<defaultGoal>tomcat7:deploy</defaultGoal>
```

### **Prepare pom.xml:**

1. Add Maven dependencies for Spring Framework:

```
<!-- For Spring Utility APIs -->
<dependency>
  <groupId>org.springframework</groupId>
  <artifactId>spring-core</artifactId>
  <version>${spring.version}</version>
</dependency>
<!-- For Application Context -->
<dependency>
  <groupId>org.springframework</groupId>
  <artifactId>spring-context</artifactId>
  <version>${spring.version}</version>
</dependency>
<!-- For Spring Web Application Development Utilities -->
<dependency>
  <groupId>org.springframework</groupId>
  <artifactId>spring-webmvc</artifactId>
  <version>${spring.version}</version>
</dependency>
<!-- For Spring Spring JDBC -->
<dependency>
  <groupId>org.springframework</groupId>
  <artifactId>spring-jdbc</artifactId>
  <version>${spring.version}</version>
</dependency>
```

2. Add Maven dependencies for commons-dbcp:

```
<dependency>
  <groupId>commons-dbcp</groupId>
  <artifactId>commons-dbcp</artifactId>
  <version>1.2.2</version>
</dependency>
```

### 3. Add Maven dependencies for HSQLDB:

```
<dependency>
  <groupId>org.hsqldb</groupId>
  <artifactId>hsqldb</artifactId>
  <version>2.3.1</version>
</dependency>
```

### Update tomcat config/context.xml

1. In tomcat path, open file config/context.xml
2. add the following resource:

```
<resources name="jdbc/dataSource" type="javax.sql.DataSource"
  maxActive="25" maxIdle="5" maxWait="10000"
  username="A" password=""
  driverClassName="org.hsqldb.jdbcDriver"
  url="jdbc:hsqldb:hsqldb:/localhost/test" />
```



# DEMONSTRATING

Because nothing change in view layer, the screens are same as in Assignment 1.

Assignment URL is <http://localhost:8080/assignment2>

Main screen without login contains events list, and top page contains login form and link sign-up link. The title in events list is link to event detail.

←

→

↻

localhost:8080/assignment1/Events?action=list

Welcome Guest

email

Email Id

Password

Password

Login

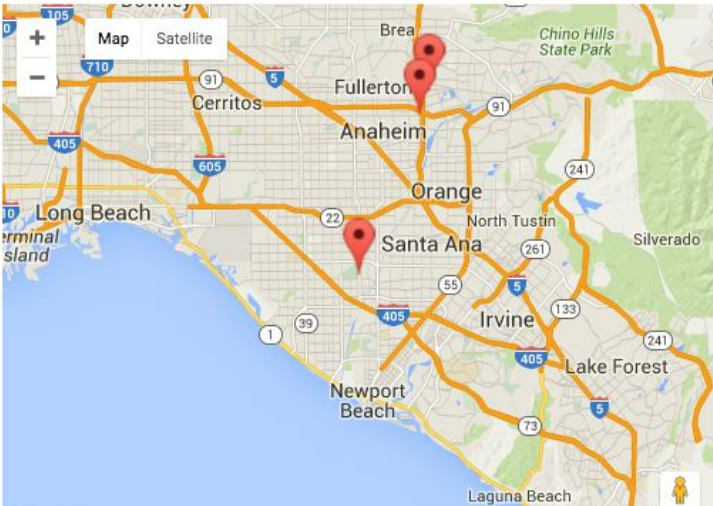
[Signup](#)

---

Events List

Title	Time	Location
<a href="#">Summit Event Productions</a>	Jan 21,2017 13:00	2627 e la palma ave
<a href="#">Impulse Event Lighting</a>	Dec 01,2016 11:30	516 Cameron St, Placentia
<a href="#">Fun On Wheels</a>	Feb 29,2016 13:00	16801 Euclid Street

---





A map of Southern California, specifically the Orange County and Los Angeles area. The map shows major highways like I-5, I-405, and SR-91. Several red pins are placed on the map, indicating event locations. One pin is near Fullerton, another near Anaheim, and a third near Santa Ana. The map also shows cities like Brea, Cerritos, Orange, North Tustin, Silverado, Lake Forest, and Laguna Beach.

To login: user the following information:

email: [mmubarki@gmail.com](mailto:mmubarki@gmail.com)

password: 123456

After login: servlet forward into user detail screen. It contains user information, user's interested events list, and user created events list. User has option to drop unlike events from interested events list. Also each event has link to its detail. Each event in interested or created can be add to google calendar.

    localhost:8080/assignment1/Events?action=userHome&userId=1

---

**Welcome mussa**





[Your Detail](#) | [Events List](#) | [Signout](#)

---



**User Detail:**

Name: mussa  
Name: mmubarki@gmail.com

**Interested Events**

- [Impulse Event Lighting in : Dec 01,2016 11:30 at : 516 Cameron St, Placentia](#)  
- [Summit Event Productions in : Jan 21,2017 13:00 at : 2627 e la palma ave](#)  

**Mine Events**

- [Impulse Event Lighting in : Dec 01,2016 11:30 at : 516 Cameron St, Placentia](#) 
- [Summit Event Productions in : Jan 21,2017 13:00 at : 2627 e la palma ave](#) 

[create new event](#)

Main page if login contains event list and link to create new event, and top page contains three links: to user detail page, to events list, and sign-out link.

localhost:8080/assignment1/Events?action=list

Welcome ali

[Your Detail](#)

|

[Events List](#)

|

[Signout](#)

Events List

[create event](#)

Title	Time	Location	
<a href="#">Summit Event Productions</a>	Jan 21,2017 13:00	2627 e la palma ave	✓
<a href="#">Impulse Event Lighting</a>	Dec 01,2016 11:30	516 Cameron St, Placentia	✓
<a href="#">Fun On Wheels</a>	Feb 29,2016 13:00	16801 Euclid Street	✓

MapSatellite

Google

Map data ©2016 Google

10 km

Terms of Use

Report a map error

Event view without login. It contains link to events list.

[←](#) [→](#) [↻](#) [localhost:8080/assignment1/Events?action=view&eventId=1](#)

**Welcome Guest**

email

Email Id

Password

Password

Login

[Signup](#)

---

[Events List](#)

**Event View**

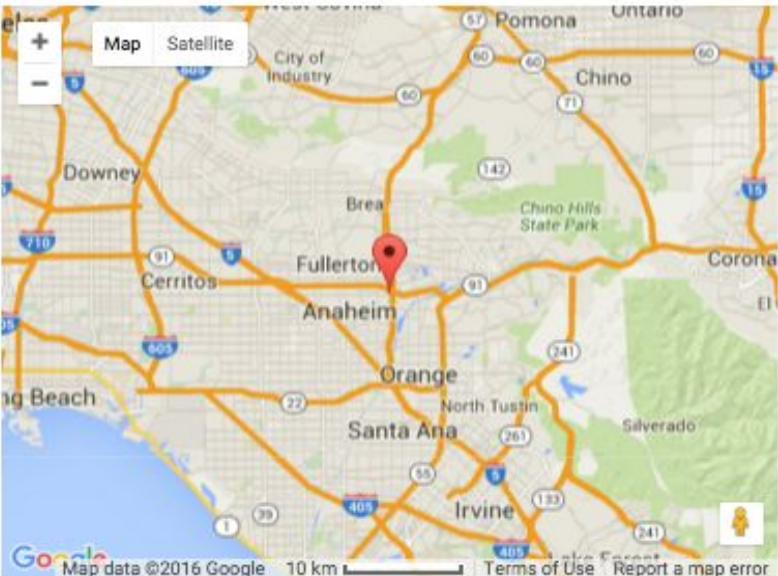
[Title](#)  
Summit Event Productions

[Description](#)  
We are a boutique lighting design production company based in the MD/DC/VA area

[Time](#)  
Jan 21,2017 13:00

[Location](#)  
2627 e la palma ave

---



A Google Map of the Anaheim, California area. A red pin is placed on a street in the northern part of the city, near the intersection of Highway 60 and Highway 91. The map shows major highways (I-5, I-15, SR-60, SR-91, SR-142, SR-241, SR-261, SR-55, SR-123, SR-241) and surrounding cities including Downey, Brea, Fullerton, Anaheim, Orange, Santa Ana, North Tustin, Irvine, Silverado, Corona, and El Cerrito. The map data is from 2016. At the bottom, there is a scale bar for 10 km and links for 'Terms of Use' and 'Report a map error'.



Event view if login. It contains link to create event.

[←](#) [→](#) [↻](#) [localhost:8080/assignment1/Events?action=view&eventId=1](#)

**Welcome mussa**

[Your Detail](#) | [Events List](#) | [Signout](#)

---

[create event](#)

**Event View**

**Title**  
Summit Event Productions

**Description**  
We are a boutique lighting design production company based in the MD/DC/VA area

**Time**  
Jan 21,2017 13:00

**Location**  
2627 e la palma ave



## Sing-up form with validation

← → ↻ localhost:8080/assignment1/Events?action=signup&email=ali@gmail.com

[Home](#)

### Signup Form

Your Name

email

Password

Confirm

! Please match the requested format.  
length must be six or more

[Cancel](#)

create new event form

[←](#) [→](#) [↻](#) [localhost:8080/assignment1/Events?action=create](#)

**Welcome mussa**

[Your Detail](#) | [Events List](#) | [Signout](#)

---

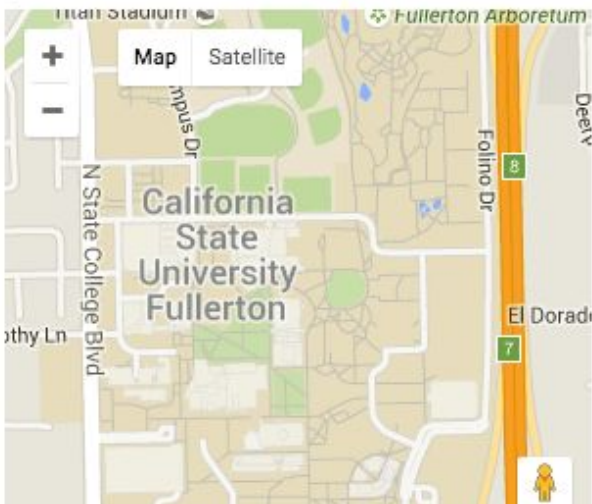
## Create New Event

**Title**

**Description**

**Time**

**Location**  
 [show](#)



In create new event form: uses dateTime-local input type. It is not supported in Firefox and Internet Explorer.

localhost:8080/assignment1/Events?action=create

Welcome ali

[Your Detail](#) | [Events List](#) | [Signout](#)

---

Create New Event

Title

Event Title

Description

Event Description

Time

mm/dd/yyyy, --:--:--

February 2016

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	1	2	3	4	5

show

N State College Blvd

California State University Fullerton

Folino Dr

El Dorado

Deer



Create new event after filled

[←](#) [→](#) [↻](#) [localhost:8080/assignment1/Events?action=create](#)

Welcome ali

[Your Detail](#) | [Events List](#) | [Signout](#)

---

Create New Event

Title

Fun On Wheels

Description

Fun on Wheels Mobile Recreation Program is a free drop-in program designed to bring recreation and other resources into the neighborhoods for children, ages 5-18. The program offers homework assistance, fitness fun, art enrichment, and resource materials. No registration is needed! All programs

Time

02/29/2016, 01:00 PM

Location

16801 Euclid Street [show](#)

Create


---

+

Map

Satellite

-

A map view showing a green area labeled 'Mile Square Regional Park' with a red pin. The map includes a zoom control and a 'Map' button.

Heil Ave


Begonia Ave

Lavender Ave

Stonecress Ave

Warner Ave

Sugarloaf St

A satellite map view of the same area, showing streets and buildings. A red pin is also present.

## View event after creation



Welcome all

[Your Detail](#) | [Events List](#) | [Signout](#)

successfull created event:Fun On Wheels

[create event](#)

### Event View

#### Title

Fun On Wheels

#### Description

Fun on Wheels Mobile Recreation Program is a free drop-in program designed to bring recreation and other resources into the neighborhoods for children, ages 5-18. The program offers homework assistance, fitness fun, art enrichment, and resource materials. No registration is needed! All programs are closed on holidays and days of inclement weather

#### Time

Feb 29,2016 13:00

#### Location

16801 Euclid Street



Add event into interested list

←

→

↺

localhost:8080/assignment1/Events?action=list

Welcome ali

[Your Detail](#)

|

[Events List](#)

|

[Signout](#)

event:Impulse Event Lighting added to interested list

Events List

[create event](#)

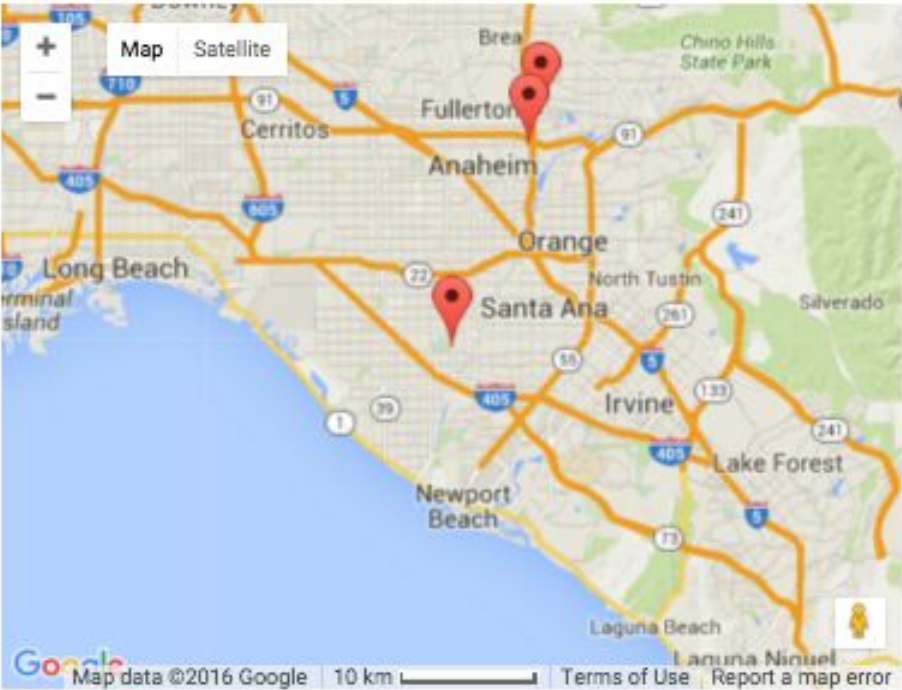
Title	Time	Location	
<a href="#">Summit Event Productions</a>	Jan 21,2017 13:00	2627 e la palma ave	✓
<a href="#">Impulse Event Lighting</a>	Dec 01,2016 11:30	516 Cameron St, Placentia	
<a href="#">Fun On Wheels</a>	Feb 29,2016 13:00	16801 Euclid Street	✓

+




Map

Satellite

-



Drop event from interested list



localhost:8080/assignment1/Events?action=userHome&userId=2

---

**Welcome ali**

[Your Detail](#) | [Events List](#) | [Signout](#)

event:Impulse Event Lighting removed from interested list

---

**User Detail:**

Name: ali  
Name: ali@gmail.com

**Interested Events**

You are not select any events

**Mine Events**

- [Fun On Wheels in : Feb 29,2016 13:00 at : 16801 Euclid Street](#)

[create new event](#)