

CPSC 476: GRADUATION PROJECT

SHARED EVENTS CALENDAR USING JAVA EE 8 MVC

CSPC 476 graduation project

Mussa Mubarki

893536896

DESCRIPTION

The assignment architecture is Java EE 8 MVC1.0 framework. It “defines an action-oriented Web framework as an alternative to the component-oriented JSF. In an action-oriented framework, developers are responsible for all the controller logic and are given full control of the URI space for their application. The MVC API is layered on top of JAX-RS and integrates with existing EE technologies like CDI.”¹

JAX-RS is a good fit for action oriented MVC because it is inherently is close to HTTP and therefore inherently action oriented. The following step I will show how to convert assignment 4 -Spring MVC and JPA- into java EE 8 MVC:

- As any JAX-RS application, we need a JAX-RS Application class.
@ApplicationPath("MVC") defines the base path.

```
@ApplicationPath("MVC")  
public class MVCApplication extends Application{ }
```

I not need override any method.

¹ <https://ozark.java.net/>

- An MVC controller is simply a JAX-RS resource, annotated with the `@javax.mvc.Controller` annotation. I changed class `@Controller` `EventsController` as following:
 - Change import Spring annotation to MVC annotation:

```
import javax.ws.rs.BeanParam;
import javax.ws.rs.FormParam;
import javax.ws.rs.GET;
import javax.ws.rs.POST;
import javax.ws.rs.Path;
import javax.ws.rs.PathParam;
import javax.ws.rs.QueryParam;
import javax.ws.rs.core.Context;
```

- Add `@Path` after `@Controller`, so it listens for requests on “MVC/Events” path. Also, inject controller with `com.oracle.ozark.core.Models` that implements `javax.mvc.Models` interface. `Models` is a map `<key,value>` that providing models to a view. It is filled with data by the controller and is then passed to the view, as `org.springframework.ui.Model`.

```
@Controller
@Path("Events")
public class EventsController {

    @Inject
    Models models;
```

- For each method, replace spring annotation into MVC 1.0 annotation as following:

spring annotation	MVC 1.0 annotation
<code>@RequestMapping(value="/Events/view/{id}", method = RequestMethod.GET)</code>	<code>@GET</code> <code>@Path("view/{id}")</code>
<code>@PathVariable Long id</code>	<code>@PathParam("id") Long id</code>
<code>@RequestMapping(value="/Events/createEvent", method = RequestMethod.POST)</code>	<code>@POST</code> <code>@Path("createEvent")</code>
<code>@RequestParam(value="title", required = false) String title;</code>	<code>@FormParam("title")</code> <code>String title;</code>
<code>@ModelAttribute("eventDetail")</code> <code>EventDetail eventDetail</code> <code>// we have to change JSP form to spring form, set modelAttribute and use spring tags to build the form</code>	<code>@BeanParam EventDetail eventDetail</code> <code>// inside EventDetail, annotate each field with @FormParam</code>
<code>@RequestParam(value="email", required = false)</code> <code>String email</code>	<code>@QueryParam(value="email")</code> <code>String email</code>
<code>HttpSession session // directly as parameter</code>	<code>@Context HttpServletRequest request</code> <code>// I have to get session from request</code>

- For POST method, each form field must annotate in method header as `@FormParam`, but it's limited if the form has a lot of fields. `@BeanParam` are not limited to form parameters. Create class for all form detail, and each attribute annotating with `@FormParam`. Then in method header annotate with `@BeanParam`.

- Not like spring, before show form, we not need to add form backing object (e.g. EventDetail) to model unless we have data that we need to pass to form.

```
models.put("signupDetail", signupDetail);
```

- Controller' methods returned path of view that should be rendered. Instead of `org.springframework.web.servlet.view.InternalResourceViewResolver`, I defined prefix and suffix as constants then appended to all returned view name.

```
private final String PREFIX = "/WEB-INF/jsp/";

private final String SUFFIX=".jsp";

....

return PREFIX+"SignupForm"+SUFFIX;
```

- To initialization with data: I create class `AppContextListener` that implements `ServletContextListener` and override `contextInitialized()` method. It is equivalent to `init()` method in servlet and `@PostConstruct` in spring.
- I modified filter `AutFilter` to JAX-RS filter
 - Change `@WebFilter` into `@Provider` and `@Priority(Priorities.AUTHENTICATION)`
 - implements `ContainerRequestFilter`
 - Override `filter()` method as following:

```

@Provider
@Priority(Priorities.AUTHENTICATION)
public class AuthFilter implements ContainerRequestFilter {
    @Context
    HttpServletRequest req;
    @Override
    public void filter(ContainerRequestContext requestContext) throws IOException {
        .....
    }
}

```

- Because in MVC we used action in path - as path variable-, we had to change it to looking in uri.

```

String path = req.getRequestURI().substring(req.getContextPath().length());
System.out.println("path without context:"+path);
path = path.replace("/MVC", ""); // lookinf for action in uri /Events/{action}/...
path = path.replace("/Events", ""); // lookinf for action in uri /Events/{action}/...
int i = path.indexOf("/",1);//look up "/"
if(i > 0){ // action in uri
    path = path.substring(1,i);
}else if(path.length() > 0){ // set the default action=list
    path = path.substring(1);
}else {
    path="list";
}
String action = path;

```

BUILD INSTRUCTIONS

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

- Install glassfish and start domain1. To install glassfish 4.0 follow the steps at <http://glassfish.java.net/download.html>. Then start domain1 -default domain- by command:

```
./asadmin start-domain domain1
```

- create pom.xml and add dependencies and glassfish plugin. It will show as following²:

```
<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>master.cpsc476</groupId>
  <artifactId>graduate</artifactId>
  <packaging>war</packaging>
  <version>1.0-SNAPSHOT</version>
  <name>graduate</name>

  <url>http://maven.apache.org</url>
  <properties>
    <maven.compiler.source>1.8</maven.compiler.source>
    <maven.compiler.target>1.8</maven.compiler.target>

    <failOnMissingWebXml>false</failOnMissingWebXml>

    <javax.version>7.0</javax.version>
    <java.version>1.7</java.version>
    <local.glassfish.home>
```

² <http://lauraliparulo.altervista.org/glassfish-4-0-hello-world-application-with-maven-3/>

```

/Volumes/SWAP/glassfish-4.1.1/glassfish/</local.glassfish.home>
  <local.glassfish.user>admin</local.glassfish.user>
  <local.glassfish.domain>domain1</local.glassfish.domain>
  <local.glassfish.passfile>

${local.glassfish.home}/domains/${local.glassfish.domain}/config/domain-passwords
  </local.glassfish.passfile>
</properties>
<dependencies>
  <dependency>
    <groupId>javax.mvc</groupId>
    <artifactId>javax.mvc-api</artifactId>
    <version>1.0-edr1</version>
    <type>jar</type>
  </dependency>
  <dependency>
    <groupId>javax</groupId>
    <artifactId>javaee-api</artifactId>
    <version>${javax.version}</version>
    <scope>provided</scope>
  </dependency>
  <dependency>
    <groupId>junit</groupId>
    <artifactId>junit</artifactId>
    <version>3.8.1</version>
    <scope>test</scope>
  </dependency>
  <dependency>
    <groupId>javax.servlet</groupId>
    <artifactId>javax.servlet-api</artifactId>
    <version>3.1.0</version>
    <scope>provided</scope>
  </dependency>
  <dependency>
    <groupId>javax.servlet</groupId>
    <artifactId>jstl</artifactId>
    <version>1.2</version>
  </dependency>
  <dependency>
    <groupId>com.oracle.ozark</groupId>
    <artifactId>ozark</artifactId>
    <version>1.0.0-m01</version>
    <scope>compile</scope>

```

```

</dependency>
<dependency>
  <groupId>org.eclipse.persistence</groupId>
  <artifactId>javax.persistence</artifactId>
  <version>2.1.0</version>
</dependency>
</dependencies>
<build>
  <finalName>graduate</finalName>
  <defaultGoal>war:war glassfish:deploy</defaultGoal>
  <plugins>
    <plugin>
      <groupId>org.glassfish.maven.plugin</groupId>
      <artifactId>maven-glassfish-plugin</artifactId>
      <version>2.1</version>
      <configuration>
        <glassfishDirectory>${local.glassfish.home}</glassfishDirectory>
        <user>${local.glassfish.user}</user>
        <passwordFile>${local.glassfish.passfile}</passwordFile>
        <domain>
          <name>domain1</name>
          <httpPort>8080</httpPort>
          <adminPort>4848</adminPort>
        </domain>
        <components>
          <component>
            <name>${project.artifactId}</name>
            <artifact>target/${project.build.finalName}.war</artifact>
          </component>
        </components>
        <debug>true</debug>
        <terse>false</terse>
        <echo>true</echo>
      </configuration>
    </plugin>
  </plugins>
</build>
</project>

```

Note that: you have to change **local.glassfish.home** attribute to where you install glassfish.

- To deployment execute package goal as following:

```
mvn package
```

War file will be generated at target directory. Then go to <http://localhost:4848> GlassFish Console
- Common Tasks - deployment - deploy an application.

I tried *mvn war:war glassfish:deploy* it work fine but sometime I got 404 - Not Found- error. So I prefer deploy using GlassFish Console.

DEMONSTRATING

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

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.

Welcome Guest

email

Password

[Signup](#)

Events List

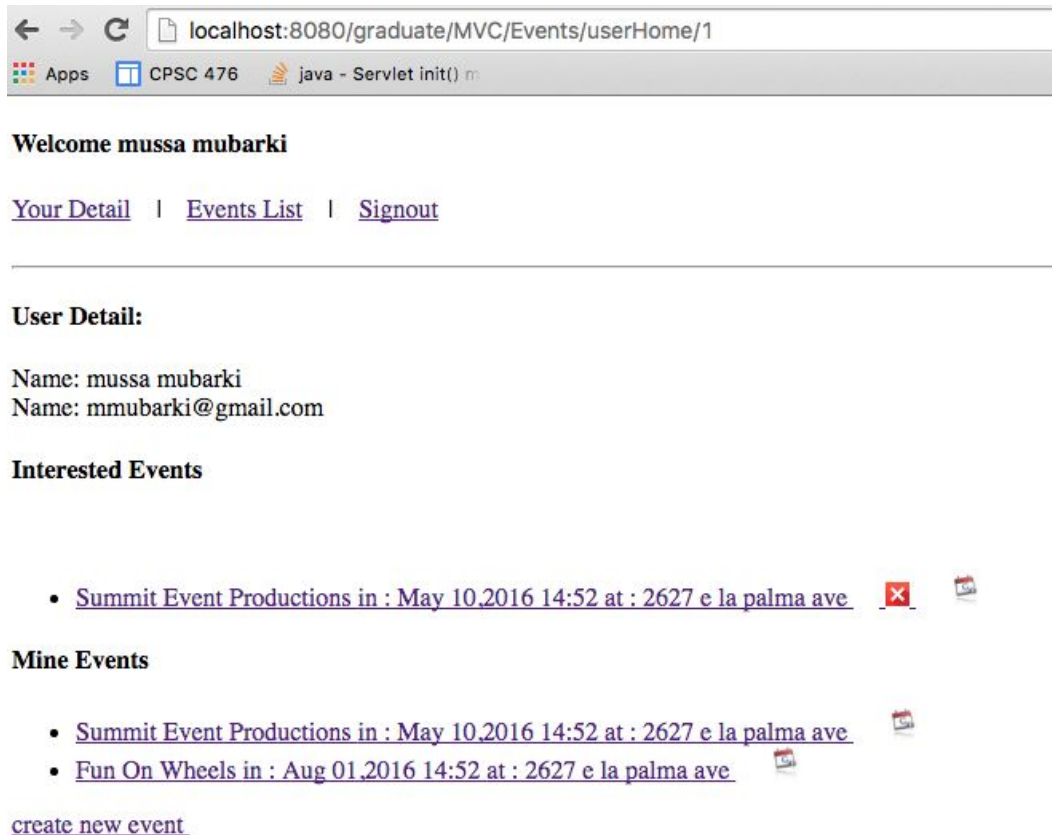
Title	Time	Location
Summit Event Productions	May 10,2016 11:10	2627 e la palma ave
Fun On Wheels	Aug 01,2016 11:10	2627 e la palma ave

To login: user the following information:

email: mmubarki@gmail.com

password: a

After login: controller method: signin() 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.



← → ↻

Apps CPSC 476 java - Servlet init() m



Welcome mussa mubarki

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



User Detail:

Name: mussa mubarki
Name: mmubarki@gmail.com

Interested Events

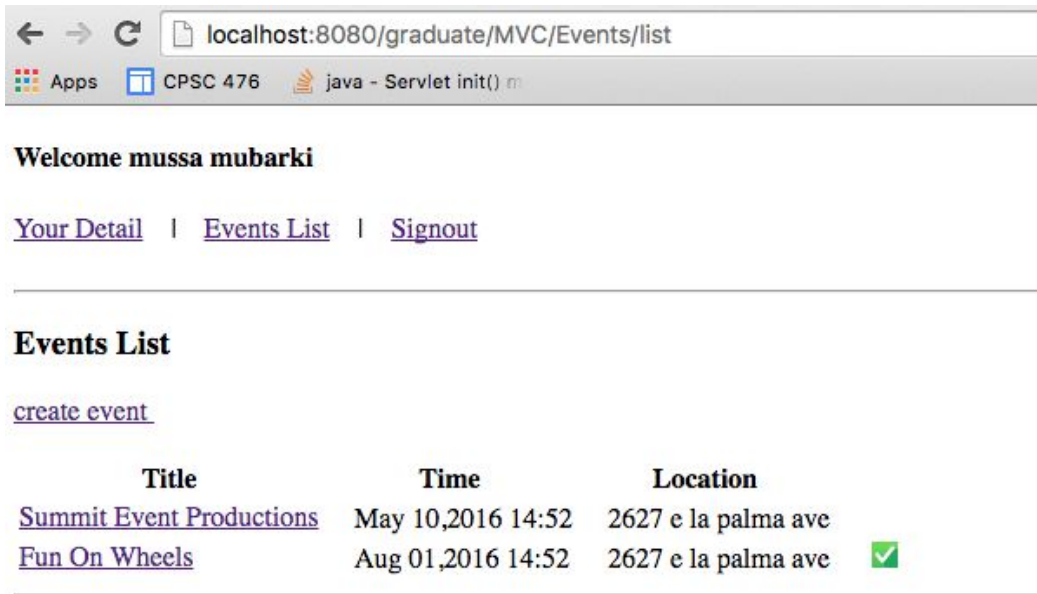
- [Summit Event Productions in : May 10,2016 14:52 at : 2627 e la palma ave](#)  

Mine Events

- [Summit Event Productions in : May 10,2016 14:52 at : 2627 e la palma ave](#) 
- [Fun On Wheels in : Aug 01,2016 14:52 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/graduate/MVC/Events/list


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Welcome mussa mubarki

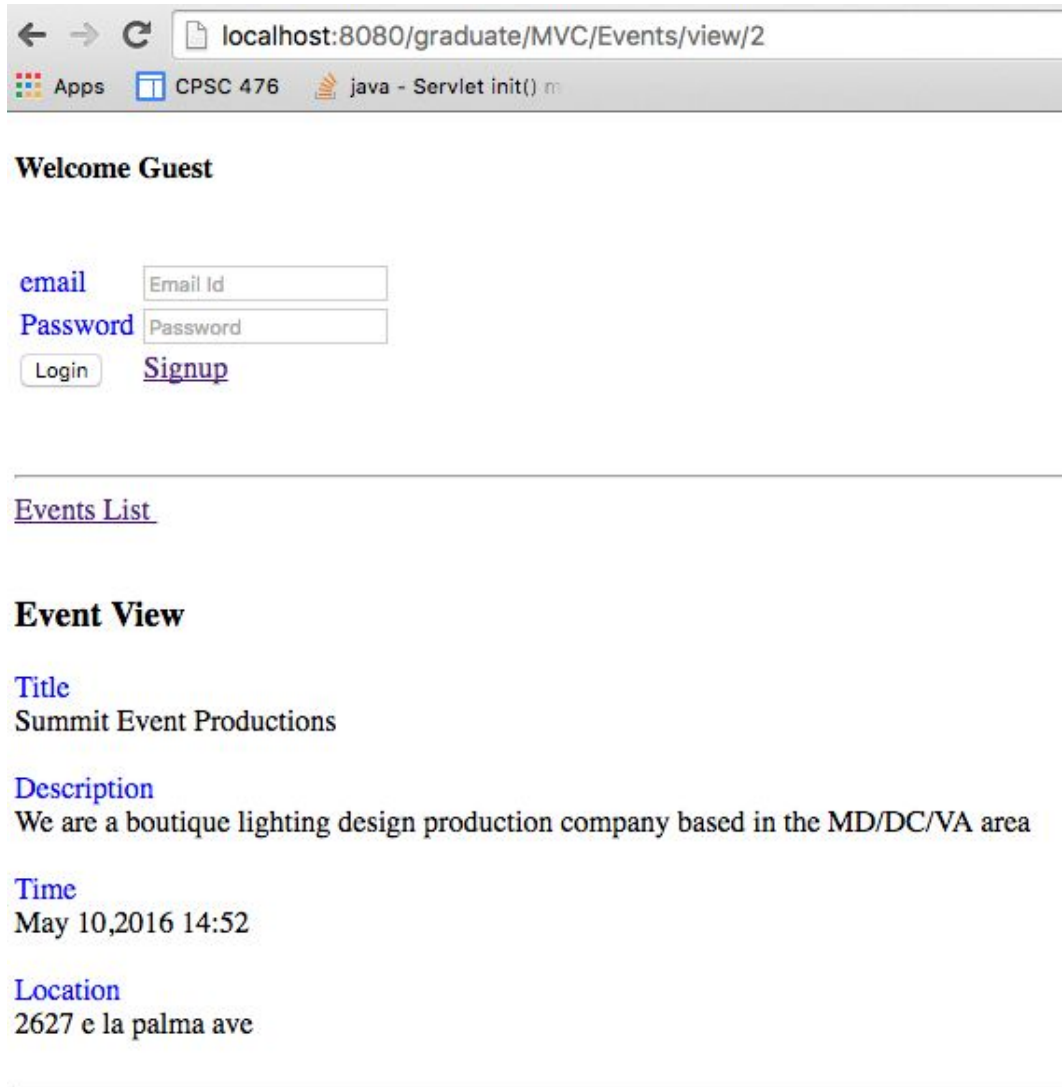
[Your Detail](#) | [Events List](#) | [Signout](#)

Events List

[create event](#)

Title	Time	Location
Summit Event Productions	May 10,2016 14:52	2627 e la palma ave
Fun On Wheels	Aug 01,2016 14:52	2627 e la palma ave 

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



← → ↻ localhost:8080/graduate/MVC/Events/view/2

Apps CPSC 476 java - Servlet init() m

Welcome Guest

email

Password

Login [Signup](#)

[Events List](#)

Event View

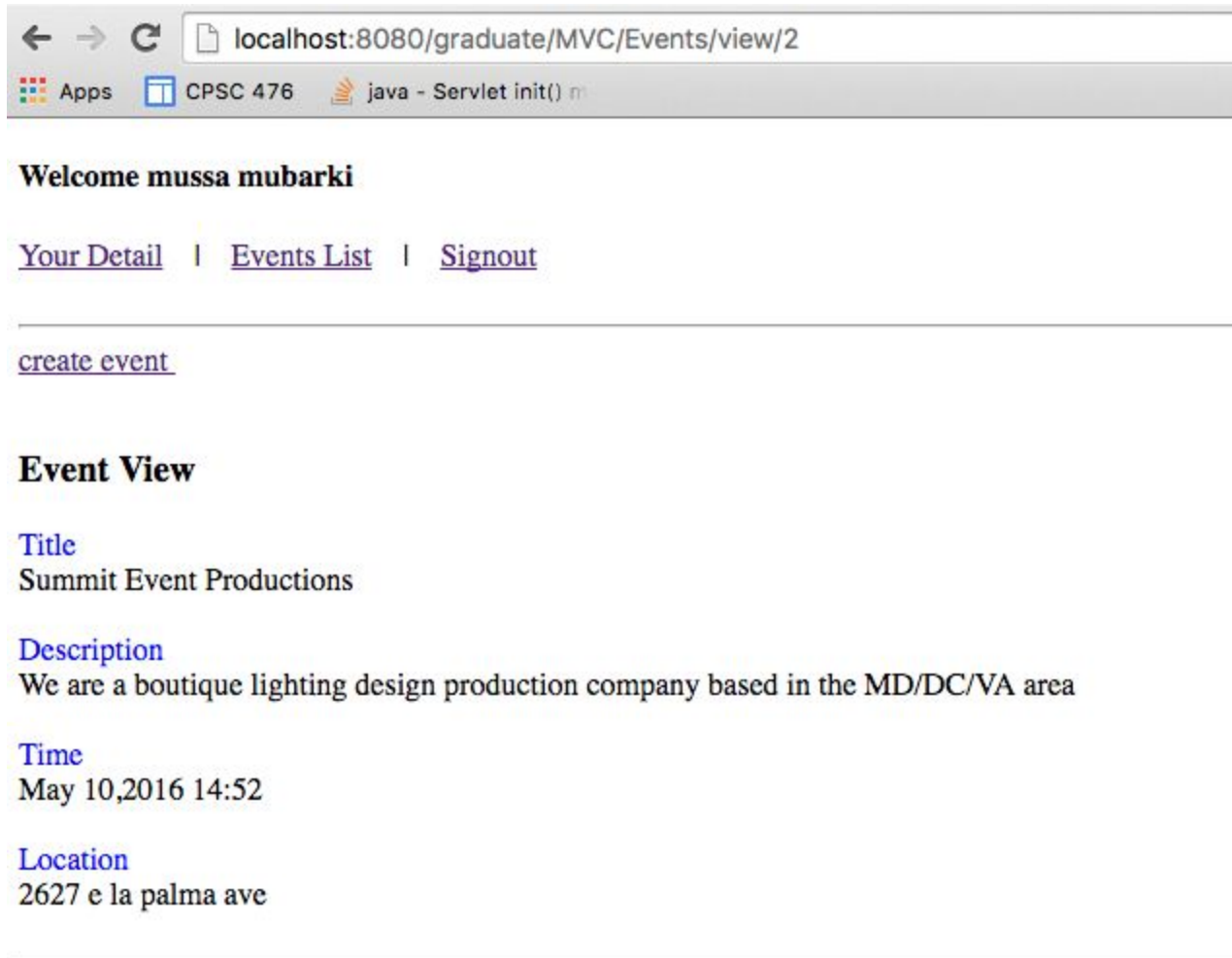
Title
Summit Event Productions

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

Time
May 10,2016 14:52

Location
2627 e la palma ave

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



The screenshot shows a web browser window with the address bar displaying 'localhost:8080/graduate/MVC/Events/view/2'. The browser's taskbar at the bottom shows 'Apps', 'CPSC 476', and 'java - Servlet init() m...'. The web page content includes a welcome message 'Welcome mussa mubarki', a navigation menu with links 'Your Detail', 'Events List', and 'Signout', and a 'create event' link. Below this is the 'Event View' section, which displays details for an event titled 'Summit Event Productions'. The description is 'We are a boutique lighting design production company based in the MD/DC/VA area'. The time is 'May 10,2016 14:52' and the location is '2627 e la palma ave'.

localhost:8080/graduate/MVC/Events/view/2

Apps CPSC 476 java - Servlet init() m...

Welcome mussa mubarki

[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
May 10,2016 14:52

Location
2627 e la palma ave

Sing-up form with validation

The screenshot shows a web browser window with the address bar displaying `localhost:8080/graduate/MVC/Events/signup`. The browser's taskbar includes icons for 'Apps', 'CPSC 476', and a Java application titled 'java - Servlet init() m...'. The web page has a purple 'Home' link and a 'Signup Form' section. The form contains four input fields: 'Your Name' (containing 'ali'), 'email' (containing 'ali@gmail.com'), 'Password' (masked with dots), and 'Confirm Password' (masked with dots). At the bottom of the form are 'Submit' and 'Cancel' buttons. An error dialog box is overlaid on the right side of the page, titled 'localhost:8080 says:', with the message 'passwords do not match' and an 'OK' button.

[Home](#)

Signup Form

[Your Name](#)

[email](#)

[Password](#)

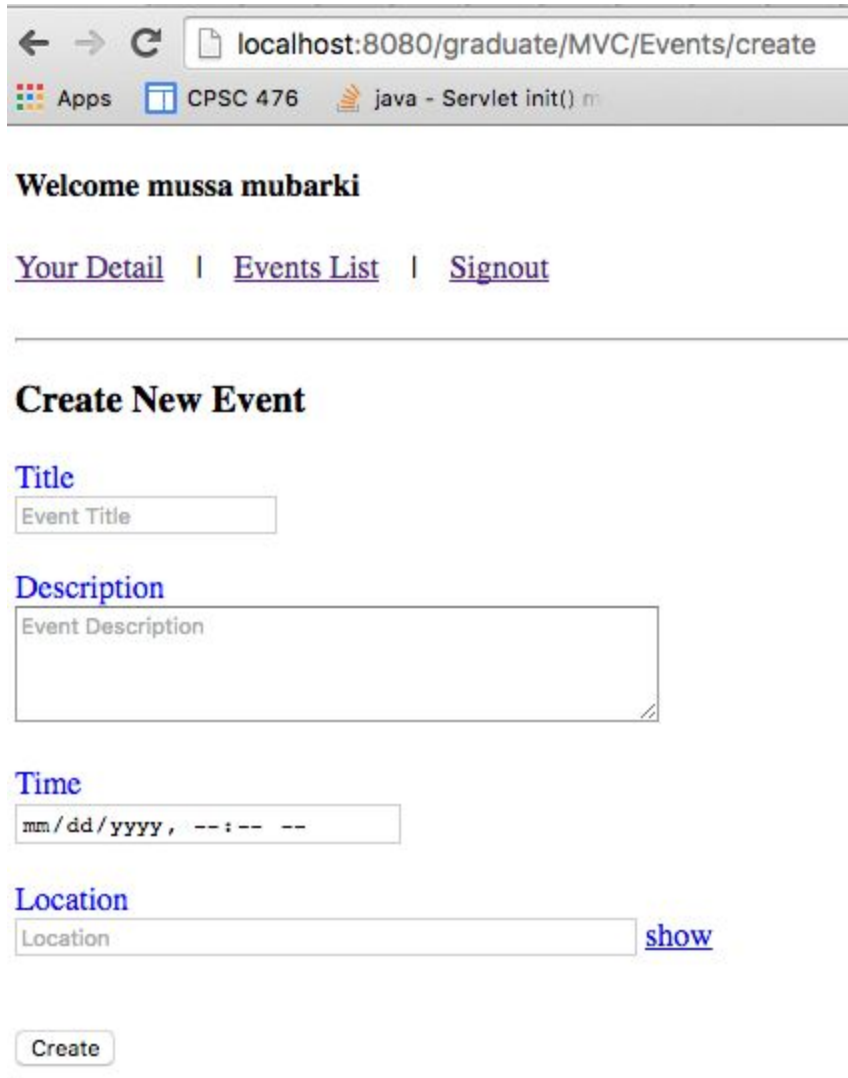
[Confirm Password](#)

[Cancel](#)

localhost:8080 says:
passwords do not match

OK

create new event form



← → ↻ localhost:8080/graduate/MVC/Events/create

Apps CPSC 476 java - Servlet init() m

Welcome mussa mubarki

[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.



Welcome mussa mubarki

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

Create New Event

Title

Description

Time

May 2016 ▾

◀

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▶

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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	30	31	1	2	3	4

[show](#)

Create new event after filled

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

Add event into interested list

 localhost:8080/graduate/MVC/Events/userHome/1

Apps CPSC 476 java - Servlet init() m

Welcome mussa mubarki





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

event:Fun On Wheels added to interested list



User Detail:

Name: mussa mubarki
Name: mmubarki@gmail.com

Interested Events

- [Summit Event Productions in : May 10,2016 14:52 at : 2627 e la palma ave](#)  
- [Fun On Wheels in : Aug 01,2016 14:52 at : 2627 e la palma ave](#)  

Mine Events

- [Summit Event Productions in : May 10,2016 14:52 at : 2627 e la palma ave](#) 
- [Fun On Wheels in : Aug 01,2016 14:52 at : 2627 e la palma ave](#) 

[create new event](#)