Management Minder – A web based Data Management Application (Technical Details)

A.S. Leaflet R3051

Dinesh Reddy Poddaturi, ISU Masters Student of Information Systems;
Garland Dahlke, ISU Extension and Outreach Program Specialist;
Sandy Johnson, Livestock Specialist, Kansas State University

Summary
Software's like Java, MySQL, and Apache Tomcat can be used to develop a web application with high performance, less maintenance, low cost and low overhead/computing.

Introduction
Java, MySQL, and Apache Tomcat are open source software's, these software's can be used to develop a dynamic web application. In a Dynamic web application all the content is database driven, which means any information can be manipulated/displayed according to the user needs. User interaction is the key in a Dynamic web application, the entire application is controlled by a secure web server, which makes it difficult to hack or change the information without authentication. Developers can add/change programming code very easily to include new functions in the application.
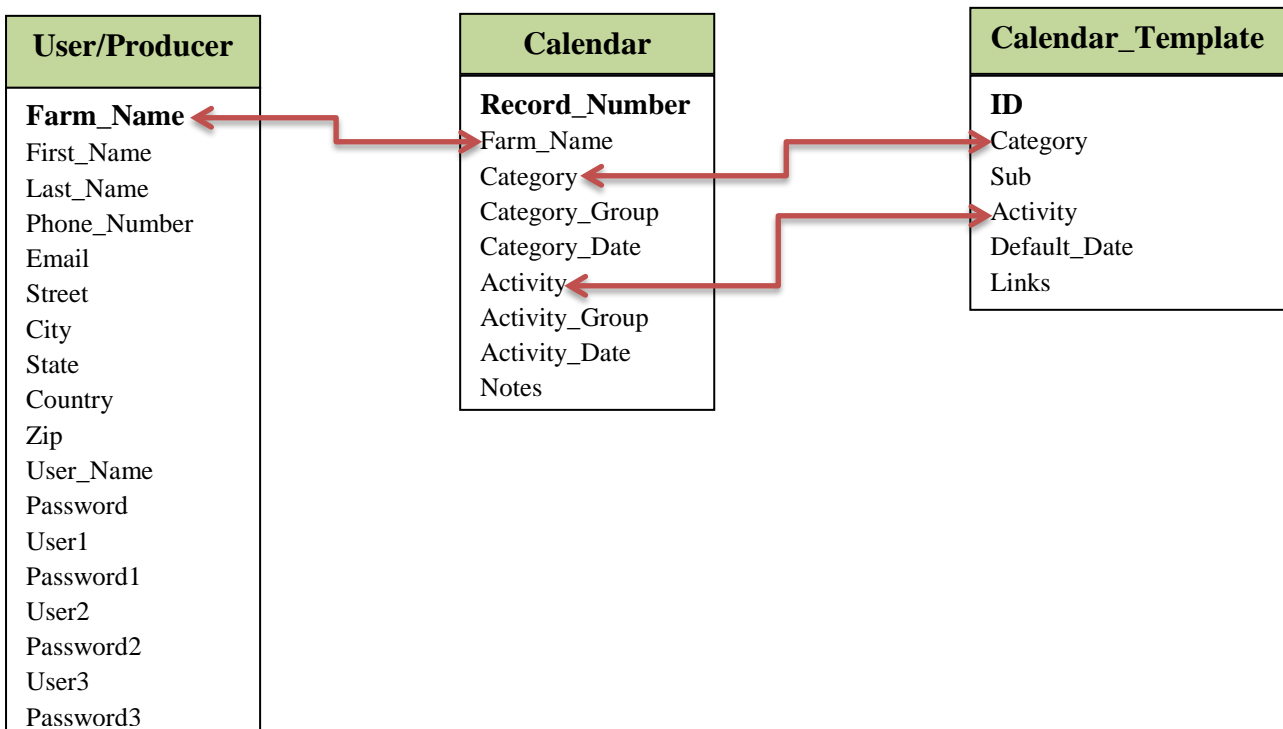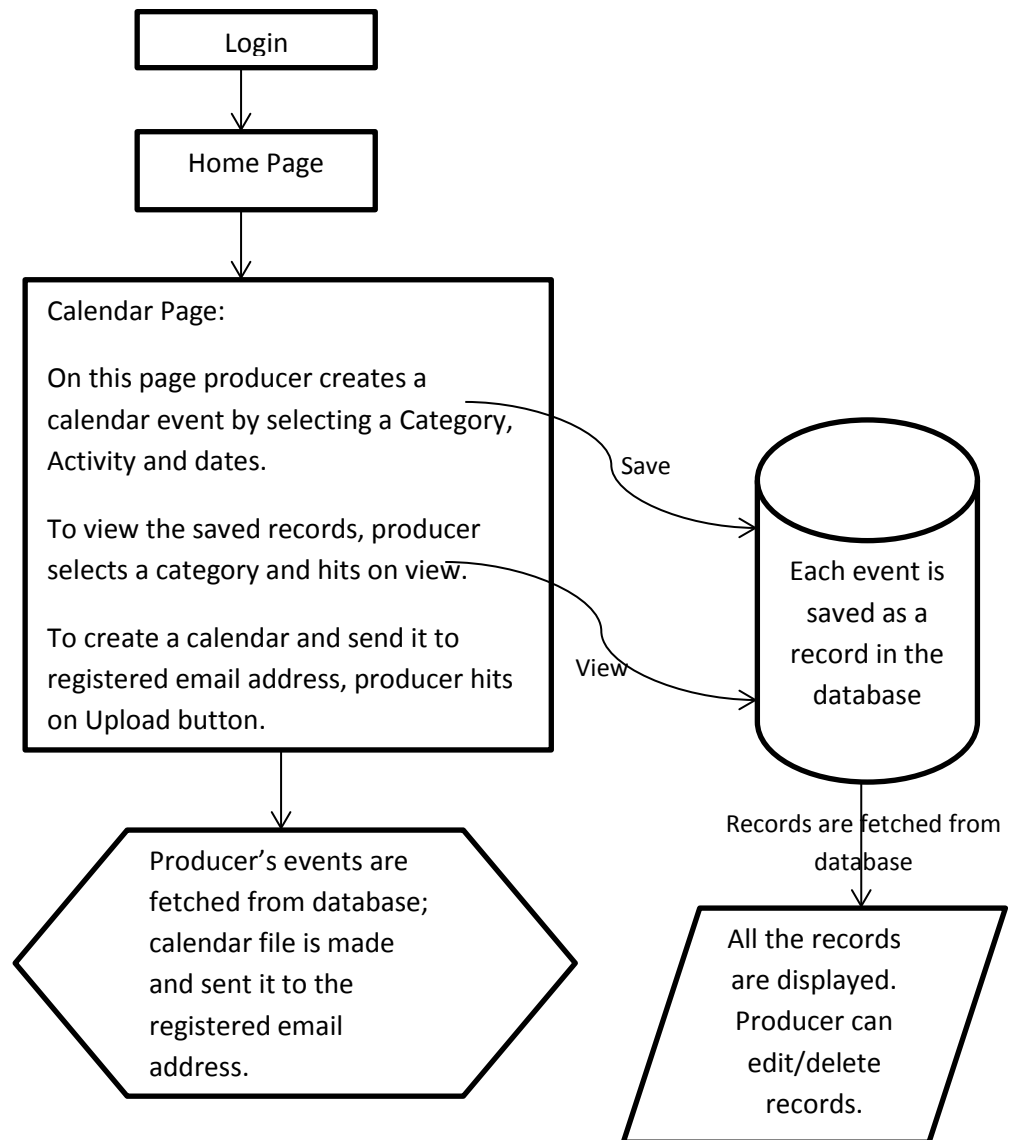
Materials and Methods
The application is programmed in Java (JSP, JSF). MYSQL database is used to save the beef producer's data, this database is dynamic (it changes whenever the producer inserts, deletes, updates data). We used Apache Tomcat webserver to host the application.

Beef Cattle Producer — **Presentation Logic** — **Business Logic** — **Data Access Layer** (MYSQL Database Server)

Database Structure:

User/Producer	Calendar	Calendar_Template
Farm_Name	**Record_Number**	**ID**
First_Name	Farm_Name	Category
Last_Name	Category	Sub
Phone_Number	Category_Group	Activity
Email	Category_Date	Default_Date
Street	Activity	Links
City	Activity_Group	
State	Activity_Date	
Country	Notes	
Zip		
User_Name		
Password		
User1		
Password1		
User2		
Password2		
User3		
Password3		

Navigation through the application:

```
        ┌──────────────┐
        │    Login     │
        └──────────────┘
               │
               ▼
        ┌──────────────┐
        │  Home Page   │
        └──────────────┘
               │
               ▼
```

Calendar Page:

On this page producer creates a calendar event by selecting a Category, Activity and dates.

To view the saved records, producer selects a category and hits on view.

To create a calendar and send it to registered email address, producer hits on Upload button.

Save

View

Each event is saved as a record in the database

Records are fetched from database

Producer's events are fetched from database; calendar file is made and sent it to the registered email address.

All the records are displayed. Producer can edit/delete records.
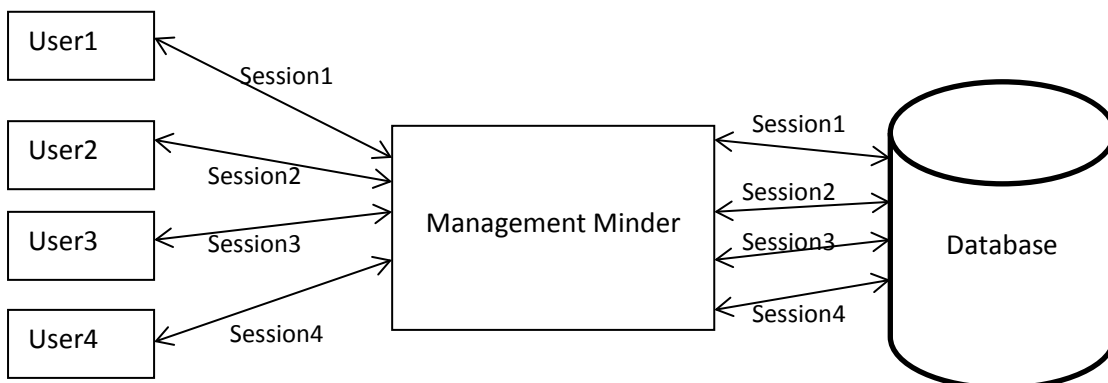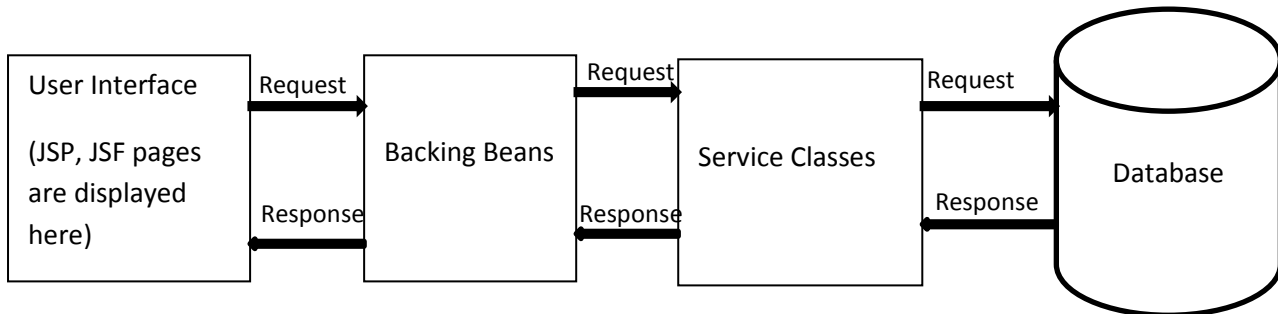
Each web page is designed in Java Server Pages (JSP), Java Server Faces (JSF) with Backing Beans to process the request from the User Interface (UI). The application is designed to be in Session Scope, which means each object is created for each user when they log into the application. If there are 5 users using the application at same time, there will be 5 sessions. This helps to identify each user distinctively.

User1

Session1

User2

Session2

User3

Session3

User4

Session4

Management Minder

Session1

Session2

Session3

Session4

Database

Backing beans listen to the request by user from UI; send that request to the service classes where all the business logic is executed. Service class communicates with database to execute the request and sends back the response to backing bean and then to UI.

| User Interface (JSP, JSF pages are displayed here) | → Request / ← Response | Backing Beans | → Request / ← Response | Service Classes | → Request / ← Response | Database |

Results

The application is available on the internet, which means it can be accessed by anyone around the world. The application is always updated with new functionalities. The following link navigates to the web application http://cowweb.exnet.iastate.edu/CowWeb/faces/ .