

Time Sheet Web App  
COMP3910 Assignment 2

Requirements & Design Document

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## Purpose

The Timesheet application will be an online system which allows users to login and access/edit workplace timesheets and allows an administrator to manage the user's accounts.

## Scope

The Timesheet application UI will be a web interface consisting of numerous pages and forms to view, edit, add, and remove timesheet and employee data. Data storage and overall application functionality will be handled using a MySQL database and Java Persistence Architecture transactions.

## Perspective

The application will store the following data in its database:

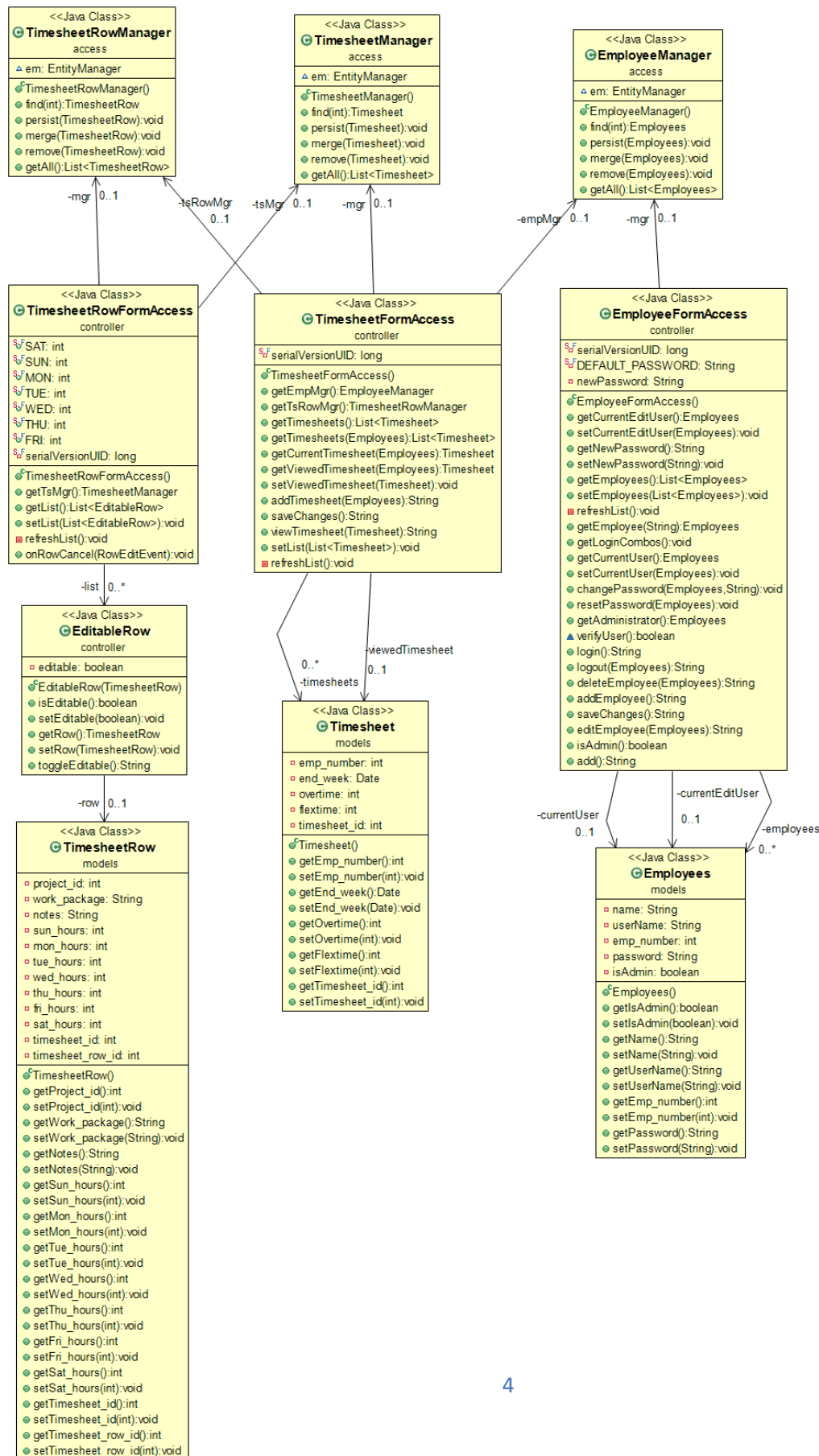
1. User (Employee) Data for each user in the system:
  - a. Name
  - b. Employee Number
  - c. Username
  - d. Password
  - e. Admin status
2. Timesheet Data:

Each timesheet records the hours worked by a single employee on a given week. Each will contain the following data:

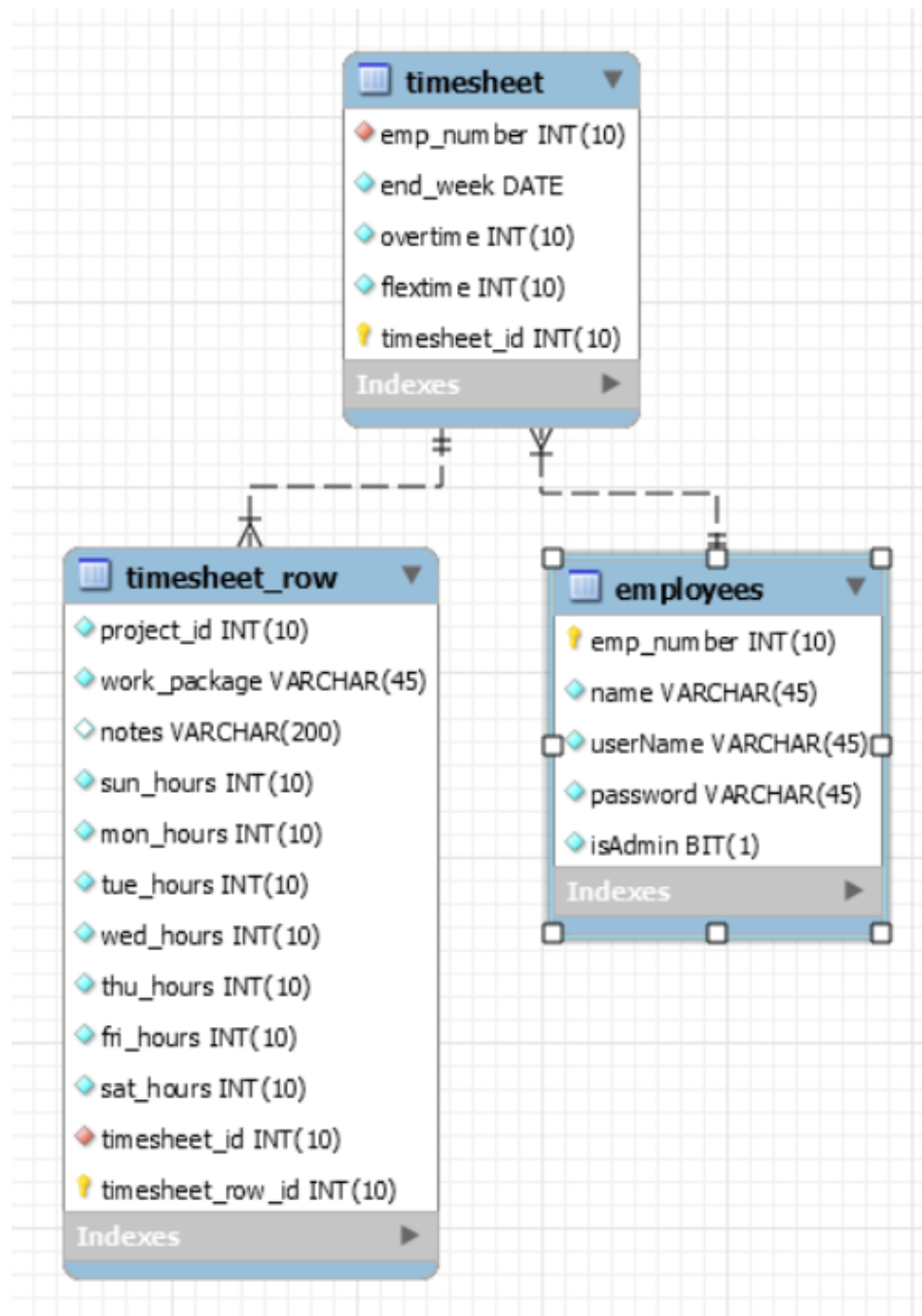
  - a. Employee Number
  - b. Employee Name
  - c. Week Number (0-52)
  - d. Week Specifier (the date on which the week ends – Friday)
  - e. The following, each as a set of data to displayed as the rows of a timesheet table
    - a. Project Number
    - b. Work Package identifier
    - c. Total number of hours worked for the week
    - d. A column for each day of the week containing the number of hours worked that day
    - e. Additional optional notes

Each row above represents a week of work hours on a given work package of a specific project.

## Class Diagram

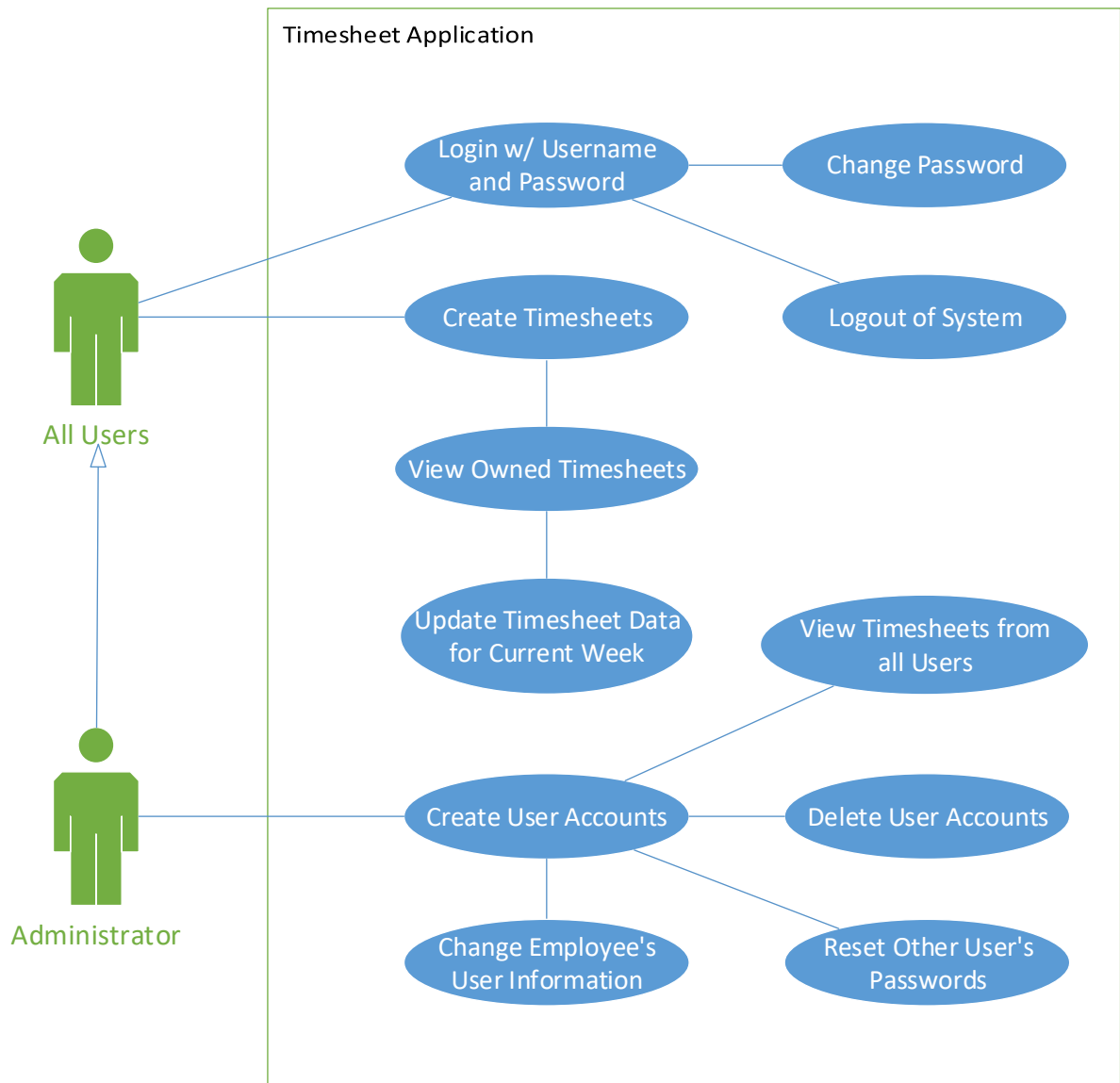


## Database Entity Relational Diagram



## Use Cases

The two types of users which the application will support are general users and the system's administrator. General users will be able to manage their own account settings and create and edit their own timesheets. Administrators will be able to do anything that general users can do, as well as manage the creation, modification, and deletion of other user accounts. Administrators can also view timesheets from all users in the system.



## Interface Requirements

### General Users

When a user first starts the application, they will see a login page, if they have a registered account, they can login with their username and password. If they do not have a registered account, an administrator will need to create an account for them.

After a registered user successfully logs in, they will see a page with the list of their saved timesheets, organized by date. Each timesheet can be opened and edited by clicking on it.

Users can create a new timesheet by clicking on “New Timesheet” in the header. This will open a page with a new timesheet with five empty rows. By clicking on a pencil icon in the last column of the table, the user will be able to edit the contents of that row in the table, which allows them to input/edit hours worked for any day of the week.

This page will also have buttons on a top toolbar which allow them to view a different week’s timesheet, create a new timesheet, change their password, or logout of the application.

### Administrators

If an administrator logs in to the application, they will see a page with the list of saved timesheets from all users, organized by date. Each timesheet can be opened and edited by clicking on it.

Admins have a header link to see a page with a list of all the users in the system. They will be able to click on an edit button beside each user to edit them, click a button beside each user to remove them, or click a button at the bottom of the list to create a new user. In the edit user page, the admin can edit all fields and have the option to reset their password to default.

The administrators will also have the same options in the toolbar as the general users so that they can create and edit their own timesheets. They will have access to view other users’ timesheets.

## Operating Environment

The operating environment will be split up into three layers: *presentation tier*, *business objects tier*, and *persistence tier*.

The *presentation tier* will use Java Server Faces, Prime Faces, and CDI beans to comprise the user interface. Front-end styling is handled by a custom stylesheet and Materialize 3<sup>rd</sup> party CSS library. Templates will be used for the main layout, header, and footer, and a message bundle for all text where possible.

The *business objects tier* will use JPA session and entity beans to handle the application functionality and represent the data within the database, respectively. We have designed entity beans to

represent each database table, with entity manager Java classes to provide CRUD services to these beans.

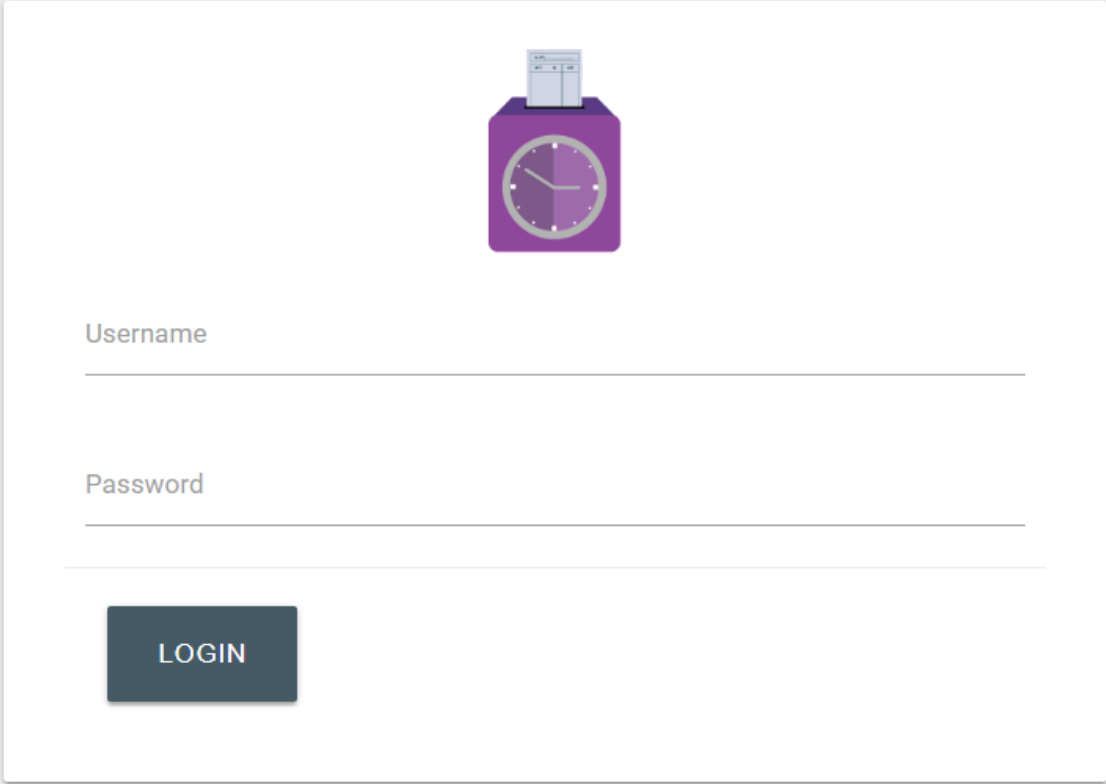
The *persistence tier* consists of a MySQL relational database designed by us. The database will be connected to the other layers with a data source running on JBoss Wildfly 13 server.

## UI Design

We plan to use the overall UI design created for Assignment 1, with these minor changes in mind (highlighted on the screen shots where possible):

- Improved representation of the links to each timesheet on the Timesheet History page, instead of just text
- Improved representation of the ability for the user to edit each row in a new timesheet – previously simply represented by a pencil icon at the end of each row.
- Improvements to growl message look – change based on severity or type of message, and content – either remove message header or fix bug of header repeating the message itself.


### Login page




The login page design is a white rectangular form centered on a light gray background. At the top center of the form is a purple square icon with a white clock face and a small white document icon on top. Below the icon are two input fields. The first field is labeled 'Username' in a light gray font and has a single horizontal line for text entry. The second field is labeled 'Password' in a light gray font and has a single horizontal line for text entry. Below the password field is a dark gray rectangular button with the word 'LOGIN' in white, uppercase letters.



*View Timesheets page (admin)*

	<a href="#">Users</a>	<a href="#">View Timesheet</a>	<a href="#">New Timesheet</a>	Tony Pacheco ▾
Timesheet History				
Timesheet History				
Week Ending		Timesheet Owner		
2018-10-26		Danny Di Iorio		
2018-10-26		Tony Pacheco		

*New Timesheet page (admin)*

	<a href="#">Users</a>	<a href="#">View Timesheet</a>	<a href="#">New Timesheet</a>	Tony Pacheco ▾
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## Timesheet






Timesheet Details

Employee Number : 1

Week Number : 43

Name : Tony Pacheco

Week Ending : 2018-10-26


Project	WP	Total	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Notes	
22	WEC	20			5	5		5	5	Complete	
11	ABA	14			2	2	8	2		WIP	
0		0									
4	DDD	13.5	5	5					3.5	Complete next week	
0		0									
Total		47.5	5	5	7	7	8	7	8.5		

NEW ROW

SAVE TIMESHEET

[Danny Di Iorio] [Tony Pacheco] [Timesheet Assignment 1]


*View users page (admin)*

UsersView TimesheetNew TimesheetTony Pacheco ▾

## Users

Current Employee User Accounts				
Edit User	E Number	Name	Username	Remove User
<input type="button" value="EDIT"/>	1	Tony Pacheco	tp1	<input type="button" value="REMOVE"/>
<input type="button" value="EDIT"/>	2	Danny Di Iorio	dd2	<input type="button" value="REMOVE"/>
<input type="button" value="EDIT"/>	3	King Henry	hh3	<input type="button" value="REMOVE"/>

*Edit user page (admin) – new user page is the same except no Password field or Reset Password button*

UsersView TimesheetNew TimesheetTony Pacheco ▾

## Edit User


E Number

Name


Username


Password


*New user page (admin)*

Users View Timesheet New Timesheet Tony Pacheco ▾

## New User


E Number

Name

Username

SAVE

*View Timesheets page (regular user)*

View Timesheet New Timesheet Danny Di Iorio ▾

## Timesheet History

Timesheet History	
Week Ending	Timesheet Owner
2018-10-26	Danny Di Iorio