



FRONT RANGE
COMMUNITY COLLEGE

Java Programming

Term Project

Professor Michael Seely

Submitted in Partial Fulfillment of the Requirements for

CSC 2040 Java Programming

By

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Timesheet Processing & Payroll JavaFX App

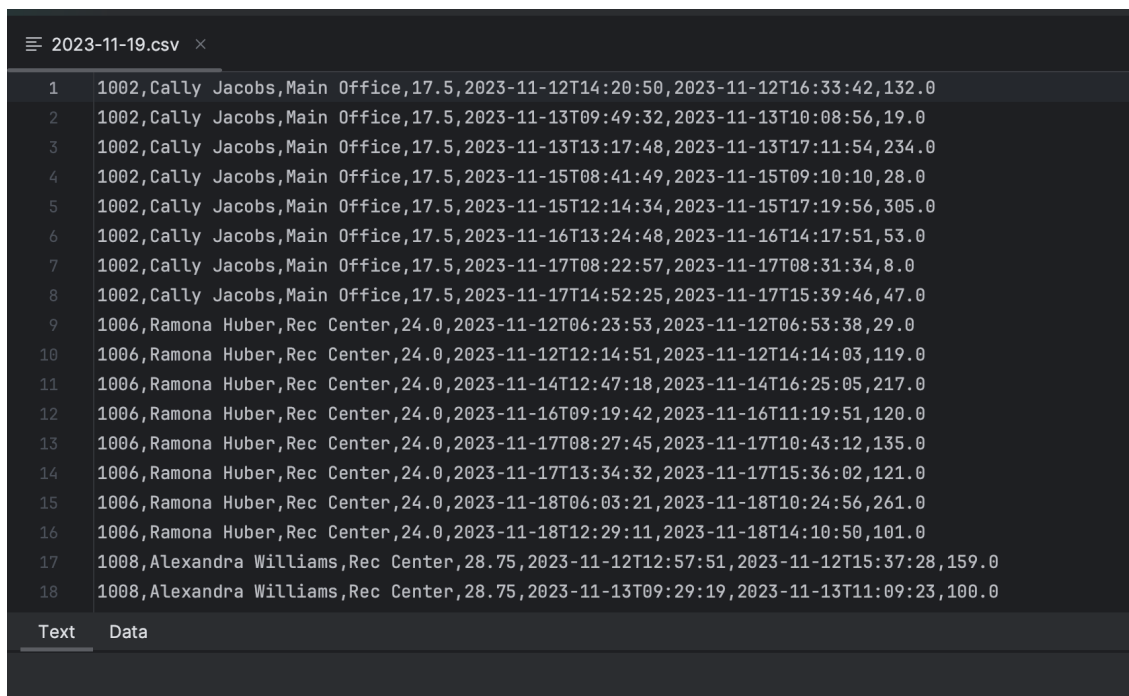
The timesheet processing program allows an employer to use an input screen to review, add, and delete timecards for hourly employees. Upon submittal, they are able to review pay period summaries of gross pay records for each employee on the output screen.

The program is useful because employees like myself make mistakes such as accidentally pressing the check-out button shortly after checking in, or not being at the physical location to report time properly. At the end of the week, employees are able to use the HR system to review their timesheet and either approve them immediately, or work with their boss and HR to make corrections before performing a self-approval. This JavaFX app solves the issue to make timesheet corrections by allowing the user to filter timesheet records by employee name, work location, or work date. In addition to filtering, the user can select a payroll period for review.

Getting Started

Step 1: Make sure the folder: src/main/resources/payroll/timesheets exists.

Step 2: Run TimesheetGenerator, follow prompts and choose a number of time sheets to generate. Check the timesheets folder to see the new timesheet csv files exist. This program pulls information from an HourlyEmployees.csv file and generates a history of company timesheets and saves them to the resources directory. Figure 1 shows an example.



	Text	Data
1	1002,Cally Jacobs,Main Office,17.5,2023-11-12T14:20:50,2023-11-12T16:33:42,132.0	
2	1002,Cally Jacobs,Main Office,17.5,2023-11-13T09:49:32,2023-11-13T10:08:56,19.0	
3	1002,Cally Jacobs,Main Office,17.5,2023-11-13T13:17:48,2023-11-13T17:11:54,234.0	
4	1002,Cally Jacobs,Main Office,17.5,2023-11-15T08:41:49,2023-11-15T09:10:10,28.0	
5	1002,Cally Jacobs,Main Office,17.5,2023-11-15T12:14:34,2023-11-15T17:19:56,305.0	
6	1002,Cally Jacobs,Main Office,17.5,2023-11-16T13:24:48,2023-11-16T14:17:51,53.0	
7	1002,Cally Jacobs,Main Office,17.5,2023-11-17T08:22:57,2023-11-17T08:31:34,8.0	
8	1002,Cally Jacobs,Main Office,17.5,2023-11-17T14:52:25,2023-11-17T15:39:46,47.0	
9	1006,Ramona Huber,Rec Center,24.0,2023-11-12T06:23:53,2023-11-12T06:53:38,29.0	
10	1006,Ramona Huber,Rec Center,24.0,2023-11-12T12:14:51,2023-11-12T14:14:03,119.0	
11	1006,Ramona Huber,Rec Center,24.0,2023-11-14T12:47:18,2023-11-14T16:25:05,217.0	
12	1006,Ramona Huber,Rec Center,24.0,2023-11-16T09:19:42,2023-11-16T11:19:51,120.0	
13	1006,Ramona Huber,Rec Center,24.0,2023-11-17T08:27:45,2023-11-17T10:43:12,135.0	
14	1006,Ramona Huber,Rec Center,24.0,2023-11-17T13:34:32,2023-11-17T15:36:02,121.0	
15	1006,Ramona Huber,Rec Center,24.0,2023-11-18T06:03:21,2023-11-18T10:24:56,261.0	
16	1006,Ramona Huber,Rec Center,24.0,2023-11-18T12:29:11,2023-11-18T14:10:50,101.0	
17	1008,Alexandra Williams,Rec Center,28.75,2023-11-12T12:57:51,2023-11-12T15:37:28,159.0	
18	1008,Alexandra Williams,Rec Center,28.75,2023-11-13T09:29:19,2023-11-13T11:09:23,100.0	

Figure 1: Sample timesheet csv file

Step 3: Start the PayrollApplication and use the Pay Period Ending ComboBox to select any of the timesheets that were recently generated.

You may now add records, delete records, do filtering, visit the Payroll tab for Gross Pay information, or load another timesheet.

The form data for adding a new record includes Employee ID, Employee Name, Check-in Location, Work Date, Start Time, and End Time. See Figure 2 for data inputs with the expected formatting.

The screenshot shows a macOS-style window titled "Welcome to the Payroll App!". At the top, there is a "Pay Period Ending:" label followed by a dropdown menu showing "2023-11-12". Below this is a tabbed interface with "Timesheets" and "Payroll" tabs. Under the "Timesheets" tab, there is a "Filter:" label, a text input field containing "Pri", and a hint "(Filter by employee name, location, or date such as mm-dd)". The main area contains a table with the following columns: "Employee ID", "Employee Name", "Location", "Time Stamp In", "Time Stamp Out", "Minutes Work...", and an empty column. The table lists several records for employee 1057, Priscilla Hampton, at the Main Office. The last row in the table is highlighted with a blue border, showing the date "2023-11-09", start time "12:14", end time "17:21", and minutes "26.50". Below the table are three buttons: "Add Record", "Delete Record", and "Cancel".

Employee ID	Employee Name	Location	Time Stamp In	Time Stamp Out	Minutes Work...	
1057	Priscilla Hampton	Main Office	11/7/2023, 12:01PM	11/7/2023, 3:43PM	221.0	
1057	Priscilla Hampton	Main Office	11/8/2023, 6:03AM	11/8/2023, 9:27AM	204.0	
1057	Priscilla Hampton	Main Office	11/9/2023, 8:44AM	11/9/2023, 9:34AM	50.0	
1057	Priscilla Hampton	Main Office	11/9/2023, 1:02PM	11/9/2023, 4:07PM	185.0	
1057	Priscilla Hampton	Main Office	11/11/2023, 8:16AM	11/11/2023, 11:16AM	180.0	
1057	Priscilla Hampton	Main Office	11/11/2023, 2:30PM	11/11/2023, 2:57PM	26.0	
1057	Priscilla Hampton	Main Office	2023-11-09	12:14	17:21	26.50

Figure 2 Payroll Application with the HBox populated for adding a new time entry.

The Payroll tab displays each employee's pay rate, total hours worked, and gross pay as shown in Figure 3.

The screenshot shows a macOS-style window titled "Welcome to the Payroll App!". At the top, there is a "Pay Period Ending:" dropdown menu set to "2023-11-12". Below this is a tab bar with "Timesheets" and "Payroll" tabs, with "Payroll" being the active tab. A "Filter:" text field contains the letter "p", and a label "(Filter by employee name)" is to its right. Below the filter is a table with the following data:

Employee ID	Employee Name	Hourly Rate	Hours Worked	Gross Pay
1013	Cooper Woods	28.75	11.4	327.75
1045	Sophia Duran	23.25	24.23	563.35
1057	Priscilla Hampton	26.5	26.88	712.32
1085	Preston Townsend	24.25	21.4	518.95
1092	Adam Pierce	28.75	26.93	774.24

Figure 3 Payroll tab with filtering enabled, displaying total hours worked and gross pay for matching employees

Adding a time entry

The Add Record button acts like a Save, so before hitting the button, the text fields located in the HBox below the TableView need to be populated. There is prompt text to help the user understand what information needs to go into each field. Some important notes are:

- Input in the Date field must be yyyy-mm-dd format with leading zeros (if any).
- The Start and End times are to be entered in military format, HH:MM meaning leading zeros are required for hour and minute.
- The last field is for entering the employee's hourly pay rate, not to be confused with the calculated column above it for Minutes Worked.

If a user makes a mistake by entering an invalid input such as wrong format or empty string, they are presented by an error with opportunity to resubmit with the Add Record button:

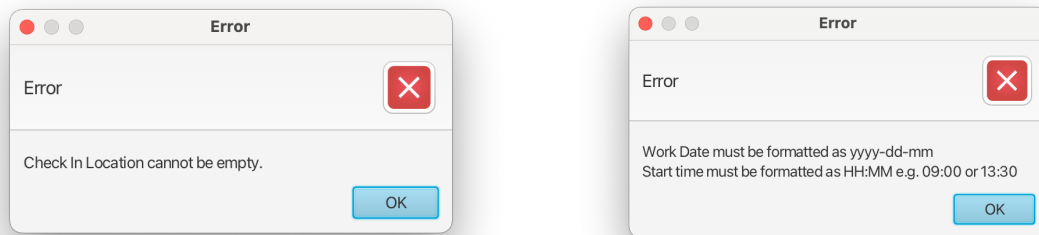


Figure 4 Exception handling for common errors

Adding additional records for the same employee is easy, just update the date and times and hit the Add Record button again. The Cancel button clears all the information in the HBox for inserting data for a different employee. I have a rule to make sure the end time is not before the start time, However I don't have exception handling to ensure there is no overlapping between time entries, nor a check to limit the work time beyond what is reasonable.

Deleting a Time Entry

Select a row in the TimeSheet View and press the Delete Record button. A row must be highlighted for this button to be enabled.

After successfully adding or deleting a record, the changes are automatically applied both in the timesheet csv file as well as the updates being reflected on the Payroll tab.

Filtering:

The filtering technique I found is to utilize two observable lists and toggle the table view between them depending if there is an input to match on.

Conclusion

The project includes advanced concepts involving classes, THIS-references, TableViews with data filters, event handlers, and some exception handling based on user input. Instead of creating UI objects through code, my solution involves interacting with an fxml document which I started designing for the proposal.

Here are some things I reflected on and what I would do to improve the program:

- 1) There would be a database that has the tables to eliminate a lot of redundancy for storing and processing things like employee name, work location, and pay rate. This would allow me to use a ComboBox to select employees instead of having to look up

and type in their information.

- 2) With the UI, have an edit record option. Consider updating the interface to allow editable cells in the table views.
- 3) The ComboBox logic for the list of timesheets should be moved out of the controller and into its own class.