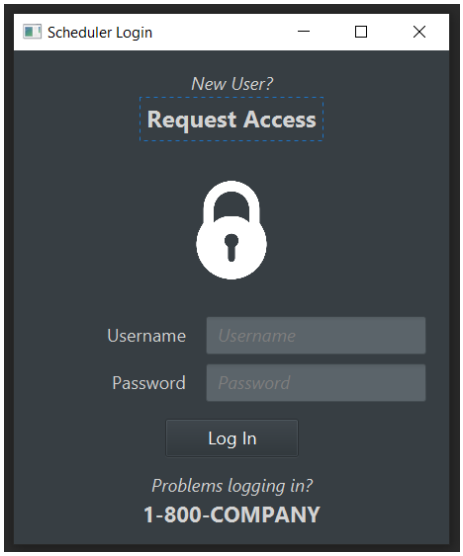
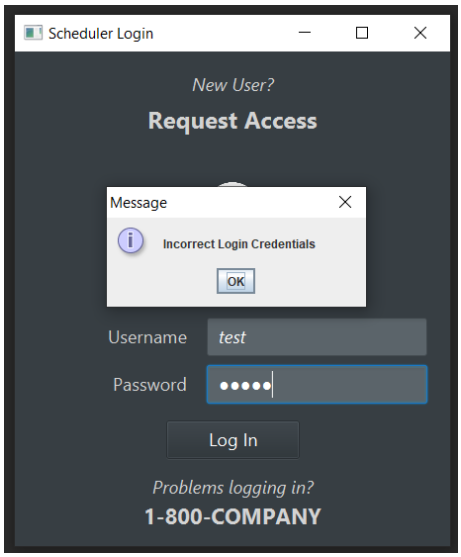
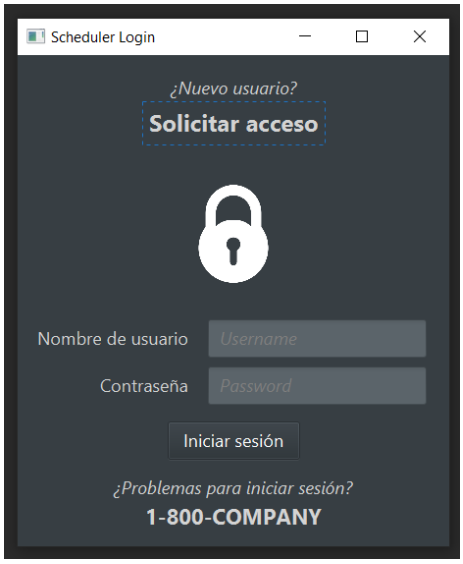
C195 - Software II
Java Application Development
— Scheduling Application —

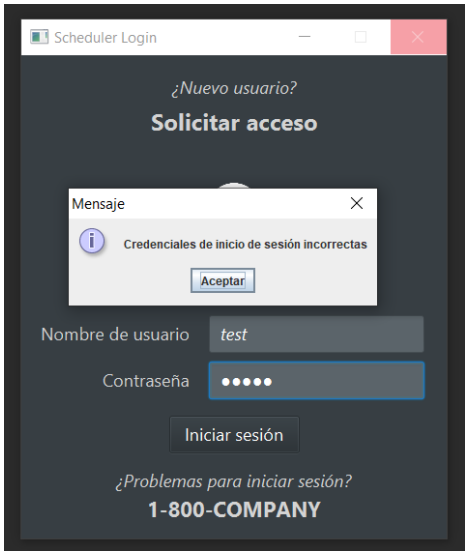
Username test and password test can be used to access dashboard, or you can select 'Request Access' link to add a new user. Please note that loading has been slow for the dashboard views. After every operation (ex. adding customer, updating appointment, etc.), the scene will revert back to the dashboard view. Please be patient during the loading process.

A. Create a log-in form that can determine the user's location and translate log-in and error control messages (e.g., "The username and password did not match.") into **two** languages.

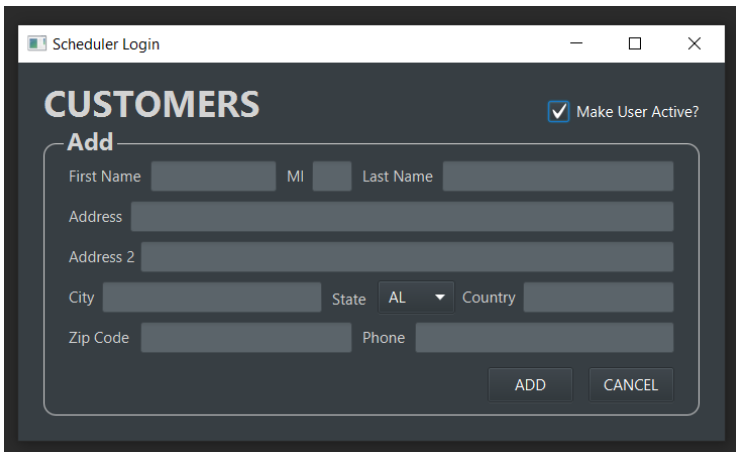


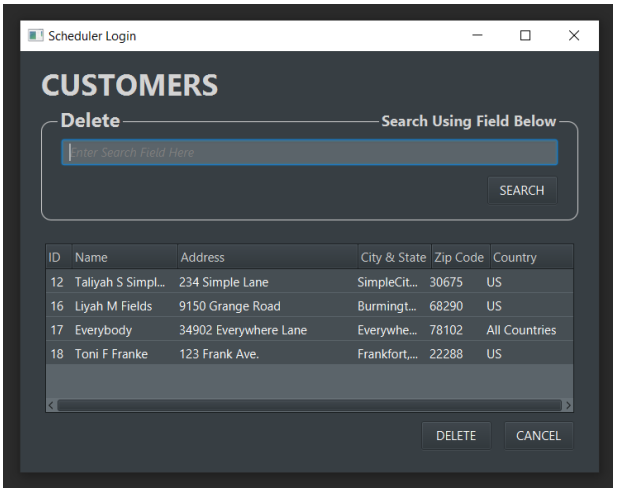


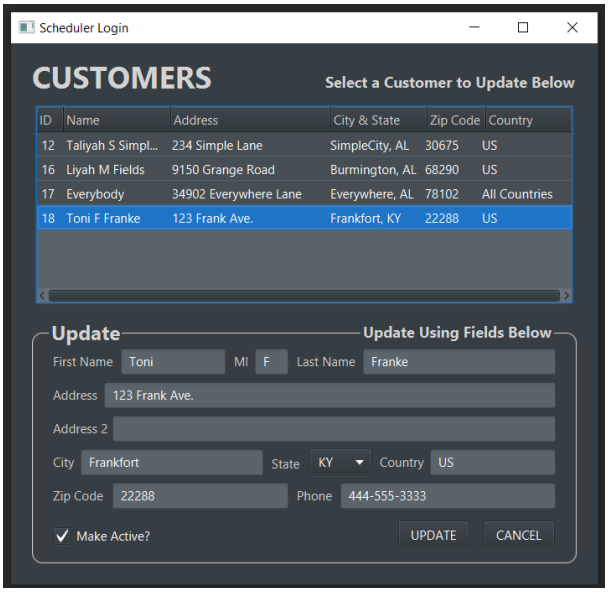




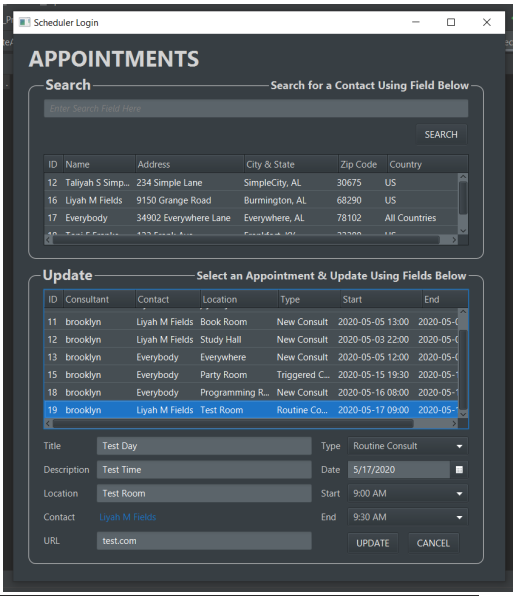
B. Provide the ability to add, update, and delete customer records in the database, including name, address, and phone number.

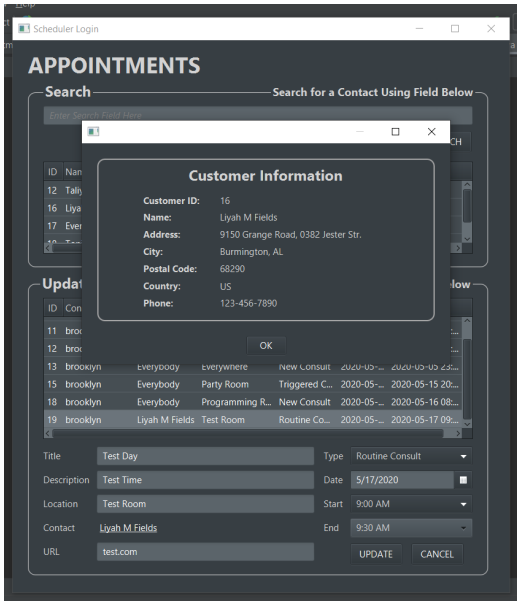


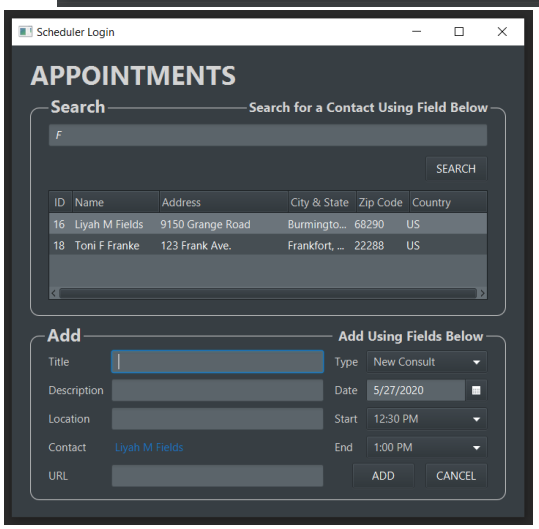


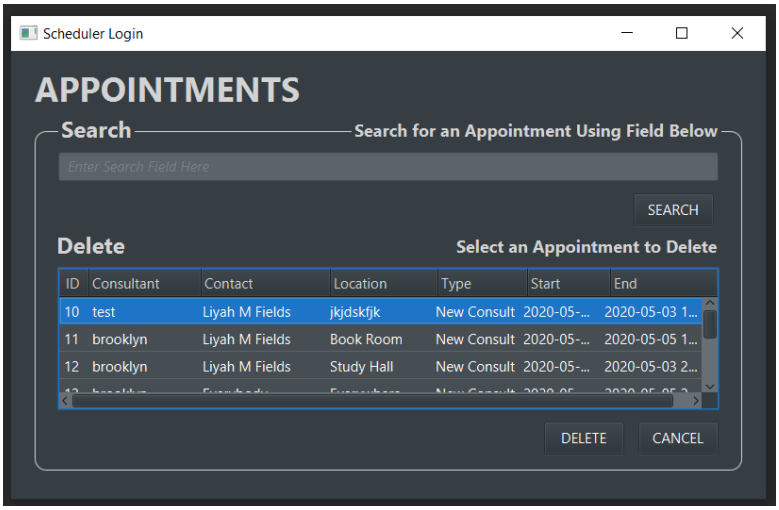


C. Provide the ability to add, update, and delete appointments, capturing the type of appointment and a link to the specific customer record in the database.



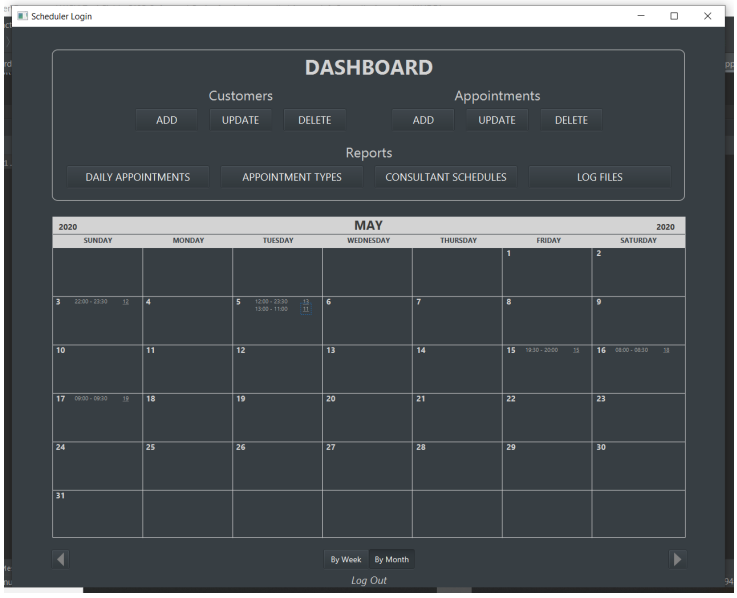


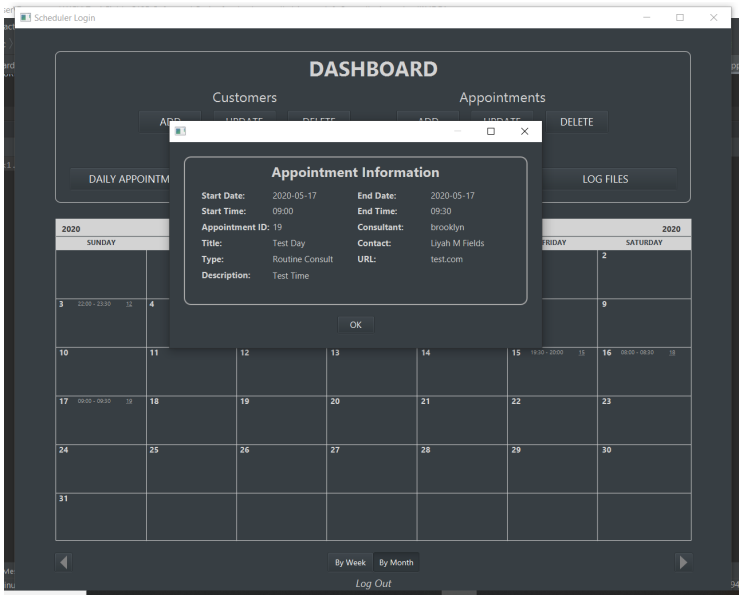


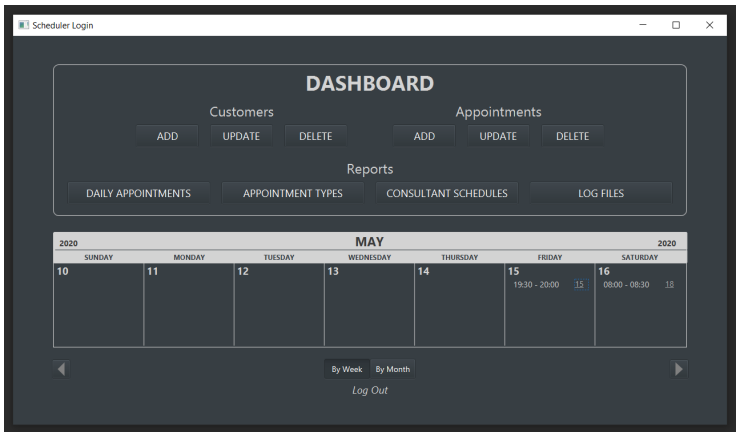


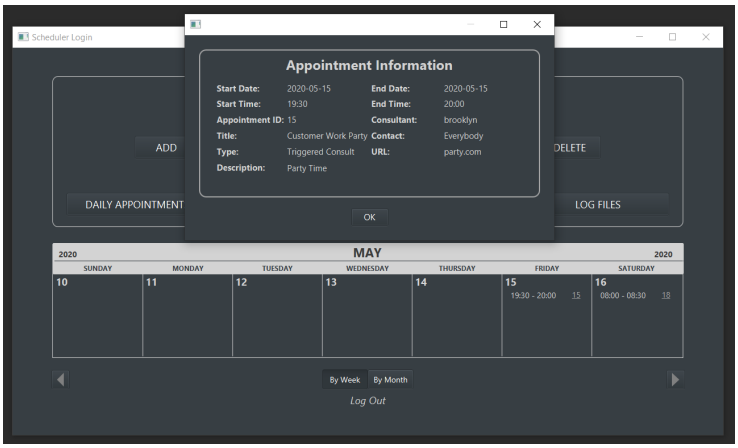
***Notes**: A search function was added to the add and update windows to search for an available contact. Once a contact is selected, the contact is prepopulated below in a hyper-link. When clicked, this hyperlink will open another window with customer detailed infor-mation. Another search function was added to the delete appointments window to search for available appointments.*

D. Provide the ability to view the calendar by month and by week.



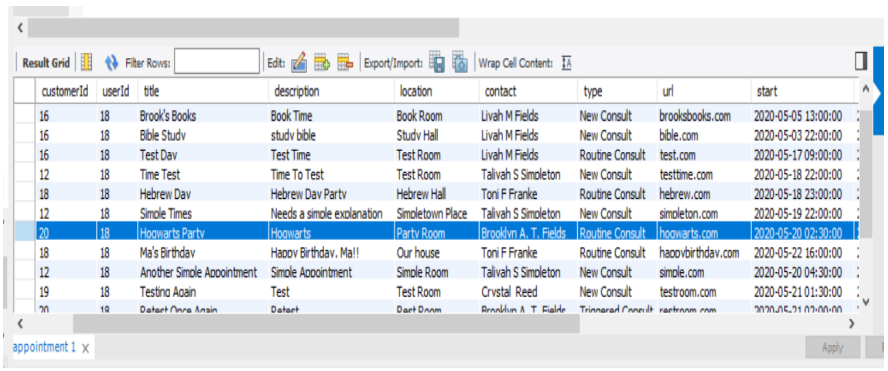


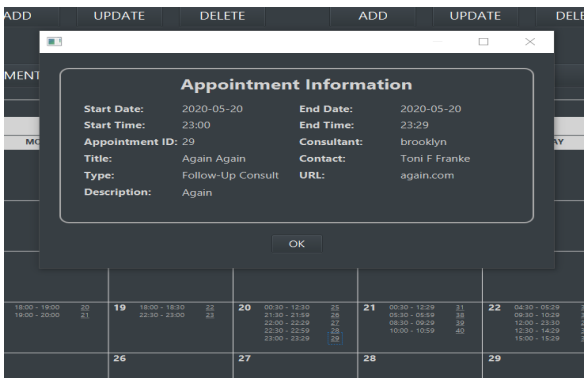




***Notes**: A toggle button at the bottom of the scheduler dashboard is used to alternate between a monthly calendar view and weekly calendar view. I designed both views to utilize arrows beneath each corner to alternate between each month in the monthly view or each week with the weekly view. **Please note that loading has been very slow for the dashboard views. Please be patient during the loading process.** Since putting the entire appointment information in small boxes isn't very feasible, I put only the appointment times and a hyperlink of the appointment ID. When clicking the hyperlink, an additional window is opened with the appointment details listed.*

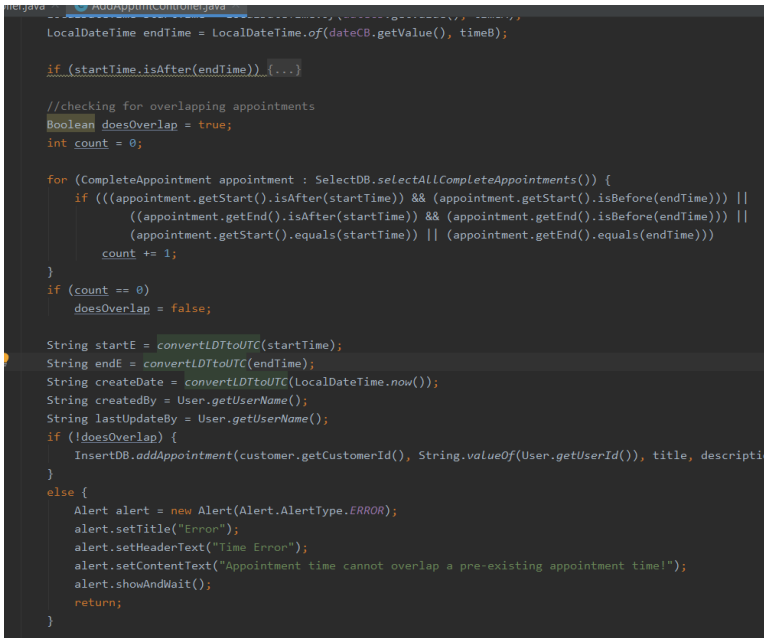
E. Provide the ability to automatically adjust appointment times based on user time zones and daylight saving time.



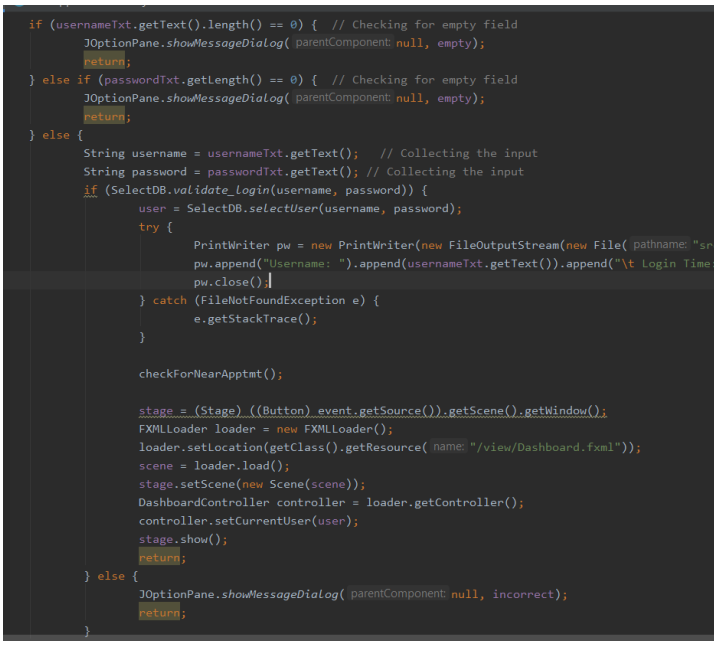


F. Write exception controls to prevent *each* of the following. You may use the same mechanism of exception control more than once, but you must incorporate *at least* **two** different mechanisms of exception control.

- scheduling an appointment outside business hours
- scheduling overlapping appointments
- entering nonexistent or invalid customer data
- entering an incorrect username and password



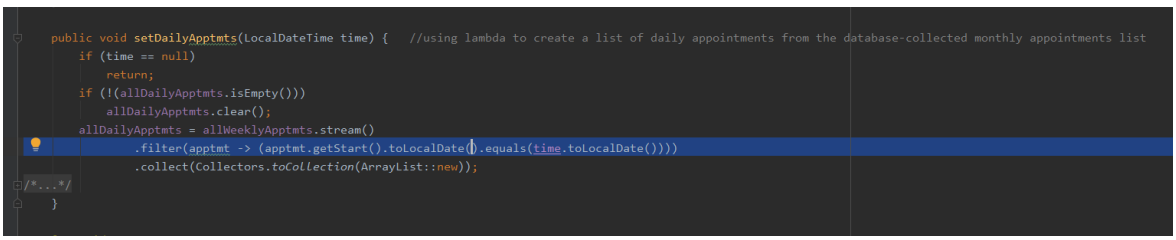
```
LocalDateTime endTime = LocalDateTime.of(dateCB.getValue(), timeB);

if (startTime.isAfter(endTime)) {...}

//checking for overlapping appointments
Boolean doesOverlap = true;
int count = 0;

for (CompleteAppointment appointment : SelectDB.selectAllCompleteAppointments()) {
    if (((appointment.getStart().isAfter(startTime)) && (appointment.getStart().isBefore(endTime))) ||
            ((appointment.getEnd().isAfter(startTime)) && (appointment.getEnd().isBefore(endTime))) ||
            (appointment.getStart().equals(startTime)) || (appointment.getEnd().equals(endTime)))
        count += 1;
}
if (count == 0)
    doesOverlap = false;

String startE = convertLDTtoUTC(startTime);
String endE = convertLDTtoUTC(endTime);
String createDate = convertLDTtoUTC(LocalDateTime.now());
String createdBy = User.getUserName();
String lastUpdateBy = User.getUserName();
if (!doesOverlap) {
    InsertDB.addAppointment(customer.getCustomerId(), String.valueOf(User.getUserId()), title, descripti
}
else {
    Alert alert = new Alert(Alert.AlertType.ERROR);
    alert.setTitle("Error");
    alert.setHeaderText("Time Error");
    alert.setContentText("Appointment time cannot overlap a pre-existing appointment time!");
    alert.showAndWait();
    return;
}
```



```
if (usernameTxt.getText().length() == 0) {  // Checking for empty field
        JOptionPane.showMessageDialog( parentComponent: null, empty);
        return;
} else if (passwordTxt.getLength() == 0) {  // Checking for empty field
        JOptionPane.showMessageDialog( parentComponent: null, empty);
        return;
} else {
        String username = usernameTxt.getText();   // Collecting the input
        String password = passwordTxt.getText(); // Collecting the input
        if (SelectDB.validate_login(username, password)) {
                user = SelectDB.selectUser(username, password);
                try {
                        PrintWriter pw = new PrintWriter(new FileOutputStream(new File( pathname: "sr
                        pw.append("Username: ").append(usernameTxt.getText()).append("\t Login Time
                        pw.close();
                } catch (FileNotFoundException e) {
                        e.getStackTrace();
                }

                checkForNearApptmt();

                stage = (Stage) ((Button) event.getSource()).getScene().getWindow();
                FXMLLoader loader = new FXMLLoader();
                loader.setLocation(getClass().getResource( name: "/view/Dashboard.fxml"));
                scene = loader.load();
                stage.setScene(new Scene(scene));
                DashboardController controller = loader.getController();
                controller.setCurrentUser(user);
                stage.show();
                return;
        } else {
                JOptionPane.showMessageDialog( parentComponent: null, incorrect);
                return;
        }
```

G. Write two or more lambda expressions to make your program more efficient, justifying the use of each lambda expression with an in-line comment.

```
private void checkForNearApptmt() throws SQLException {
    availApptmts = SelectDB.selectAllCompleteAppointments();

    LocalDateTime now = LocalDateTime.now().minusMinutes(1);
    LocalDateTime interval = now.plusMinutes(15);

    FilteredList<CompleteAppointment> filteredApptmts = new FilteredList<>(availApptmts);

    filteredApptmts.setPredicate(apptmt -> {      //using lambda expression to shorten previous code written that is used to detect an upcoming appointment within the next 15 minutes
            return apptmt.getStart().isAfter(now) && apptmt.getStart().isBefore(interval);
        }
    );
    if (!filteredApptmts.isEmpty()) {
        String contact =  filteredApptmts.get(0).getContact();
        String startTime = filteredApptmts.get(0).getStart().toLocalTime().toString();
        Alert alert = new Alert(Alert.AlertType.INFORMATION);
        alert.setTitle("Appointment Alert");
        alert.setHeaderText("");
        alert.setContentText("You have an appointment soon with " + contact + " at " + startTime + "! Please check your calendar for more information.");
        alert.showAndWait();
    }

}
```



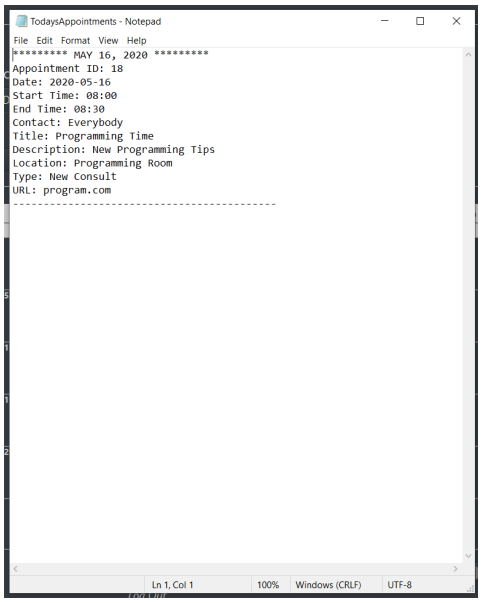
```
public void setDailyApptmts(LocalDateTime time) {   //using lambda to create a list of daily appointments from the database-collected monthly appointments list
    if (time == null)
        return;
    if (!(allDailyApptmts.isEmpty()))
        allDailyApptmts.clear();
    allDailyApptmts = allWeeklyApptmts.stream()
            .filter(apptmt -> (apptmt.getStart().toLocalDate().equals(time.toLocalDate())))
            .collect(Collectors.toCollection(ArrayList::new));
/*...*/
    }
```

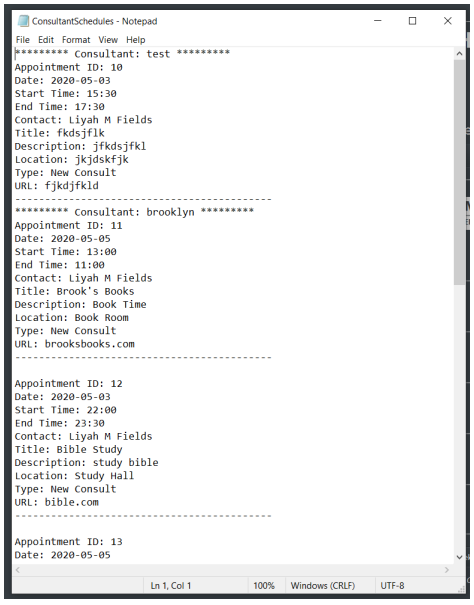
H. Write code to provide an alert if there is an appointment within 15 minutes of the user's log-in.

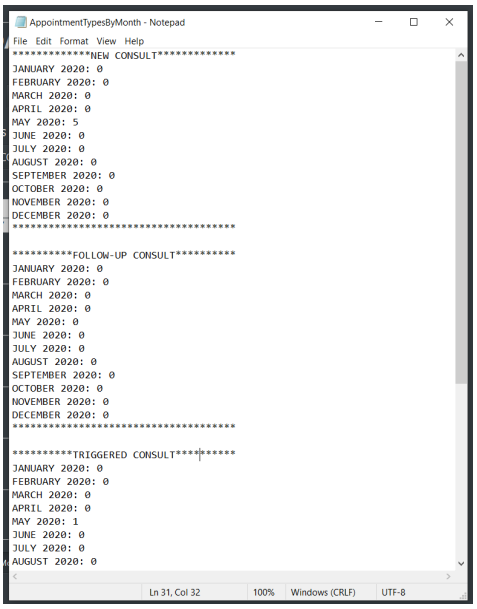
```
ObservableList<CompleteAppointment> availApptmts = FXCollections.observableArrayList();

private void checkForNearApptmt() throws SQLException {
    availApptmts = SelectDB.selectAllCompleteAppointments();

    LocalDateTime now = LocalDateTime.now().minusMinutes(1);
    LocalDateTime interval = now.plusMinutes(15);

    FilteredList<CompleteAppointment> filteredApptmts = new FilteredList<>(availApptmts);

    filteredApptmts.setPredicate(apptmt -> {      //using lambda expression to shorten previous code written that is used to detect an upcoming appointment within the next 15 minutes
            return apptmt.getStart().isAfter(now) && apptmt.getStart().isBefore(interval);
        }
    );
    if (!filteredApptmts.isEmpty()) {
        String contact =  filteredApptmts.get(0).getContact();
        String startTime = filteredApptmts.get(0).getStart().toLocalTime().toString();
        Alert alert = new Alert(Alert.AlertType.INFORMATION);
        alert.setTitle("Appointment Alert");
        alert.setHeaderText("");
        alert.setContentText("You have an appointment soon with " + contact + " at " + startTime + "! Please check your calendar for more information.");
        alert.showAndWait();
    }

}
```

I. Provide the ability to generate *each* of the following reports:

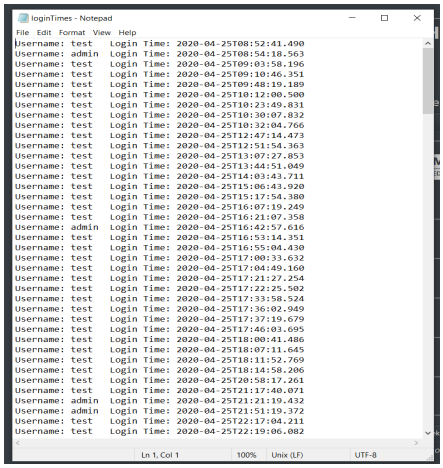
- number of appointment types by month
- the schedule for each consultant
- one additional report of your choice







J. Provide the ability to track user activity by recording timestamps for user log-ins in a .txt file. Each new record should be appended to the log file, if the file already exists.



K. Demonstrate professional communication in the content and presentation of your submission.