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 ITMD 411-01
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 Final Lab Project

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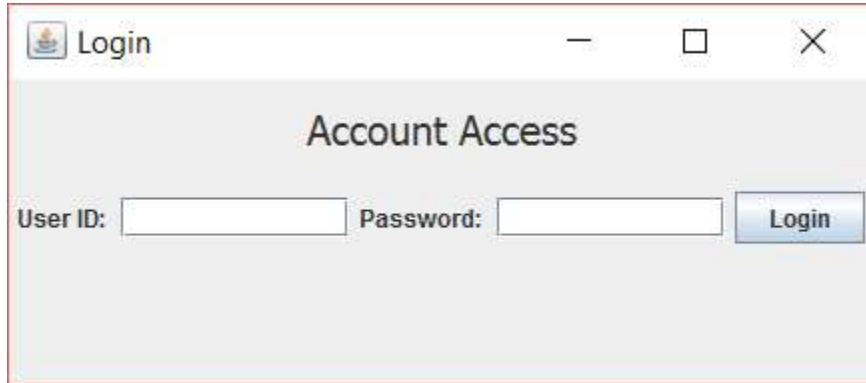
Help Desk Trouble Ticket System

The objective of this program was to create a trouble ticket system using CRUD techniques. Three tables were created to hold data: one is for login data, one is for all the information that goes into a trouble ticket, and the last one is for duration a ticket has been open for. Before doing anything in this program, you must first login with the correct information. The username is not case sensitive but the password is. Once you are logged in, you can use the menu items to decide what to do. Unless you logged in with an account with admin privileges, some menu items will be disabled. By using screenshots, I will guide you one step at a time at how this program works...

Logging In

First thing that pops up when you run the program...

Login Screen



The possible logins are in the csv file (I will also list it here to make it easier for the grader)

Possible Account #1 → username: tkang, password: hello1 (has admin privileges)

Possible Account #2 → username: 2ndcommand, password: howareyou2 (has admin privileges)

Possible Account #3 → username: worker1, password: good3 (no admin privileges)

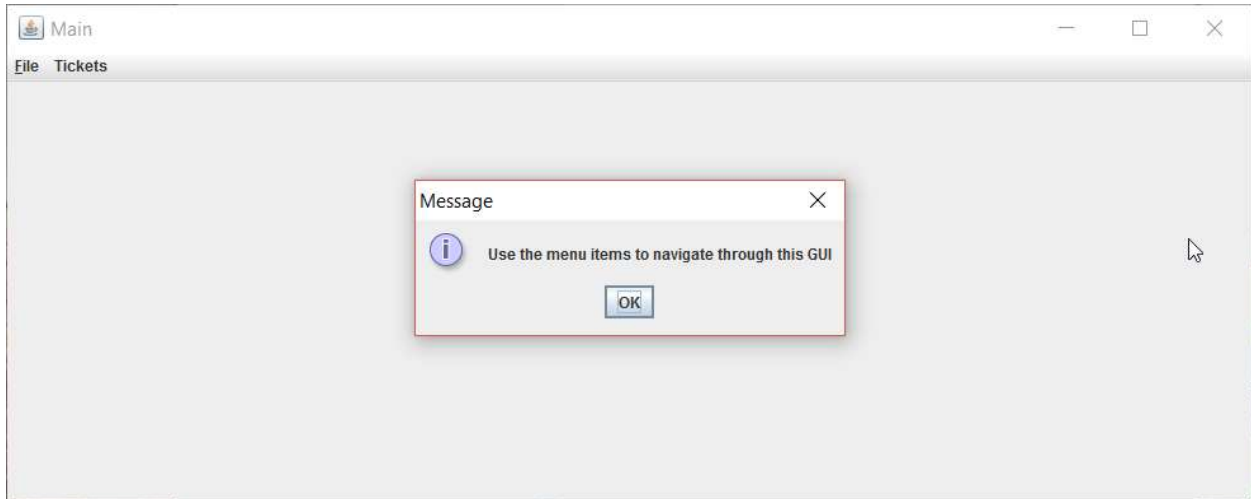
Possible Account #4 → username: worker2, password: bad4 (no admin privileges)

Possible Account #5 → username: worker3, password: soso5 (no admin privileges)

Possible Account #6 → username: randomperson, password: couldbebetter6 (no admin privileges)

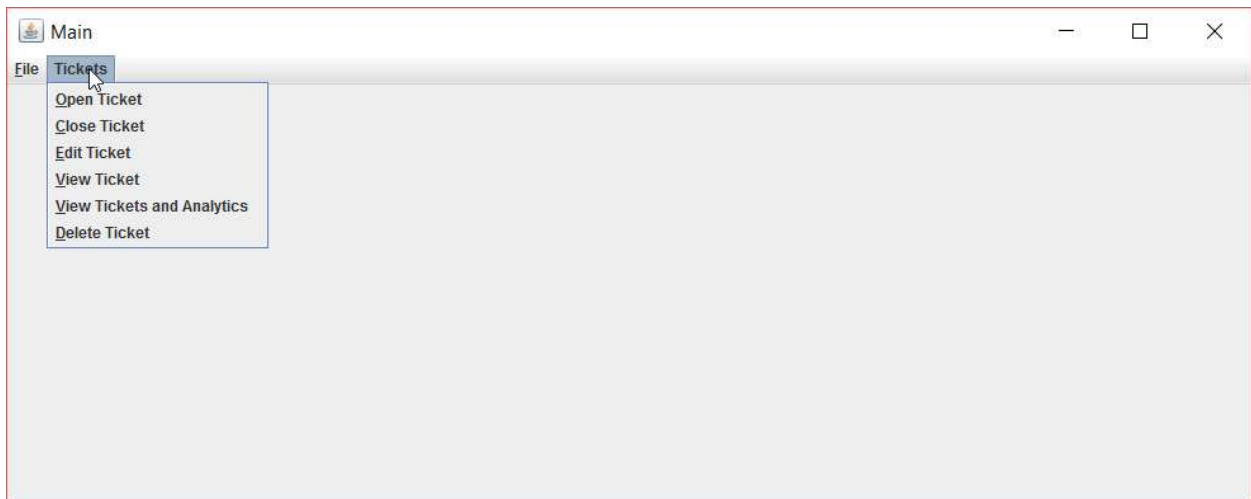
Navigation

Once you are logged in...

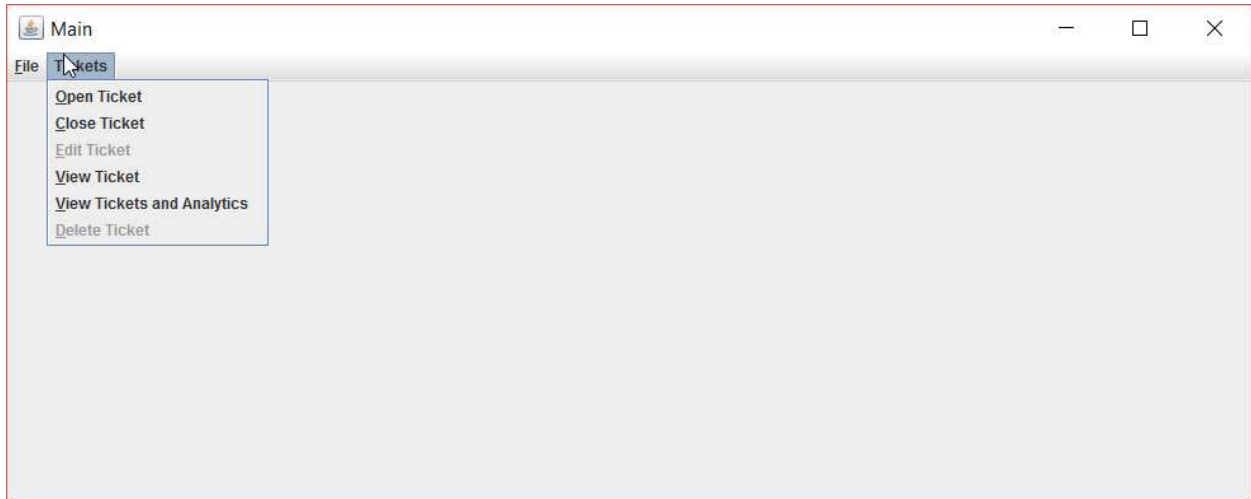


Now you can use the menu items navigate through the GUI...

If you are logged in as an account with admin privileges...



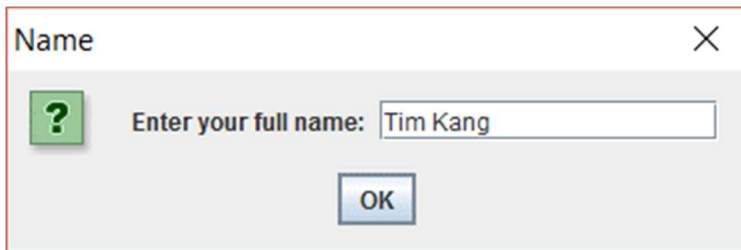
If you are logged in as an account without admin privileges... (Edit and Delete are disabled)



Opening a Ticket

Time to create a ticket...

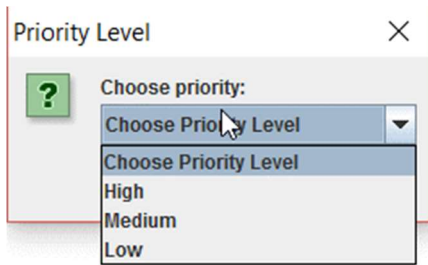
First put name...



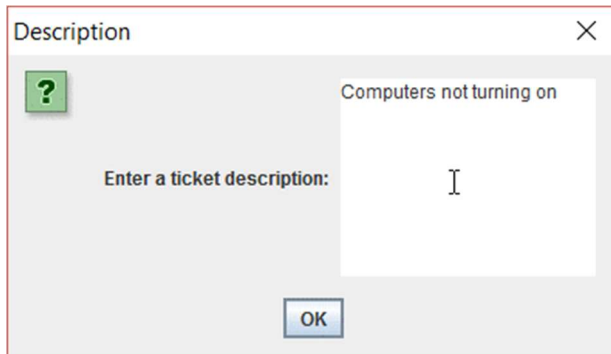
Choose priority...



The possible choices are...



Next enter ticket description...



If everything was inputted correctly (if nothing was left blank or user didn't "x" out halfway through)...



Viewing Tickets or Specific Ticket

Go to menu item View Tickets and Analytics to see new ticket... (Side note: depending on what account you are logged in as, the userID and username will change accordingly)


Viewing Tickets (Press OK to display Analytics in Console) ✕

ticket_id	user_id	username	name	openDateA...	closeDateA...	priority	ticket_desc...
1	ID101	tkang	Tim Kang	2017-04-2...		High	Computers...

If you wish to see a list of all data fields without it being covered, go to menu item View


Ticket and enter ticket id #... (since data fields are pretty small)

View ✕

 Which specific ticket would you like to view? (Please input the ticket_id):

This will pop up...

Message ✕

 Viewing Ticket#1

User ID: ID101
 Username: tkang
 Name: Tim Kang
 Open Date and Time: 2017-04-29 19:51:10.0
 Close Date and Time: Not Closed Yet
 Priority: High
 Description: Computers not turning on

Now I will create 4 more tickets and show what happens when you view all the tickets...

Viewing Tickets (Press OK to display Analytics in Console) ✕

ticket_id	user_id	username	name	openDateA...	closeDateA...	priority	ticket_desc...
1	ID101	tkang	Tim Kang	2017-04-2...		High	Computers...
4	ID101	tkang	Tim Tim	2017-04-2...		High	Weird sou...
5	ID101	tkang	Timothy K	2017-04-2...		High	no electricit...
3	ID101	tkang	Tim Kanga...	2017-04-2...		Medium	Computers...
2	ID101	tkang	Tim Kim	2017-04-2...		Low	ethernet ca...


As you can see, it is ordered by priority and all closeDateAndTimes are empty since these tickets are still all open.

Close Ticket

Obviously, once a problem has been resolved, you must close a ticket. I will close ticket id

4...

Close ✕

 Which ticket would you like to close? (Please input the ticket_id):

Message ✕

 Ticket ID#4 has been closed

Time to check whether or not it is truly closed...

Viewing Tickets (Press OK to display Analytics in Console) ✕

ticket_id	user_id	username	name	openDateA...	closeDateA...	priority	ticket_desc...
1	ID101	tkang	Tim Kang	2017-04-2...		High	Computers...
4	ID101	tkang	Tim Tim	2017-04-2...	2017-04-2...	High	Weird sou...
5	ID101	tkang	Timothy K	2017-04-2...		High	no electricit...
3	ID101	tkang	Tim Kanga...	2017-04-2...		Medium	Computers...
2	ID101	tkang	Tim Kim	2017-04-2...		Low	ethernet ca...

OK

(A date and time has been added to ticket id 4 since it is closed)

Update a Ticket

Now the question is... what if the user wants to update/edit a trouble ticket? Simple, just click menu item Edit Ticket... I will update ticketID 1 this time and change only the ticket description...

Edit ✕

? Which ticket would you like to edit? (Please input the ticket_id):

OK

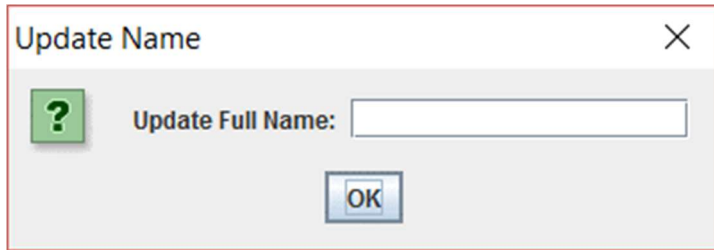
This will pop up...

Message ✕

i Enter values you wish to change (Leave blank if you do not want to update that field)

OK

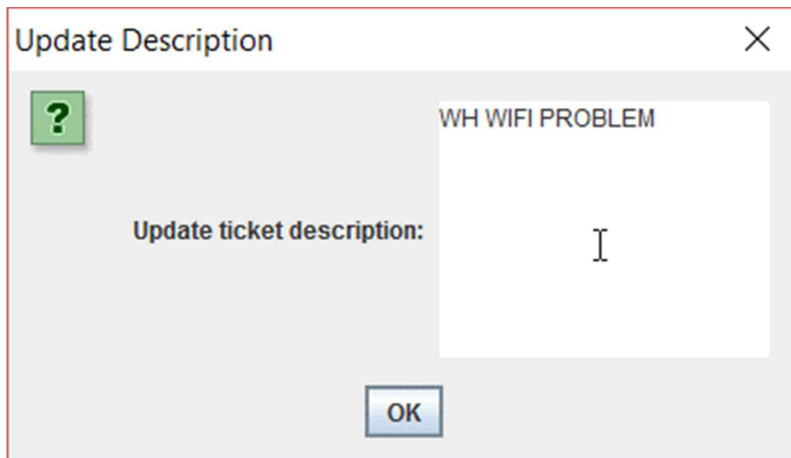
Since I only need to change ticket description, I will leave this blank...



Will also leave this as it is and press ok...



Finally the description part...



This will come out...




Confirm using view tickets to make sure it has been updated...

Viewing Tickets (Press OK to display Analytics in Console) ✕

ticket_id	user_id	username	name	openDateA...	closeDateA...	priority	ticket_desc...
1	ID101	tkang	Tim Kang	2017-04-2...		High	WH WIFI P...
4	ID101	tkang	Tim Tim	2017-04-2...	2017-04-2...	High	Weird sou...
5	ID101	tkang	Timothy K	2017-04-2...		High	no electricit...
3	ID101	tkang	Tim Kanga...	2017-04-2...		Medium	Computers...
2	ID101	tkang	Tim Kim	2017-04-2...		Low	ethernet ca...

Just to make sure, view as individual ticket...

Message ✕

 Viewing Ticket#1

User ID: ID101
 Username: tkang
 Name: Tim Kang
 Open Date and Time: 2017-04-29 19:03:42.0
 Close Date and Time: Not Closed
 Priority: High
 Description: WH WIFI PROBLEM

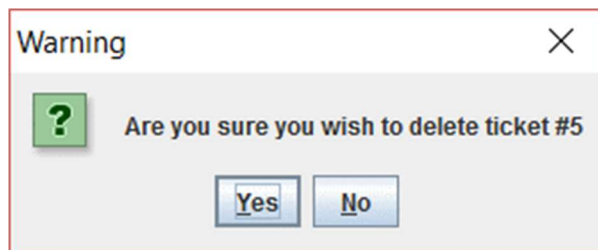
Delete a Ticket

Time to delete a ticket... I will delete ticket id 5...

Delete ✕

 Which row would you like to delete? (Please input the ticket_id):

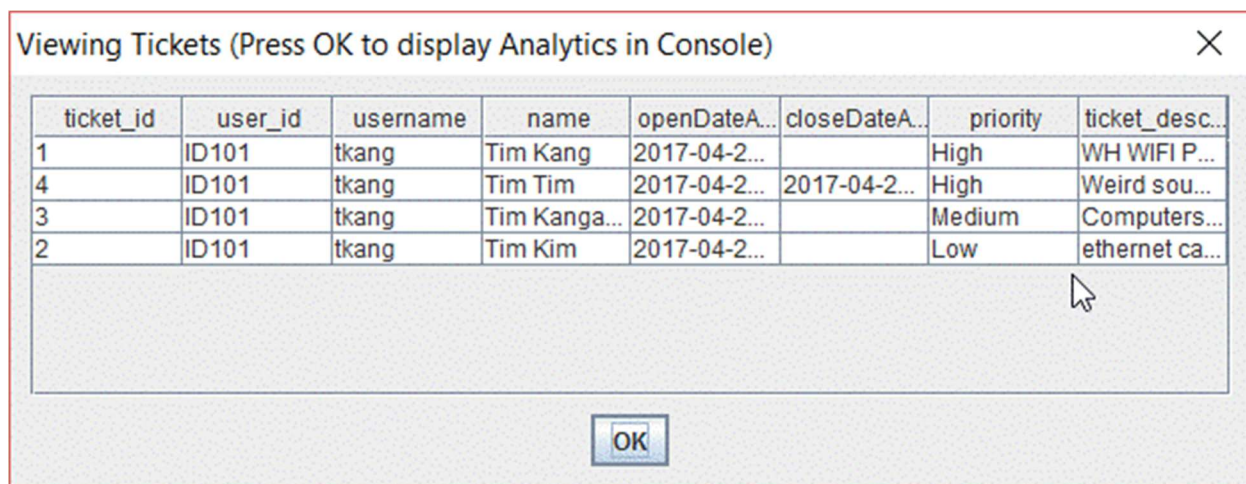
You will receive this warning...



If you press yes...



Check view tickets to make sure it is deleted...



I will now open 2 more high priority tickets since the table is pretty lacking and then show analytics...

Viewing Tickets (Press OK to display Analytics in Console) X

ticket_id	user_id	username	name	openDateA...	closeDateA...	priority	ticket_desc...
1	ID101	tkang	Tim Kang	2017-04-2...		High	WH WIFI P...
4	ID101	tkang	Tim Tim	2017-04-2...	2017-04-2...	High	Weird sou...
6	ID101	tkang	Tim Kimchi	2017-04-2...		High	Computer ...
7	ID101	tkang	Tim K	2017-04-2...		High	Blue Scree...
3	ID101	tkang	Tim Kanga...	2017-04-2...		Medium	Computers...
2	ID101	tkang	Tim Kim	2017-04-2...		Low	ethernet ca...

Analytics

If you press ok, a report of information will display on console...

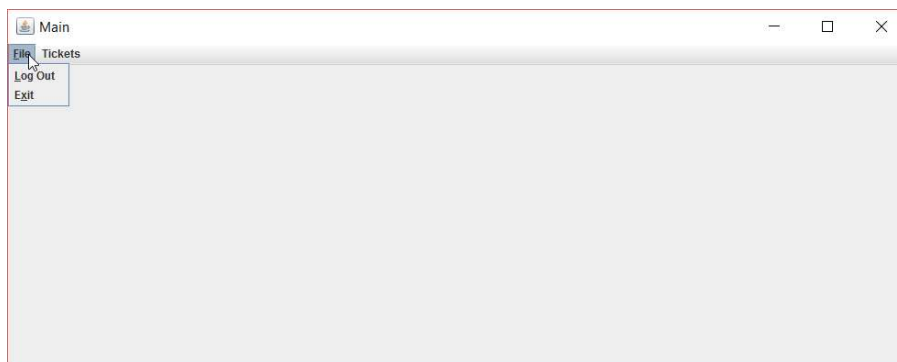
It will display duration of all open tickets, ratio of closed tickets to open tickets, and tickets that are high priority and open...

```

@ Javadoc Problems Declaration Console
tkang_finalLab [Java Application] C:\Program Files\Java\jre1.8.0_101\bin\javaw.exe (Apr 29, 2017, 8:09:39 PM)
Inserts completed in the given database...
Table 'tkangticket0' already exists
Table 'tkanganalytics5' already exists
Duration of Opened Ticket#1: 0 days, 1 hours, 6 minutes, 20 seconds.
Duration of Opened Ticket#2: 0 days, 0 hours, 17 minutes, 48 seconds.
Duration of Opened Ticket#3: 0 days, 0 hours, 17 minutes, 6 seconds.
Duration of Opened Ticket#6: 0 days, 0 hours, 1 minutes, 30 seconds.
Duration of Opened Ticket#7: 0 days, 0 hours, 1 minutes, 5 seconds.
High Priority Open Tickets...
Ticket#1
Ticket#6
Ticket#7
Ratio of Closed Tickets to Open Tickets--> 1:5
  
```

Log Out or Exit

If you want to log in as a different user or exit...



Database Tables

A few screenshots of database table...

Login Table...

+ Options		Autold	user_name	user_password
<input type="checkbox"/>	Edit Copy Delete	121	tkang	hello1
<input type="checkbox"/>	Edit Copy Delete	122	2ndcommand	howareyou2
<input type="checkbox"/>	Edit Copy Delete	123	worker1	good3
<input type="checkbox"/>	Edit Copy Delete	124	worker2	bad4
<input type="checkbox"/>	Edit Copy Delete	125	worker3	soso5
<input type="checkbox"/>	Edit Copy Delete	126	randomperson	couldbeter6

Tickets Table...

+ Options		ticket_id	user_id	username	name	openDateAndTime	closeDateAndTime	priority	ticket_description
<input type="checkbox"/>	Edit Copy Delete	1	ID101	tkang	Tim Kang	2017-04-29 19:03:42		NULL High	WH WIFI PROBLEM
<input type="checkbox"/>	Edit Copy Delete	2	ID101	tkang	Tim Kim	2017-04-29 19:52:14		NULL Low	ethernet cables broken
<input type="checkbox"/>	Edit Copy Delete	3	ID101	tkang	Tim Kangaroo	2017-04-29 19:52:56		NULL Medium	Computers have a malware
<input type="checkbox"/>	Edit Copy Delete	4	ID101	tkang	Tim Tim	2017-04-29 18:54:30	2017-04-29 19:54:24	High	Weird sounds coming from computer
<input type="checkbox"/>	Edit Copy Delete	6	ID101	tkang	Tim Kimchi	2017-04-29 20:08:32		NULL High	Computer Memory Problem
<input type="checkbox"/>	Edit Copy Delete	7	ID101	tkang	Tim K	2017-04-29 20:08:57		NULL High	Blue Screen of Death on every computer

Analytics Table...

+ Options		Autold	ticket_id	ticketDuration	ticket_description
<input type="checkbox"/>	Edit Copy Delete	84	1	0 days, 1 hours, 6 minutes, 20 seconds.	WH WIFI PROBLEM
<input type="checkbox"/>	Edit Copy Delete	85	2	0 days, 0 hours, 17 minutes, 48 seconds.	ethernet cables broken
<input type="checkbox"/>	Edit Copy Delete	86	3	0 days, 0 hours, 17 minutes, 6 seconds.	Computers have a malware
<input type="checkbox"/>	Edit Copy Delete	87	6	0 days, 0 hours, 1 minutes, 30 seconds.	Computer Memory Problem
<input type="checkbox"/>	Edit Copy Delete	88	7	0 days, 0 hours, 1 minutes, 5 seconds.	Blue Screen of Death on every computer

EXTRA CREDIT

1. **Outstanding GUI** → you can see throughout the screenshots above that I incorporated menus, jpanels with textfields, textareas, buttons, and even a drop down menu for priority.

2. **Relational Table Designs**→ if you look at the screenshot of ticket table and analytics table, you can see that the ticket_id and ticket_description are the same which allow me to easily compare between tables despite having other completely different fields.

3. **Prepared Statements**→ (2 times in this lab)

1.

```
String insertTableSQL = "Insert into tkangTicket8"
    + "(user_id, username, name, openDateAndTime, priority, ticket_description) values"
    + "(?, ?, ?, ?, ?, ?)"; //making use of prepared statements
PreparedStatement preparedStatement = dbConn.prepareStatement(insertTableSQL);
preparedStatement.setString(1, userID);
preparedStatement.setString(2, user);
preparedStatement.setString(3, str3);
preparedStatement.setTimestamp(4, timestamp);
preparedStatement.setString(5, input);
preparedStatement.setString(6, str4);
int result = preparedStatement.executeUpdate();
if (result != 0) {
    System.out.println("Ticket Created Successfully!!!");
}
else {
    System.out.println("Ticket cannot be Created!!!");
}
JOptionPane.showMessageDialog(null, "Ticket ID: Created"); //display dialog box once everything is inputted prop
System.out.println("Ticket has been created."); //output on console
preparedStatement.close(); //close prepared statement
```

2.

```
String sql = "INSERT INTO tkangAnalytics5(ticket_id, ticketDuration, ticket_description) values( ?, ?, ?)";
PreparedStatement pstmt2 = dbConn.prepareStatement(sql); //prepared statement
ResultSet results2 = statement2.executeQuery("SELECT ticket_id, openDateAndTime, closeDateAndTime, ticket_description FROM tkangTicket8");
int openCounter= 0; //initialize counters
int closeCounter= 0;
while (results2.next()) //since we'll need multiple rows
{
    String ticketId = results2.getString("ticket_id"); //convert to string
    String descrip = results2.getString("ticket_description");

    Timestamp dateStart = results2.getTimestamp("openDateAndTime"); //declare timestamp variable based on data from database
    Timestamp dateClose = results2.getTimestamp("closeDateAndTime"); //use to compare

    if (dateClose == null) //if it hasn't been closed yet
    {
        openCounter = openCounter+ 1; //increase counter by one
    }

    Calendar cal = Calendar.getInstance();
    Timestamp dateNow = new Timestamp(cal.getTimeInMillis()); //current time

    long diff = dateNow.getTime()-dateStart.getTime(); //formula for finding difference between now and open date
    long diffSeconds = diff / 1000 % 60;
    long diffMinutes = diff / (60 * 1000) % 60;
    long diffHours = diff / (60 * 60 * 1000) % 24;
    long diffDays = diff / (24 * 60 * 60 * 1000);

    String output= diffDays + " days, " + diffHours + " hours, " + diffMinutes + " minutes, " + diffSeconds + " seconds.";
    System.out.print("Duration of Opened Ticket#" + ticketId + ": " + diffDays + " days, "); //output in console
    System.out.print(diffHours + " hours, ");
    System.out.print(diffMinutes + " minutes, ");
    System.out.print(diffSeconds + " seconds. \n");
    pstmt2.setString(1, ticketId); //put in 3rd table (analytics)
    pstmt2.setString(2, output);
    pstmt2.setString(3, descrip);
    pstmt2.executeUpdate();
}
```