**ITOM 6265 Database Management**

**Assignment 1**

**Instructions**

1. Every individual should submit their own work in Canvas. This is an individual assignment. **No collaboration with other students is allowed**. If you have any questions reach out to the instructor or TA.
2. You are allowed and encouraged to use LLM (ChatGPT) for help with coding.
3. Your goal is to develop a shiny app that behaves like this app: <https://appresearch.shinyapps.io/04_shiny_HW1_solution_LLM/> . After developing this in your laptop’s R Studio environment, you have to deploy it in shinyapps.io.
4. Make sure you submit the following
   1. URL of your app deployed in shinyapps.io
   2. An updated version of the “shiny\_dashboard\_LLM\_template.R” file that contains ALL the code for your shiny app.
   3. One SQL file that has ALL the SQL commands used for this assignment. In the SQL file put comments indicating the question number before every query. In case you develop more than one SQL for one question, put a comment ( “-- START Q1 \*\*\*\*\*\*\*\*\*\*\*” until end of line). This will help you to visually differentiate between sections meant for each question.
   4. Save this word document with the name “<<last name>>\_<<first name>>\_HW1.docx” and write down your response to each question. For each response, I need to see
      1. Replace the screenshots in this document with a screenshot of the app running from the cloud. We will verify the app deployment by visiting your app’s URL and your screenshots presented in this document.
      2. A screenshot of SQL used for answering the question and results shown in My SQL Workbench.
      3. Brief explanation of your approach used for building the SQL. (~2 or 3 sentences)

Datasets and files used:

* Unzip the 03\_shiny\_HW1.zip file into the base directory of your RStudio project. This contains
  + shiny\_dashboard\_LLM\_template.R - starter code
* Database: zomato
* Table name : zomato\_rest\_char
* This database is available in MySQL running in AWS cloud. I have already coded the connection string in R. You can use the host, port, user, and password to connect to the database via your local MySQL workbench to work on this homework assignment.

dbConnector1 <- DBI::dbConnect(RMariaDB::MariaDB(),

host = "itom6265-db.c1e6oi6e06on.us-east-2.rds.amazonaws.com",

port = 3306,

dbname = "zomato",

user = "root",

password = "mysql\_local\_pass")

You need to develop this app using shinydashboard[[1]](#footnote-1)library to get a dashboardHeader, dashboardSidebar, and three menuItems on the sidebar. I have developed a starter code “shiny\_dashboard\_LLM\_template.R” with this basic template built in. Just launching this app as-is will give you a basic dashboard framework without any contents for the three tabs. All you have to do is to code the pages for the three tabs as per instructions given for each tab!

Note that 10% of grade will be assigned based on how you customize/enhance this app in each of the following way:

1. Color scheme, font and styling
2. Layout of input/output elements in ‘**Q1-DB Query ‘ and** ‘**Q2-Maps tab’.**
3. In question ‘**Q2-Maps tab’** use a different type of background map instead of the default map shown in the screenshot

Questions:

1. **“HW Summary” tab**: When this tab is clicked, show a header and a paragraph as shown in the screenshot. Update the header with your name. In the next line, briefly describe the approaches taken by you for creating this shiny app. i.e. what color scheme, styling, customization etc. did you do to enhance this app?

A screenshot of a computer

Description automatically generated

1. **Q1-DB Query tab:** When this tab is clicked, show **two inputs** that will be used for running a SELECT query on the table zomato\_rest. You will need to take two user inputs. One for collecting the pattern of name that should match the column ‘name’. The other for getting the minimum and maximum value of votes that should match the column ‘votes’. When the button “Get results” is clicked, you should display the results of the query below the message “This is your search result:”

The screenshot shows a search with no restrictions for name **AND** votes ranging from 0 to 1000. Note that the results may vary based on the actual content of the table. You would need to develop the options for the slider that allows you to get search for any records in the source table. You can check your work by running the same SQL query via MySQL Workbench directly. If the first input (pattern of name) is left blank, then that condition should be ignored. i.e., search should be made only with the range of votes.

A screenshot of a computer

Description automatically generated

**Q1-DB Query tab:**

1. **Q2-Maps tab:** When this tab is clicked, show a button “Display map!” with a text caption “Map of ….” as shown in the screenshot below.

A screenshot of a map

Description automatically generated

When the button “Display map!” is clicked, show all the locations in the zomato\_rest table using a leaflet map with a teardrop marker for each location. When the teardrop is clicked, show the name of the restaurant. The SQL query developed for this tab should filter out all the non-NULL values of lat/long. i.e. only the non-NULL restaurant locations should be displayed in the map

1. **ChatGPT Clone:** This tab has already been coded for you. I would like you to complete the following:
   1. Create an API key (see - <https://platform.openai.com/api-keys>). Note that this is NOT free, but the cost is very low. Keep the key a secret and just use it sparingly.
   2. Study the code and write a description of the flow of logic. How are you able to interact with ChatGPT from the Shiny app? I hope that you can learn from this example and integrate the ChatGPT calls with your project.
   3. Give a screenshot of your shiny app that shows proof that you have setup your API key and interacting with ChatGPT with some sample prompts.
2. **Deploy in shinyapps.io** : Create a free account in <https://www.shinyapps.io/> . See the documentation @ <https://docs.rstudio.com/shinyapps.io/getting-started.html#installation> for detailed instructions on how to deploy your application. Once deployed, give the URL of your application in this word document. **We will be running your app directly in the server to grade your questions.** If you don’t deploy your app, then I will look at your Shiny R code for grading. However, you won’t get more than 50% of the grade.

Also, please provide screenshot of the deployed app in your submission doc. That way, even if the cloud app is down, I can look at the screenshots to verify your work. The screenshots should show the URL from which your app is running (just like the screenshots shows in this doc)

**URL of your deployed app**: <https://balajimurugadoss.shinyapps.io/Balaji_murugadoss_HW1/> A screenshot of a chat

Description automatically generated

1. https://rstudio.github.io/shinydashboard/index.html [↑](#footnote-ref-1)