Interview Coding Project

Introduction

The objective of this mini project is to assess your current skill set through demonstration on a "real-life" task previously fulfilled by a team member. **While there is no "correct" answer, it is the design, structure, workflow, implementation, and known areas of improvement, that is of interest.**

While it is encouraged to use resources, such as stackoverflow and google, to simply "copy-and-paste" the suggestions are generally not good practice and defeats the purpose of this exercise.

It is expected to spend around 8 to 24 working hours to complete this project. Please make sure to submit the project, at the minimum, **48 hours prior to the live interview**, to ensure the interviewer has adequate time to review the project. Following, will be a live interview where we will review the project you have submitted.

Task

You will be creating a simple EDA data visualization 'ggplot2' tool using R and RShiny. The task has been split into following sections.

1. Create an input section to upload/accept data from the user. Accepted data file can be in 'csv' format only.
2. Read the data and show a popup displaying the following sections –
    a. data read in a datatable.
    b. Display the structure, summary, and classes information below the datatable.
    c. Click on a button to accept the 'Data Upload'.
3. Reserve UI space(s) to display the rendered plot(s) in the app.
4. Add a condition check (checkboxes) to show either **univariate distribution** or **bi-variate distribution** or both; from the user for the data uploaded.
    a. Univariate distribution plots = bar plot (categorical x), density plot (continuous x)
    b. Bivariate distribution plots = point plot / scatter plot (continuous x, continuous y only)
5. Based on checkbox inputs above, do the following actions -
    a. If user selection = 'univariate distribution', insert UI, to accept (drop down) the column of interest (input value) for EDA.
    b. If user selection = 'bi-variate distribution', insert UI, to accept (drop down) 'x variable' and 'y variable' input values to map for EDA.
6. Based on above inputs for both sections, display either one or two plots on the app.
    a. One, ggplot2 output for univariate distribution – based on 'x' variable input selection.
    b. Second, ggplot2 output for bivariate distribution – based on 'x' variable and 'y' variable input selections.

Development Notes

- You are free to design the application as you see fit in terms of UI, server infrastructure and the logic to execute the task list items.
- Feel free to replace/use any other UI input widgets than suggested above to achieve the final output desired (i.e., univariate, and bi-variate EDA plots)
- Efficient code practices to expand app's functionality for future is desired, though, not necessary for the live-interview discussion.

Submission

To submit the application:

1. Create a readme file which includes your name, a list of dependencies (e.g., R packages, R version), and setup instructions.
2. zip the project, which includes the readme file.
3. Email the zipped directory to the interviewer.

Resources

- https://rstudio.cloud/ — free (limited) RStudio Server
- https://shiny.rstudio.com/ — shiny r package landing page
- ggplot2 cheat sheet for visualization.