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2020-02461
CMSC 150 B-1L

Introduction

This is the user guide created for navigating and operating the *web application* for CMSC 150 Exercise 10. Included here are the contents of the zip file, system requirements, and step-by-step tutorial on how to launch and operate the application. Thank you for checking the app!

Contents

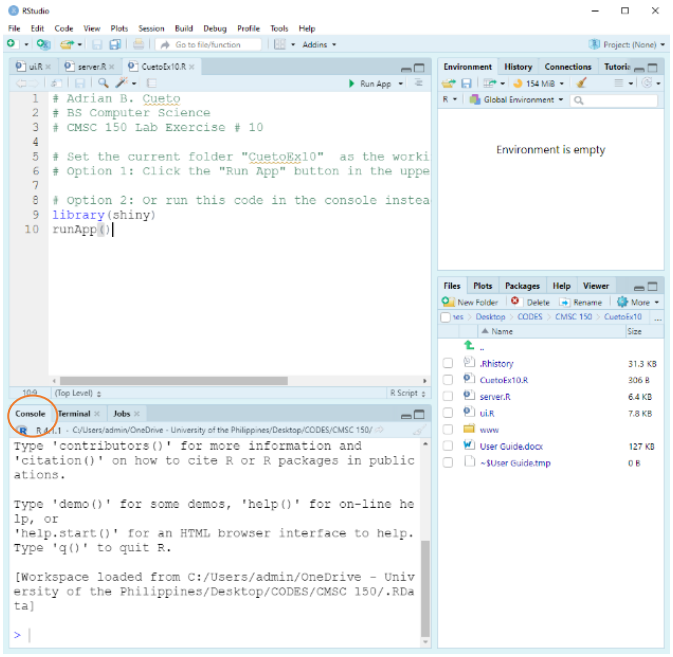
The zip file or folder named *CuetoEx10* should contain these following files for the program to work correctly:

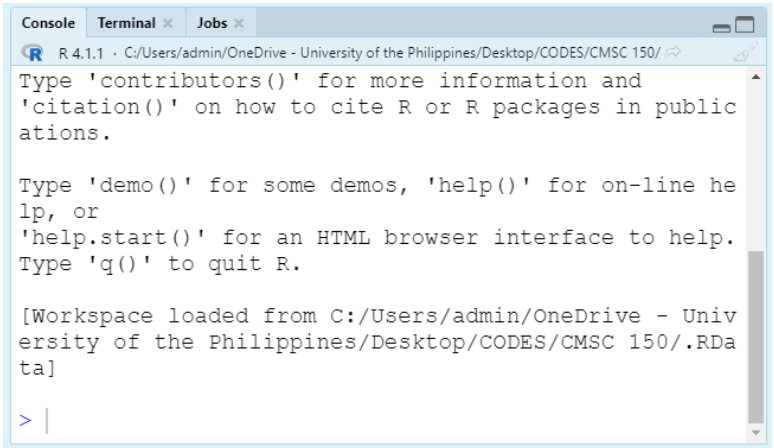
- CuetoEx10.R
- server.R
- ui.R
- README.txt
- User Guide.pdf
- Folder named *www* that includes these following files:
    - CuetoEx08.R
    - CuetoEx09.R
    - navbar.png
    - qsi.png
    - simplex.png

System Requirements and Installation of Programs

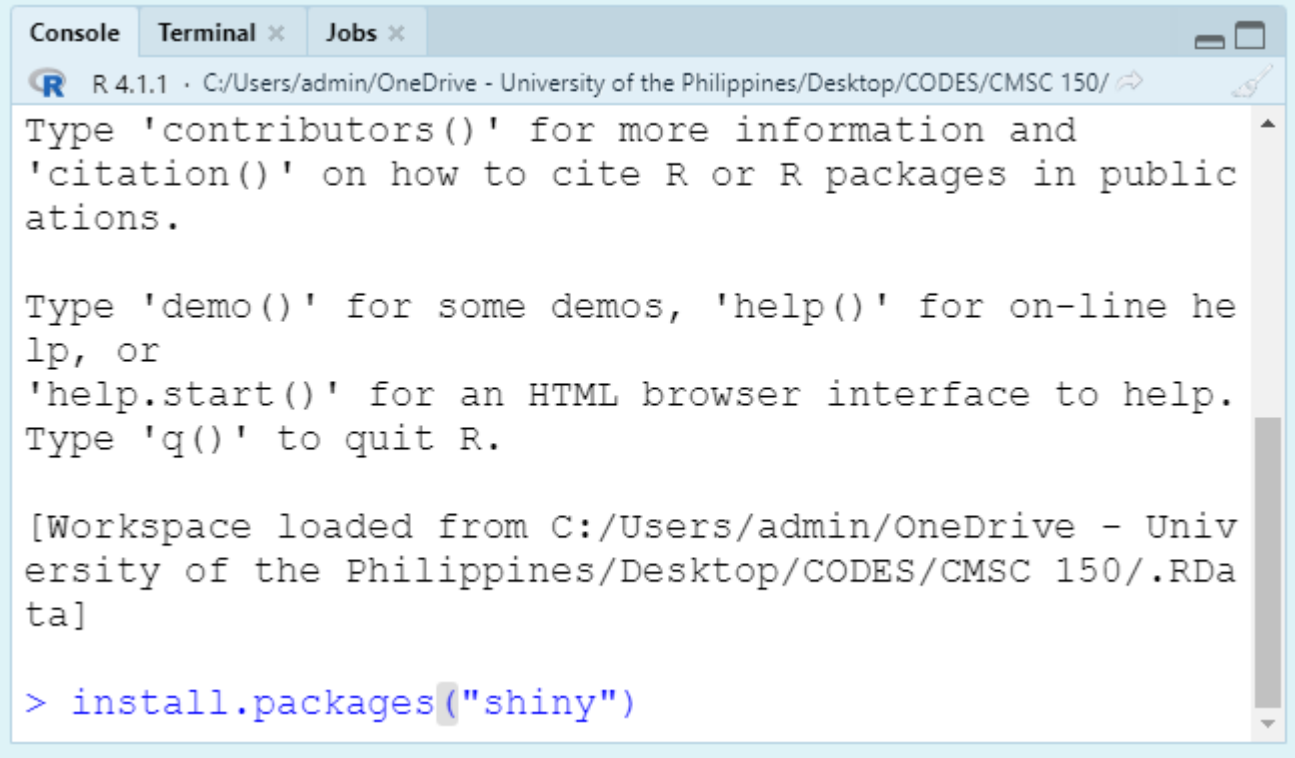
These ff. programs are needed to run the *web-app* properly:

- R and RStudio – these are the programming language and IDE used to run the application
    - Download R from CRAN (The comprehensive R Archive Network). Select the link appropriate for your operating system). Link: https://cran.r-project.org/
    - Download RStudio from the RStudio Website. Select the free open-source Desktop Version. Link: https://rstudio.com/products/rstudio/download/
- R Shiny (Install R and RStudio first) – this is the package used to integrate the R scripts into a working *web app*
    - Step 1: Open RStudio, then look for the *Console* window on the bottom left corner of the window

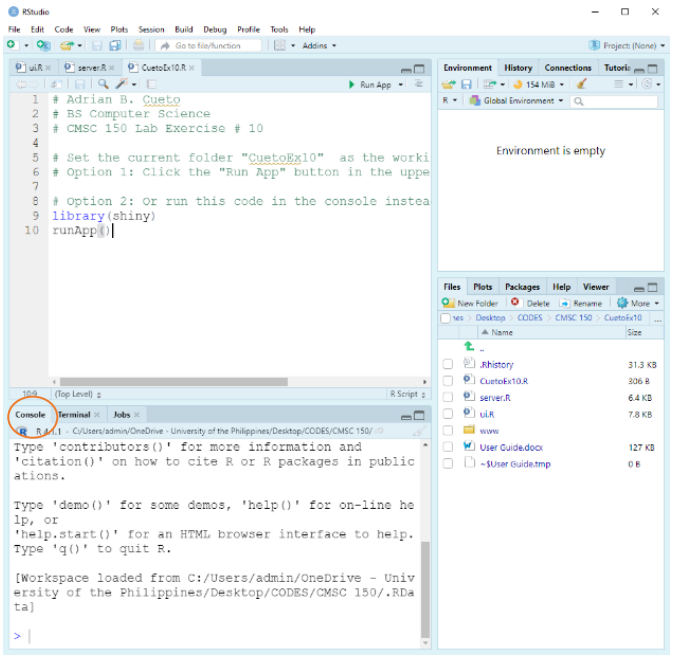




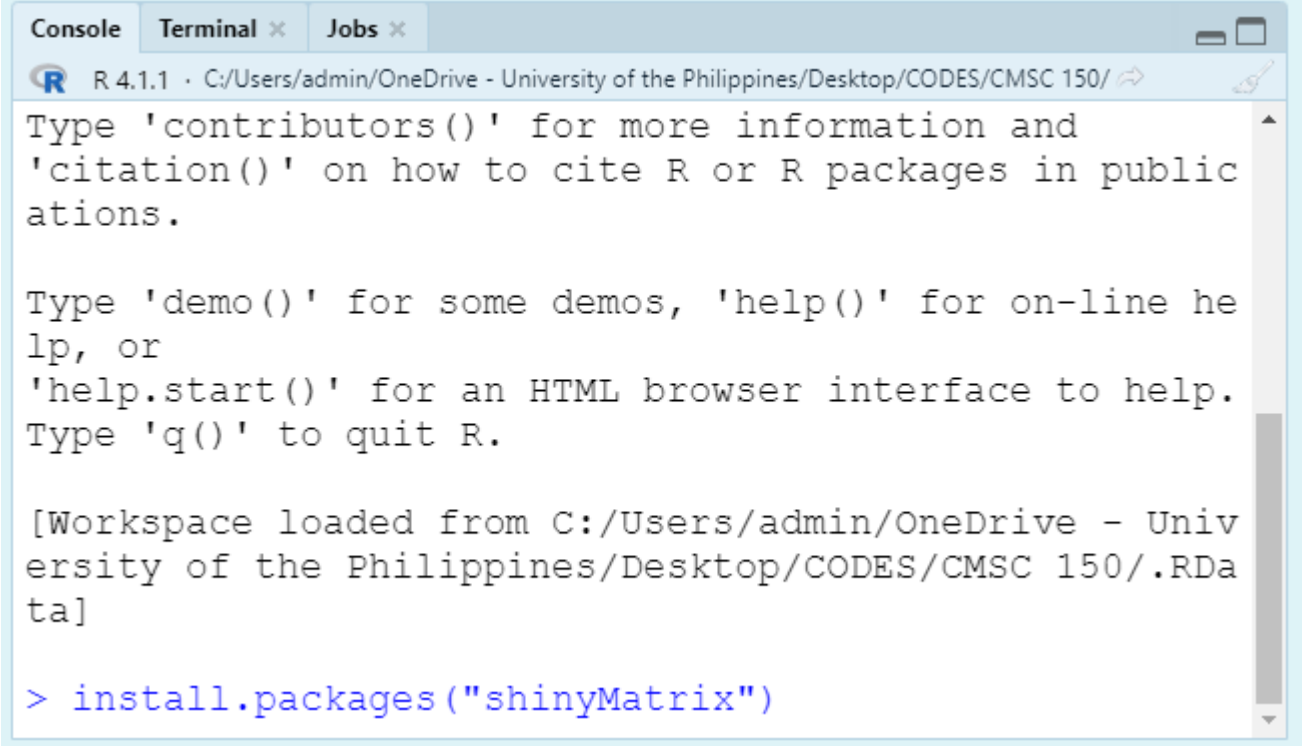
- Step 2: Enter the code `install.packages("shiny")` in the console to install R Shiny



- R Shiny Matrix (shinyMatrix)
  - Step 1: Open RStudio, then look for the *Console* window on the bottom left window of the IDE



- Step 2: Input the code `install.packages("shinyMatrix")` in the console to install R Shiny Matrix

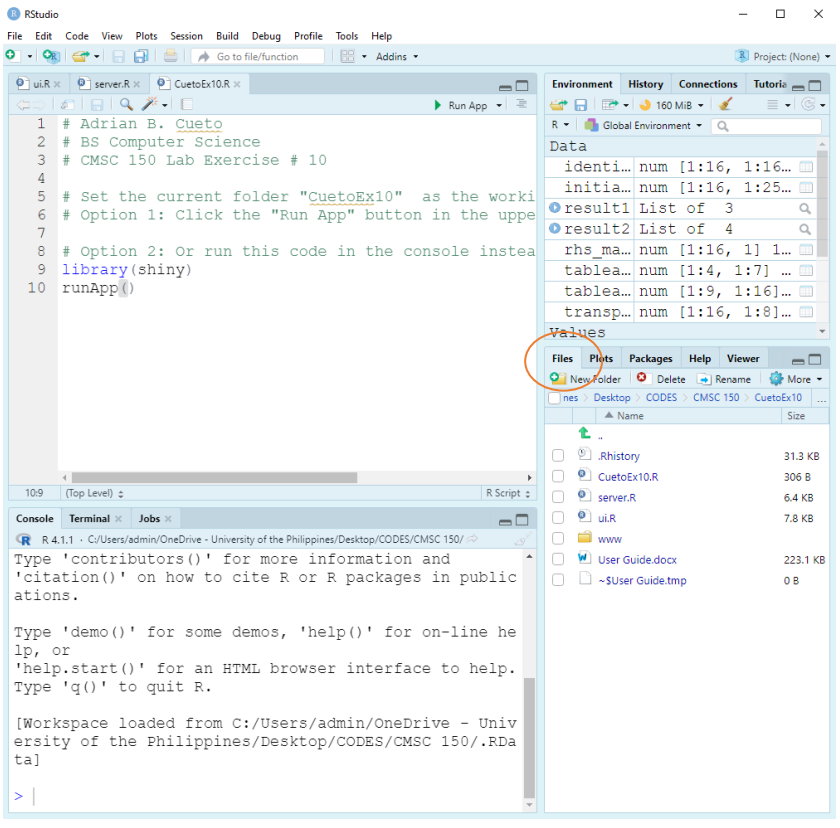


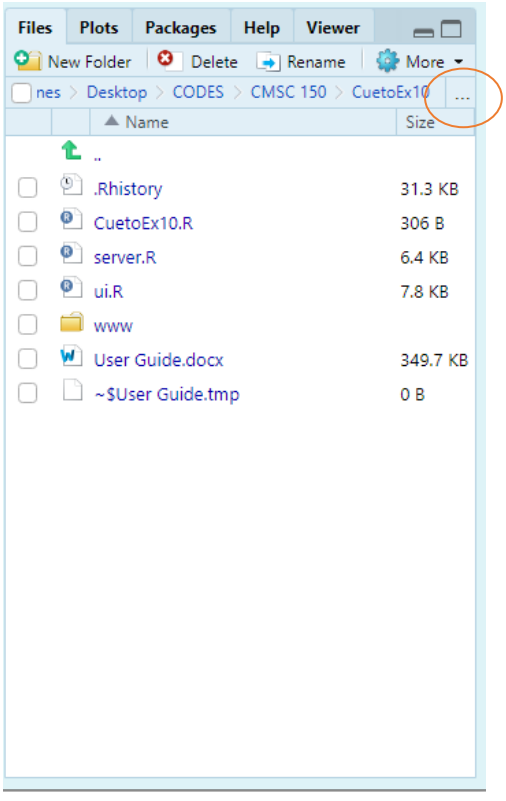
- Web Browser (optional) – this will be used to run the *web application*.

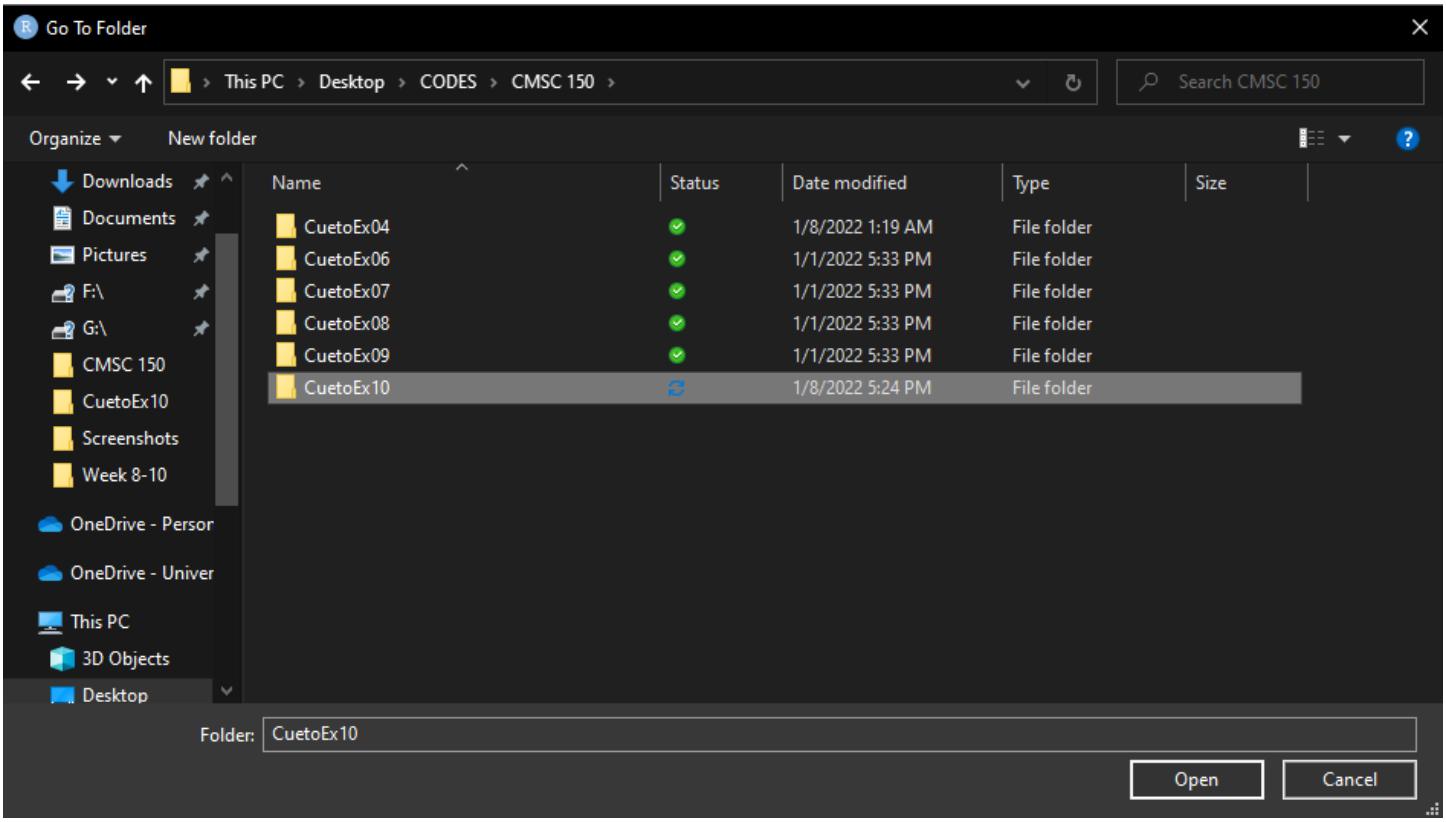
How to run the web application

Step 1: Extract the zip file *CuetoEx10.zip* into the folder *CuetoEx10*

Step 2: Open RStudio and open the folder *CuetoEx10* in the bottom right window of the application

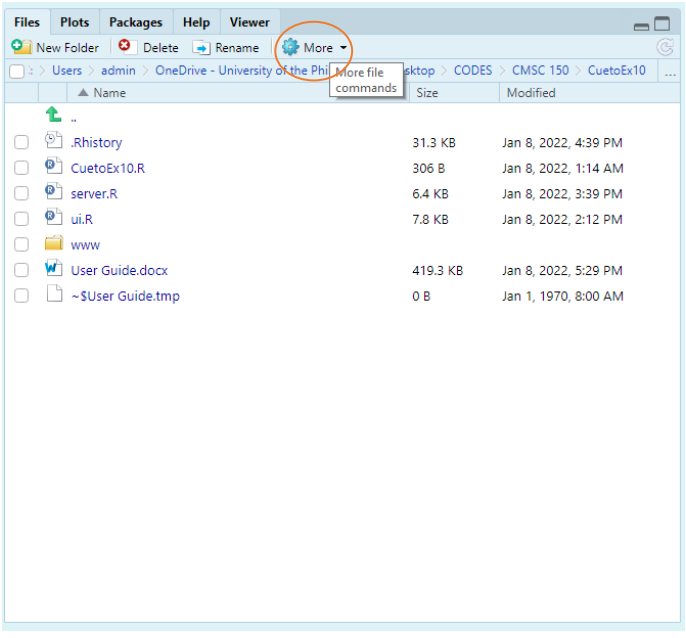


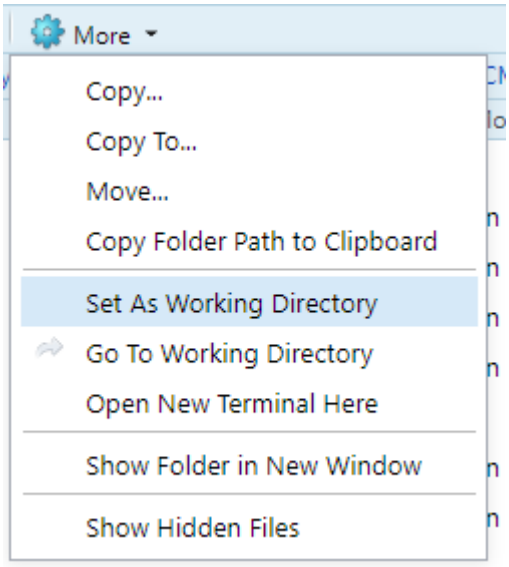




note: select the folder where the files of *CuetoEx10.zip* are extracted.

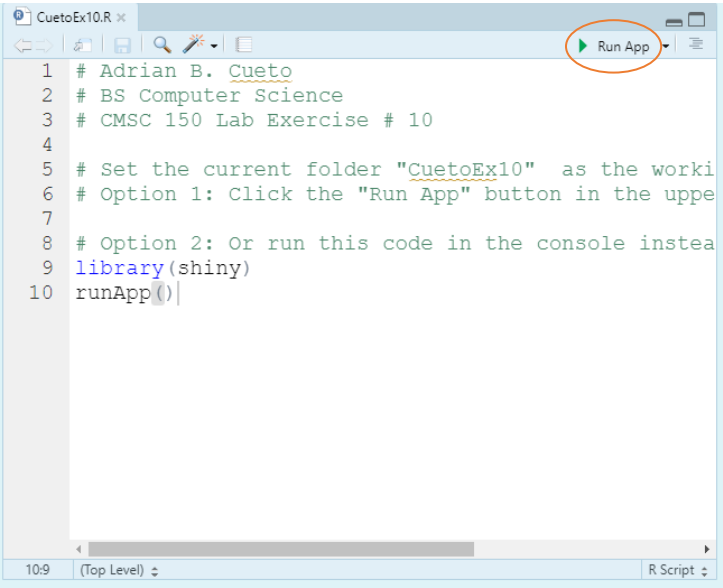
Step 3: Set the current folder as the working directory





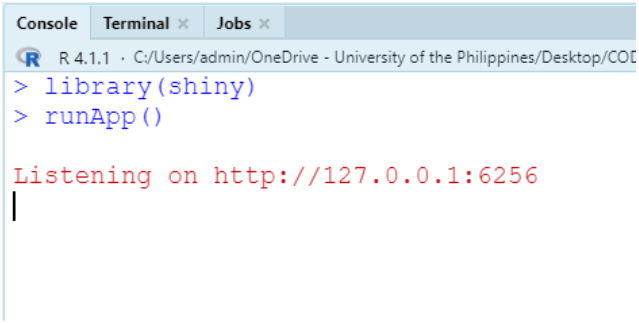
Step 4: Open the file *CuetoEx10.R* then run the program

Option 1: Click the *Run App*

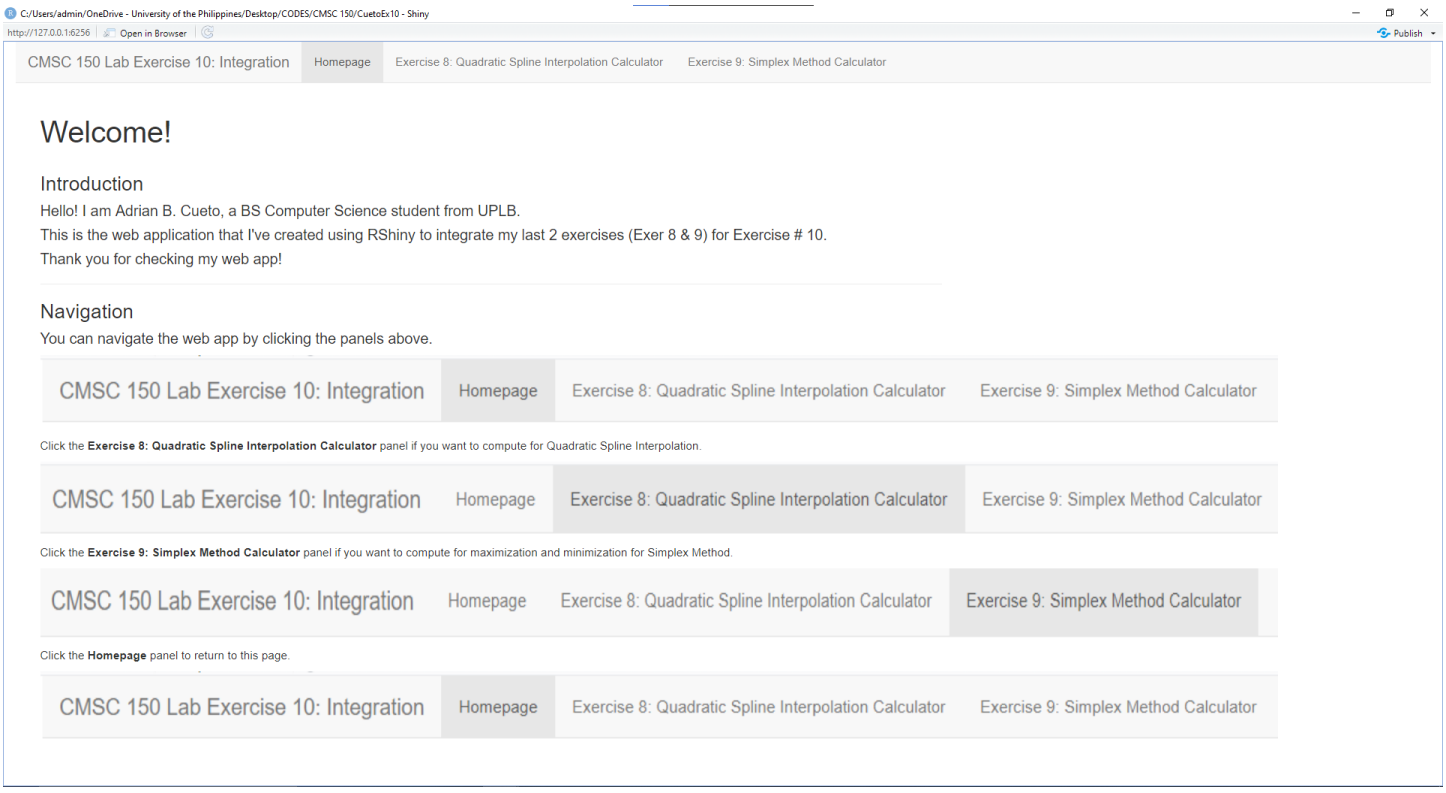


Option 2: Enter these codes in the *Console*

```
> library(shiny)
> runApp()
```



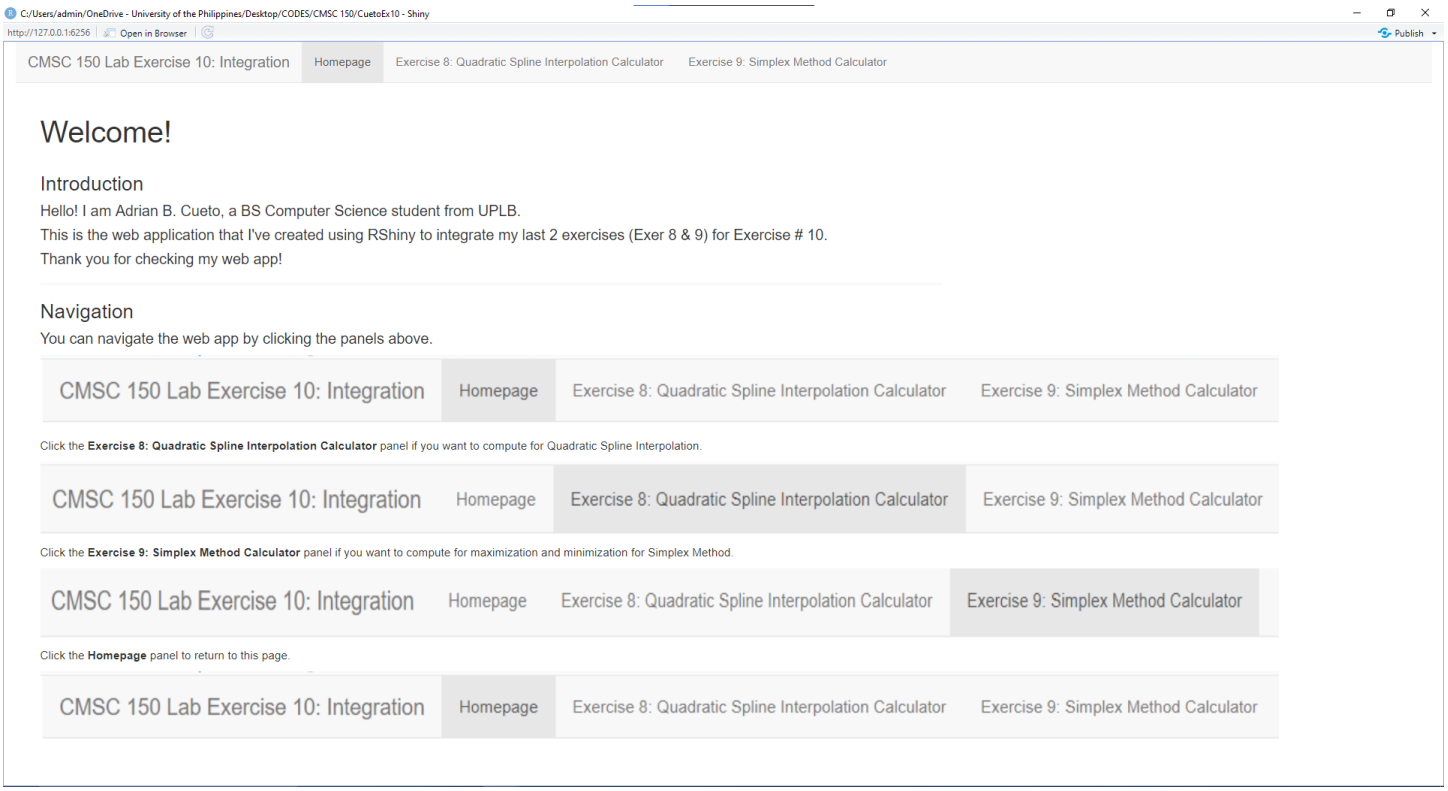
A window will then open and display the homepage of the web app



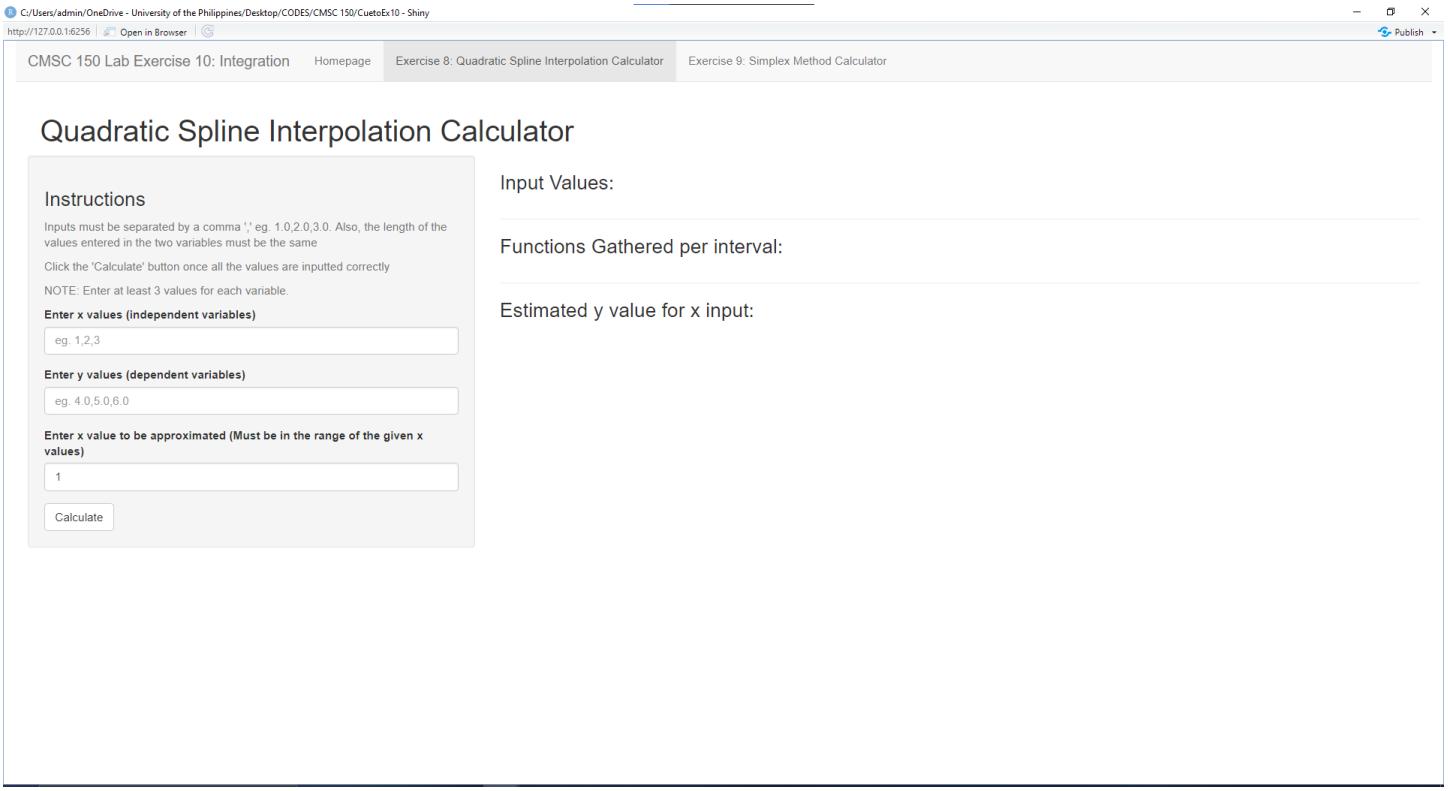
Navigating and Operating the Application

This web app contains 3 pages that can be navigated through the “Navigation Panel”

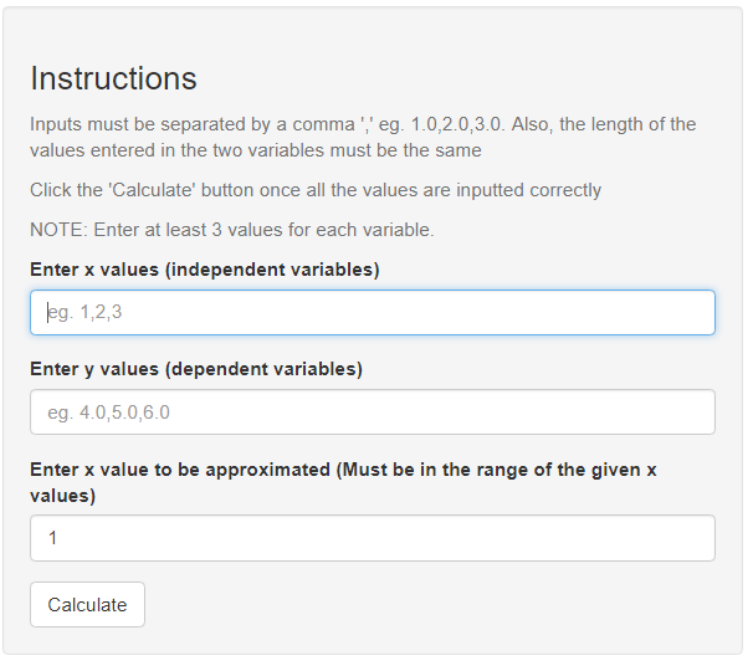
1. Homepage – the main page of the application

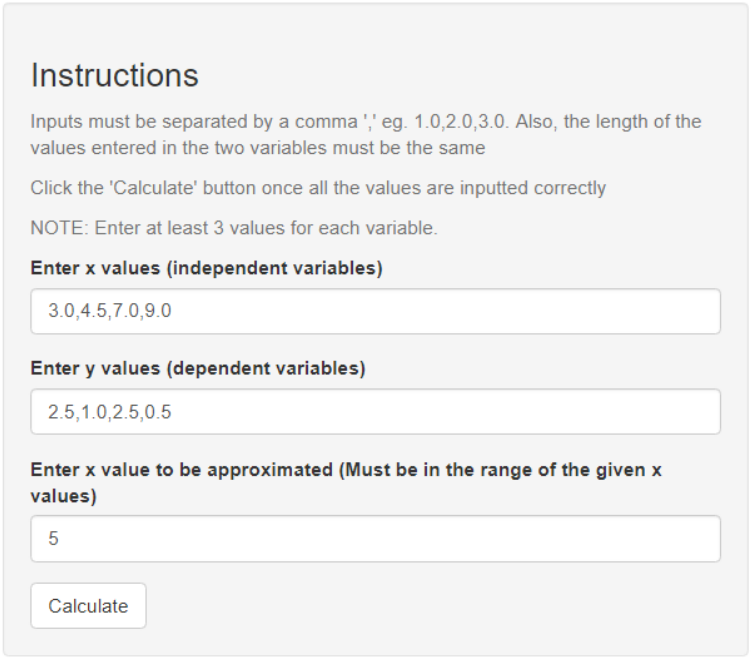


2. Quadratic Spline Interpolation Calculator – integrates the Exercise 8 into the application

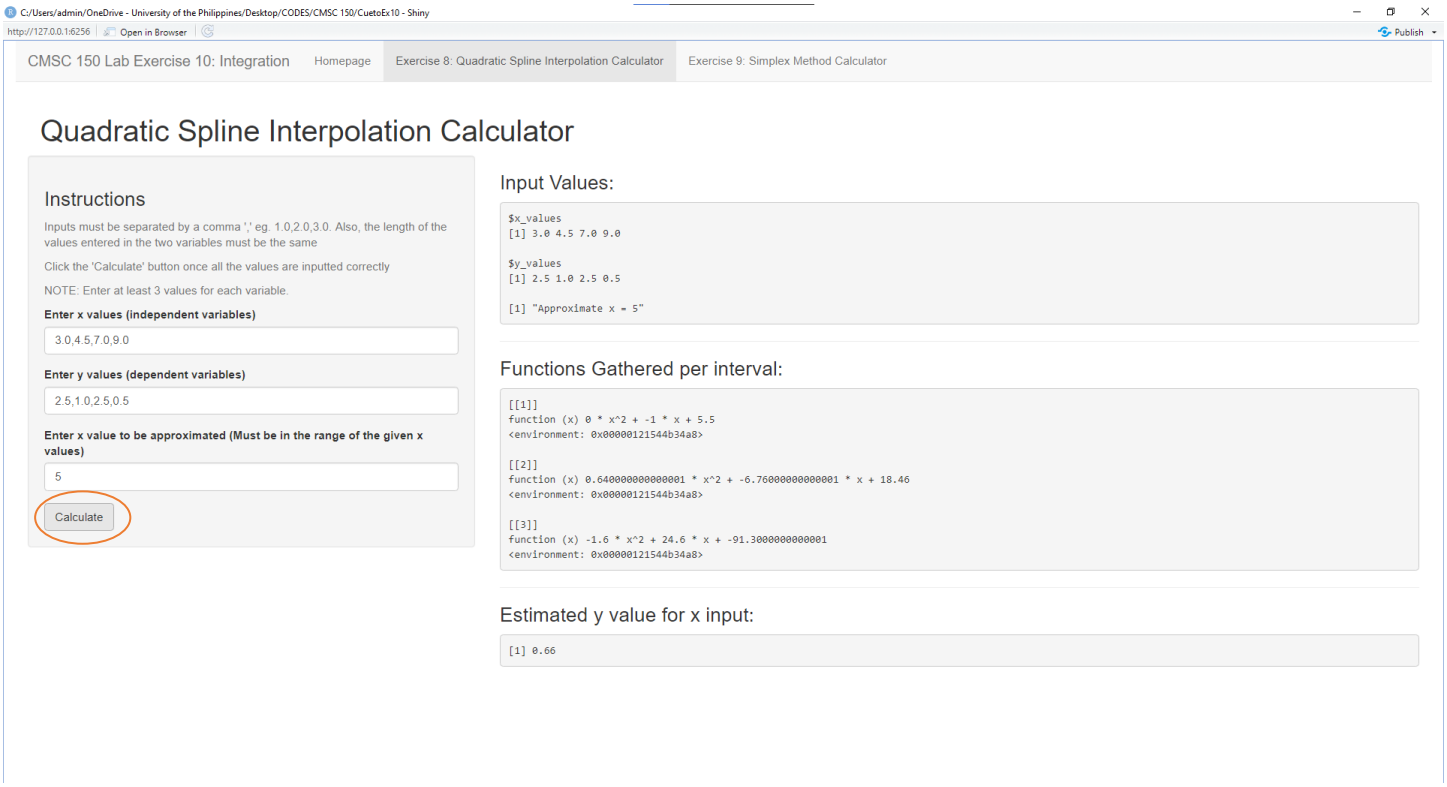


a. Instructions for using the QSI calculator:
   i. Enter the x and y values in their respective input bars (each value should be separated by a comma). Also, input the x value to be approximated

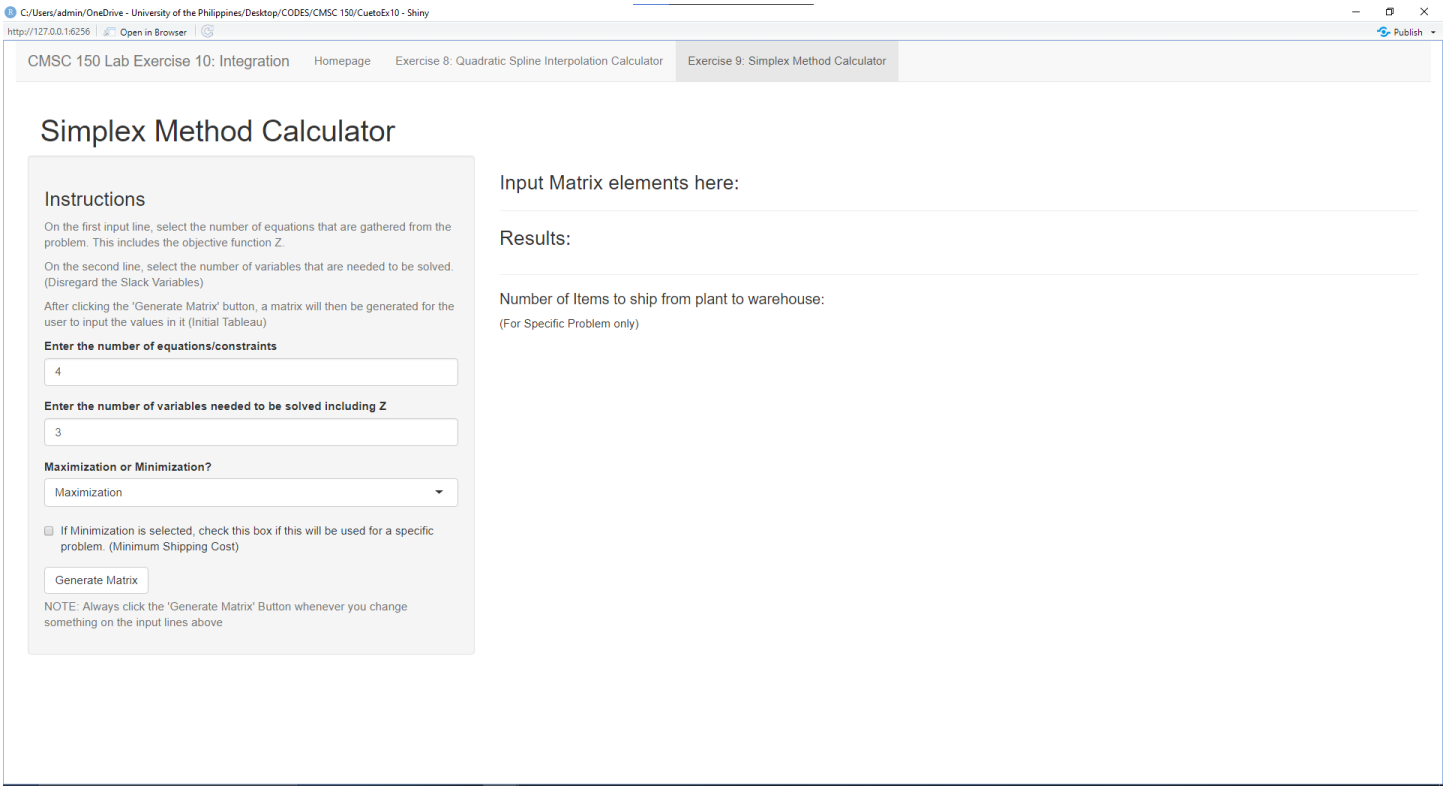




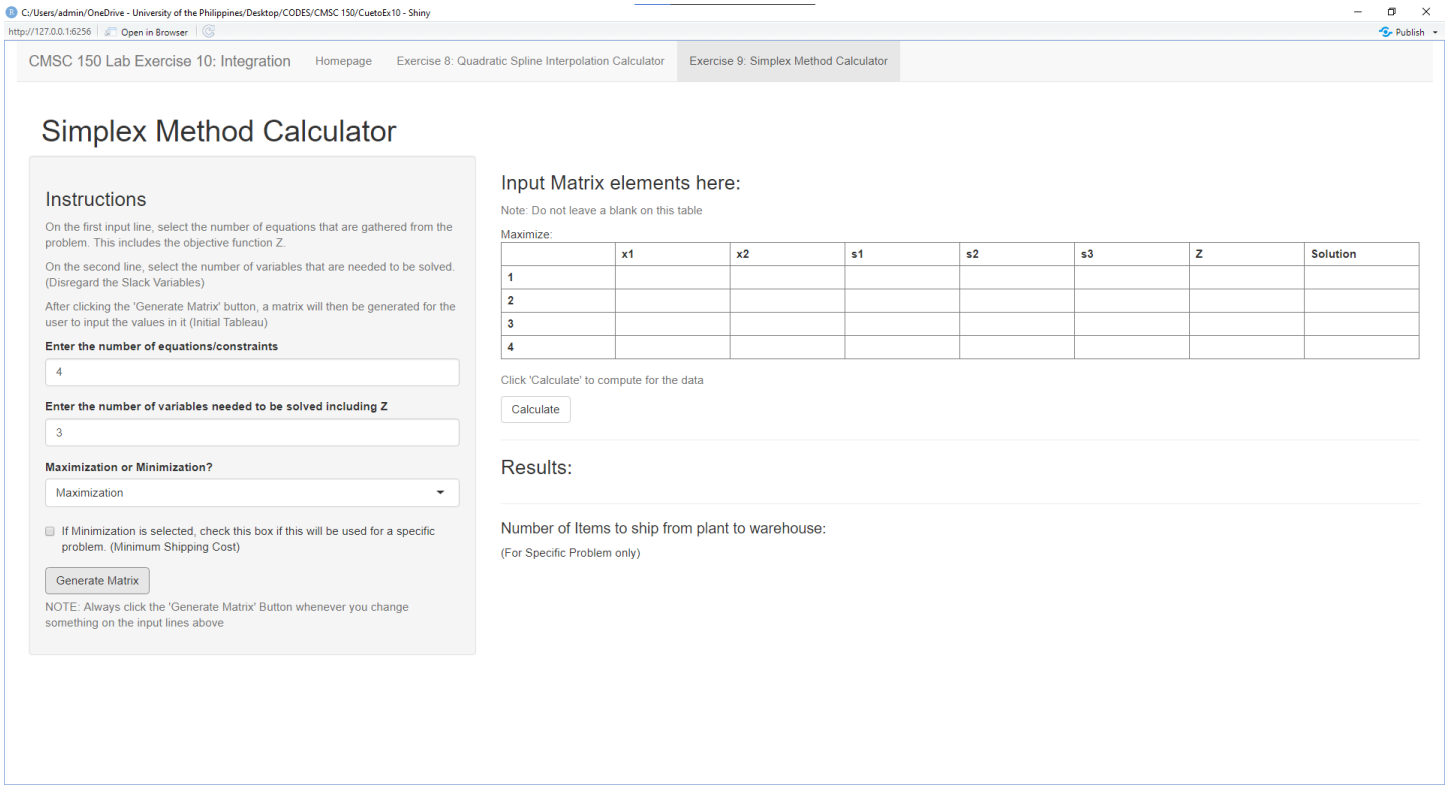
   ii. Click the “Calculate” button to calculate for the QSI. The results will be shown on the right side of the screen



3. Simplex Method Calculator – integrates the Exercise 9 into the application

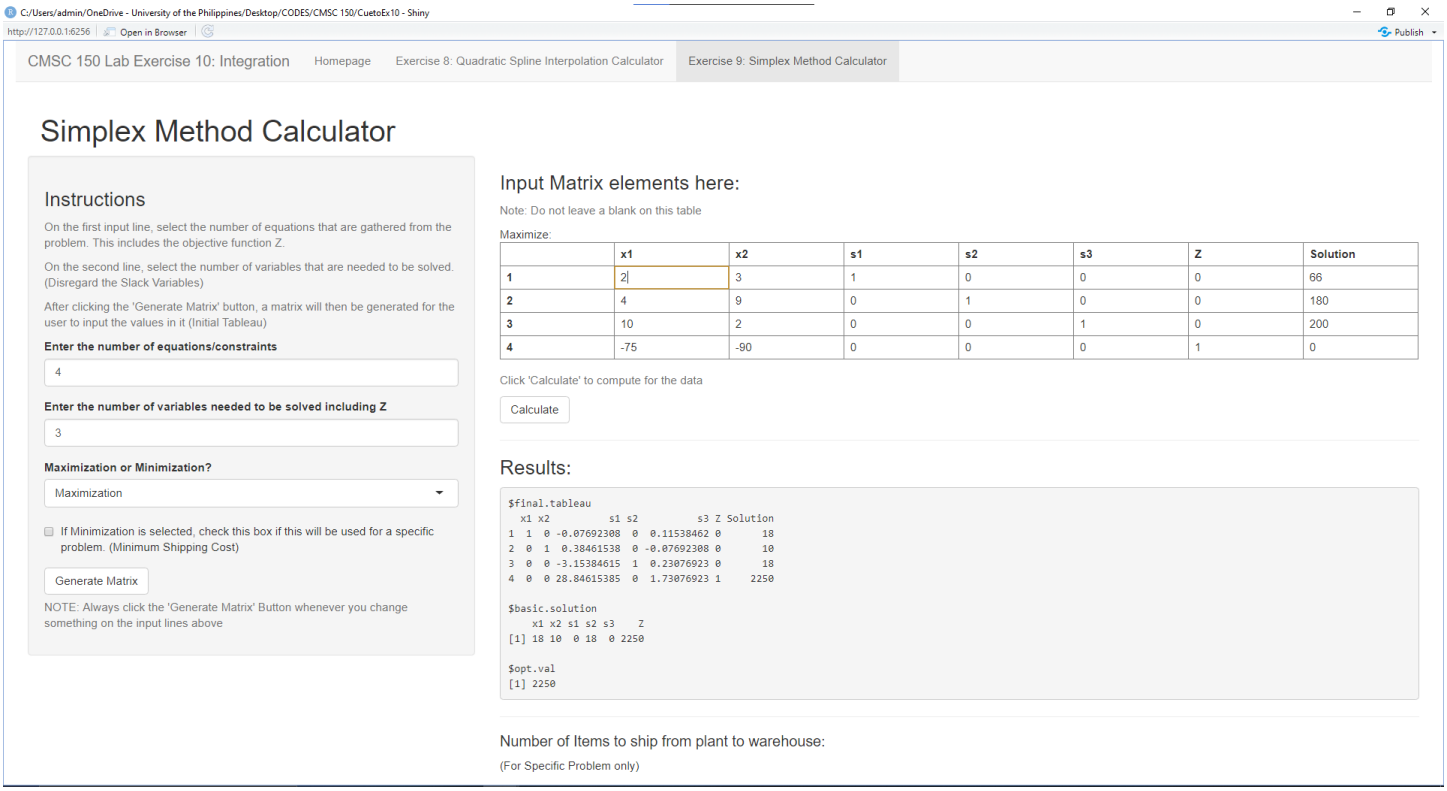


a. Instructions for running:
   i. Input the number of constraints and objective function, then input the number of unknowns including the variable to be maximized (Z).
   ii. After inputting the values, choose between maximization and minimization, then select the checkbox if the *shipping.num* will be returned in the results.
   iii. Lastly, click the "Generate Matrix" to generate a blank matrix and display it to the UI.

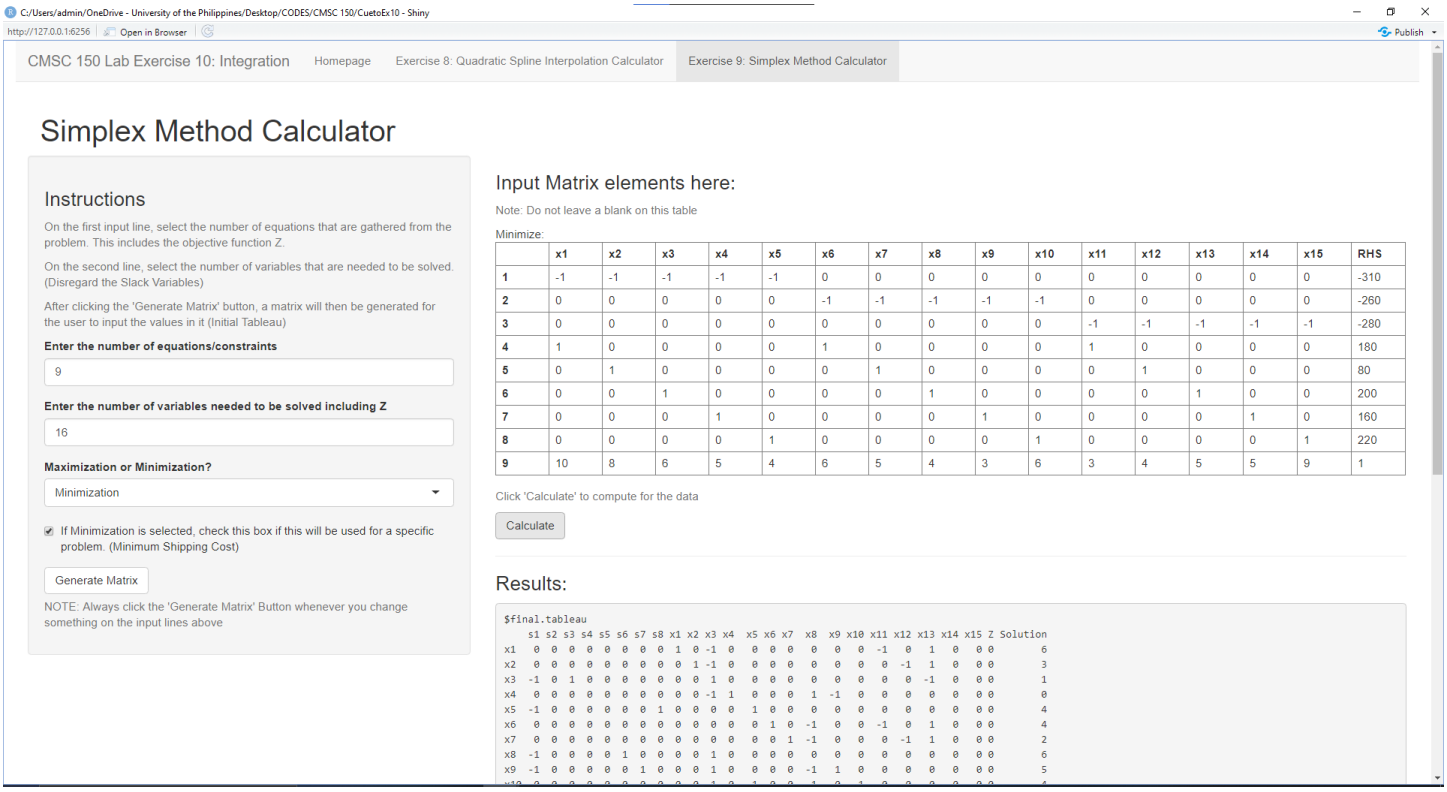


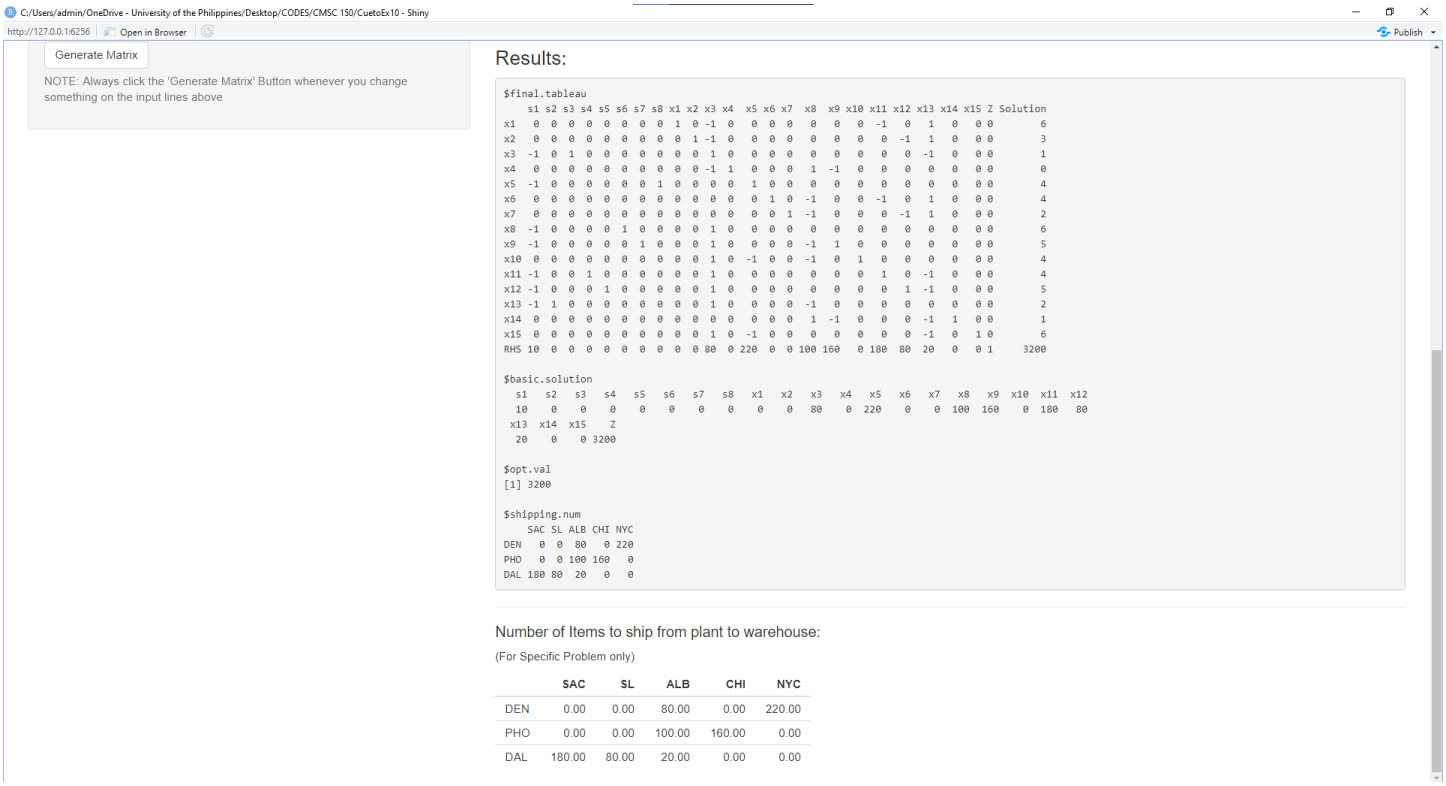
iv. Input the elements in the blank matrix then click the “Calculate” button to compute for Simplex Method.

(for maximization)



(for minimization)





Note: The table in the bottom will only be displayed if the checkbox in the input is selected

Contact Information

If there are any concerns or issues in the application, you can contact me in my e-mail: abcueto1@up.edu.ph