**ECON3032: STATISTICAL ESTIMATION AND INFERENCE**

**ASSIGNMENT**

**Due: Friday, April 14, 2023, at 11:59pm**

**READ THE FOLLOWING INSTRUCTIONS CAREFULLY**

The dataset you will work with is the size of defaults on loans. The dataset has 200,000 data points. You will use a random sample of these records to estimate the parameters for a Gamma distribution, which can be used to model this type of data. Each student will use a different seed value to generate their random sample. It means that no two samples are the same. Follow the instructions below to complete your assignment.

1. You should have already installed BOTH R and RStudio on your computer (see syllabus for download links). As mentioned in the syllabus, these are Open Source software so there is NO cost attached. When installing R it will require you to choose a CRAN (download site), you may choose any, however, the Cloud (0 –Cloud) or any US site is good.
2. If not already done, create a folder in your My Documents folder called “ECON3032”.
3. Within your ECON3032 folder, create another folder called “Assignment”
4. Copy the following files into the Assignment folder
5. **LoanDefaults.csv**
6. **ProjectTemplate.Rmd**
7. Open RStudio
8. Install the ggplot2, knitr, psych, MASS, EnvStats and kableExtra packages
9. In the bottom right panel, click on Packages Graphical user interface, text, application, email

   Description automatically generated
10. Click install
11. In the packages line, type ggplot2, knitr, psych, MASS, EnvStats, kableExtra
12. Click install
13. Check to see if the packages have been installed. Note: some may come with WARNING messages (in red) and that is no issue. If the package is not installed it will give an ERROR message. So before panicking and/or contacting me, read carefully to see what exactly occurred.
14. From within RStudio open ProjectTemplate.Rmd
15. File 🡪 Open File
16. Go to My Documents ◊ ECON3032 ◊ Assignment
17. Click on ProjectTemplate.Rmd
18. Click Open
19. When in RStudio, in ProjectTemplate.Rmd, change the following:
20. **Line 3 – change to your name and ID#**
21. **Line 111 – change ‘123’ to your assigned RANDOM SEED**
22. **Line 118 – change ‘1000’ to your assigned NEW SIZE**
23. **Line 182 – change ‘1000’ to your assigned REPLICATIONS**
24. **Line 183 – change ‘1000’ to your assigned REPLICATIONS**
25. **Line 187 – change ‘1000’ to your assigned REPLICATIONS**
26. **Lines 188 – change ‘50’ to your assigned SAMPLE SIZE**
27. Click on ‘Knit’ to generate the related html file. You will need to do this before you begin answering any of the questions. Graphical user interface, text, application, email

    Description automatically generated
28. Answer the questions which require a response. Begin typing your answer in the line that says “WRITE YOUR ANSWER HERE”. Ensure that once you have written your response that you delete the words “WRITE YOUR ANSWER HERE”.
29. You may knit after each change.
30. Check to ensure that a question is not at the bottom of the page and the answer on the following page. If this occurs, type   
    above the question. Place as many as needed to move the question to the following page.
31. Knit again
32. Convert the resulting html to a pdf file using html2pdf.com
33. Drag the ProjectTemplate.html file on to the page
34. Download the resulting pdf file DO NOT PRINT TO PDF as the colours are important and this does not keep the question colours.
35. Rename the downloaded file to your ID#. This ensures that unique files are downloaded for me to grade.
36. Upload the renamed file using the portal in the Assignment block on OurVLE.