Assignment 3

R Programming

Instructions

To successfully submit your R assignment, please follow these steps:

1. Prepare Your Notebook
    - At the beginning of your Google Colab notebook, create a text cell and include your full name
    - Ensure that all the code in your notebook runs correctly.
2. Share Your Google Colab Notebook
    - Open your Google Colab notebook and click on the `Share` button at the top right corner.
    - Enter the email addresses of the teaching team.
    - Ensure that both recipients have access to the notebook and click `Send`.
3. Upload a Copy of Your Notebook
    - In Google Colab, click on `File` and then `Download` to download your notebook in the `.ipynb` format to your computer.
    - Navigate to the assignment submission page on your course management system.
    - Locate and use the 'Upload' button to submit the downloaded `.ipynb` file.

Q1: Diamond Pattern

Write an R function `print_diamond()` to print a diamond pattern for a given number n.

Example:

- Input: `print_diamond(3)`
- Output:

```
  1
 222
33333
 222
  1
```

Use loops and conditionals to achieve this. Test your program with $n = 3$ and $n = 4$.

Q2: Random Number Generator

Write an R code to generate random numbers between 1 and 10 until you get a number that is divisible by 5. Use a `while` loop to achieve this, as you cannot predict how many random numbers you will need to generate before getting a number divisible by 5.

Example:

```
Generated Numbers:  6 6 8 9 8 2 1 8 3 3 9 9 6 4 5

Number divisible by 5 found:  5
```

Hint: Use the R function `sample()` for random sampling