Biostatistics 615 Learning Exercise #1 (10 pts)

Due by September 3th 2024 (Tuesday) 11:59pm. Use Gradescope (via Canvas) to submit an R file.

- Your submission should only contain one `R` file named `int2BinaryStr.R` that contains a function named `int2BinaryStr()`.
- Your code will be evaluated in Gradescope using 10 different test cases using an automated script. Full credit will be given if your code passes all test cases.
- You are allowed to submit multiple times before the deadline, but only the last submission will be graded. Automated feedback will be provided for each submission.
- You need to implement the function to work with arbitrary input values beyond the 10 cases tested. If you tweak your implementation so that your functions works specifically for the test cases, you will not receive any credit.

Problem 1 - `int2BinaryStr.R` (10 pts)

Write a function `int2BinaryStr()` that takes an 32-bit integer input and returns a string representation of the binary representation of the input.

The function should return a string of length 32 with the first 1 or 0 indicating the sign of the integer, as shown in the lecture slides. For example, `int2BinaryStr(123L)` should return a string "00000000000000000000000001111011"

The function should return `NA` if the input is not an 32-bit integer (i.e. an integer between -2147483648 and 2147483647).

You may use the `intToBits()` function in the `base` package to convert the integer to binary representation. You may also use other functions to convert the binary representation to a string. Note that you are NOT allowed to use any other functions outside the `base` package in your implementation. Use `help(...)` to check whether a function belongs to the `base` package or not.