<u>Declaration</u>

1. I hereby declare the entirety of the assessment was completed by myself.
2. All online materials and resources used in the completion of this assessment are cited.
3. I agree not to share the questions with others or post the questions on public forums.

https://github.com/aqh2321/Yinuo_NTU-BDMS

Yinuo Zhang

Signature:

Name:

Programming interview

Name: Yinuo Zhang

Date: 2/24/2021

Job applied for: Biomedical Data Science

Tick the appropriate box:
    o **Citizen**
    o **Permanent Resident**
    o **Student Pass**
    o **Others, please specify:** Foreigner

For each question, please submit your source code and output files in the required format according to the README and example output files. In addition, for questions requiring more explanation of your method, please write your explanations in the provided space in this question sheet. If you use any library functions, please also explain how the functions work.

1 Operations for the right sum

Given a m x n matrix, we want to connect from top left corner (starting point, first row, first column) to bottom right corner (ending point, mth row, nth column). Only 2 operations are allowed: Right (R) or Down (D). Numbers that are passed through will be summed up. Given any summed number, you are required to find out the operations needed to get the number.

Example: (m=4, n=4 square matrix) with operations needed to get the desired sum.

sum=13 (RRRDDD)   sum=16 (RDRDRD)   sum=19 (RDDDRR)
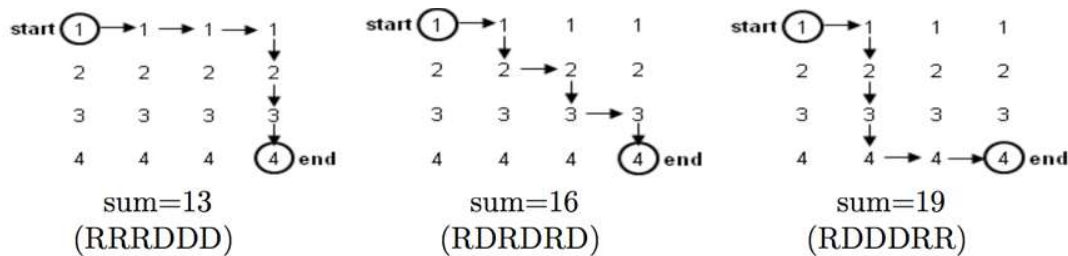
a. For m=9, n=9 matrix, find the operations for the following summed numbers: 65, 72, 90, 110.

b. For m=90,000, n=100,000 matrix (90,000 rows, 100,000 columns), find the operations for the following summed numbers: 87127231192 and 5994891682.

[Output file: output_question_1]