CS635_2020 - Assignment 1

Web Search and Mining

Instructions for the assignment

1. This is a programming assignment that needs to be **completed individually.**
2. This assignment has 2 problems based on generating golomb and gamma codes.. You can choose to write programs in either C++ or python. However, it is preferred that you learn python since subsequent assignments could possibly involve using libraries that are easily available in python.
3. You need to upload the assignment in a zip file with the following naming convention-
   |<rollno>.zip
   | - <rollno>-golomb.py
   | - <rollno>-gamma.py
   Select the two files and zip them. **Do not create a folder and put files inside them.**

3. On running the respective files with proper arguments (mentioned in the problem definition), prediction must match the output. **Since, we will be using autograders to verify, your programs must be in the correct format.**

4. The sample test cases are provided in the problems, however, we will test your programs on separate test cases.

Problem 1: Golomb encoding

Given a parameter M (integer) and a number N (integer), write a program to produce a Golomb code.
You need to write a program such that when passing the respective arguments during the file execution, it should produce the desired output.
For eg. python <rollno>-golomb.py -m <int> -n <int>

Constraints:
N,M >=1

Example 1: (first argument refers to M value and second argument to N value)
Input:
10
42

Output:
11110010

Example 2:
input:
5
21

Output:
1111001

Problem 2: Gamma Codes

Given a decimal number N (integer) return a 1x2 matrix containing it's length and offset, when represented in it's Gamma code form. Program is expected to return 2 comma separated strings containing it's length and offset, when represented in it's Gamma code form.

You need to write a program such that when passing the respective arguments during the file execution, it should produce the desired output.
For eg. python <rollno>-gamma.py -n <int>
Output would be comma separated values without any starting or ending brackets.

Constraints:
N >=2

Example 1:
Input:
25

Output:
11110, 1001

Example 2:
input:
510

Output:
111111110, 11111110