19CSE100 Problem Solving and Algorithmic Thinking

1. Write a flowgorithm function `factorial()` to compute the factorial of a given number.
2. Write a flowgorithm which uses the `factorial()` function defined above appropriately to compute the following series $\frac{1}{1!}+\frac{1}{2!}+...+\frac{1}{n!}$ where `n` is defined by the user.
3. Write a flowgorithm function `isPrime()` which checks whether a given number is a prime number.
4. Write a flowgorithm which uses the `isPrime()` function to display all prime numbers with in a given range. The range will involve a lower bound and upper bound defined by the user.
5. Write a flowgorithm which uses the `isPrime()` function to compute whether a given integer can be represented as a sum of two prime numbers.
6. Write flowgorithm functions `dec2bin()` and `bin2dec()` which respectively convert a given decimal number to its equivalent binary number and a given binary number to its equivalent decimal number.
7. Write a flowgorithm function `isAnagram()` that checks whether two given strings are anagrams (for example `spare` and `pears` are anagrams as they contain exactly same letters but arranged in different order. How will your function behave if same strings are given twice as input?!)
8. Write a flowgorithm function `leadDigit()` that accepts an integer and returns the leading digit (for example given 256743 as input, the leading digit of this number is of course 2!!)
9. Write a flowgorithm function `reverse()` that accepts a string and gives the reverse of the string as output.
10. Write a flowgorithm that simulates a calculator with functions for doing various arithmetic operations. Do you think you can extend it to simulate a scientific calculator to the extend possible ;)?