Lab Seven

1. Write a program to accept a positive integer n, a $n \times n$ matrix M, and a vector $v \in \mathbb{R}^n$, and to print the entries of $M \cdot v$.

2. The sample file string-functions.c has a couple of example functions, and two more function declarations; one for printing a string multiple times, and another, for printing a substring of a string. Fill in the code inside these functions (this is usually called the function definition). Test these functions by calling them in main().

3. Write a function that accepts the name of an array (of type double), and two indices i, j and finds the sum of the elements of the array between indices i and j (inclusive), assuming that $i \leq j$. Test it by calling them in main().

4. (a) Write a function fallingFactorial, that accepts a number x (of type double) and a positive integer n, and returns the value of $x(x-1)\ldots(x-n+1)$. Test it by calling it in main().

   (b) Write a function realBinomialCoefficient, that accepts a number x and a positive integer n, and computes the value of $\dfrac{x(x-1)\ldots(x-n+1)}{n!}$. Use your fallingFactorial function from part (a).