Lab Three
ID1303: Introduction to Programming

1. Write a program to accept a positive integer n and print the value of $n!$.

2. Write a program to accept an English string and an integer n and shift each letter by n. See examples below.

   Input: Enter the string: APPLE

   Enter the shift value: 2

   Output: CRRNG

   Input: Enter the string: APPLE

   Enter the shift value: -1

   Output: ZOOKD

3. Write a program to accept 8 numbers in an array and find their maximum.

4. Write a program to print the digits of an integer from right to left. Modify this program to print the bits of the integer (i.e. in binary) from right-to-left.

5. Accept a positive integer n from the user and print values of $\sin, \cos, \tan$ of the values $0, \pi/n, 2\pi/n, \ldots, (n-1)\pi/n$. Print them in three columns. [Hint: Use math.h; compile as gcc filename.c -o executablename -lm]. The -lm option is used to link the math.h file (whatever that means).

6. Accept a real number x and find the values of each of $e^x, \log x, \sin x$ by adding the first 20 terms of the appropriate Taylor series. Compare the values with the values from the in-built functions from math.h.

7. (Optional:) Accept an integer n and print a pattern as shown in the example below.

   Enter the value of n: 5

   Output:

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