ESS101 : Programming 1 (C Programming)
LAB - 8

Due: 21-Oct-2019, 5 pm

Problem 1: Write a (C) function `itob(int n,char *s,int b)` that converts the integer `n` into a base `b` character representation to store in the string `s`. In particular, `itob(n,s,16)` formats `n` as a hexadecimal integer in `s`.
Notes:
(1) Base `b` : (`b` $\leq 1 \leq 32$)
(2) Use digits '0', '1', ... , '9', 'a', 'b', ..., 'z' (in that order as needed).
Write a (C) program that does the following :
(1) inputs the integer to convert `n` and the base integer `b`
(2) allocates memory for a string to hold the output of the above function
(3) creates a `main` function that calls the function `itob()` with the appropriate parameters and prints the string.

Sample Input: 32654 16
Output: 7f8e

Problem 2: Write a (C) function `strend(s,t)` which returns 1 if the string `t` occurs at the end of the string `s`, and zero otherwise. Write a (C) program with function `main` that inputs two strings and calls the above function and prints the string if `strend` returns 1, 0 otherwise. Do not use arrays. Assume that maximum length of each string is 256.

Sample Input: thisisaString String
Output: String

Problem 3: Function Pointers
Write a (C) program that takes as input two real numbers between -2^{31}

to 2^{31} followed by an operator which is one of $+, -, *, /$. Write separate functions to perform add, subtract, multiply and division of two numbers. Your program should invoke the appropriate function using the right function pointer together with its arguments. Print the result as a floating point number with a precision of 4 decimal digits.
NOTE: You need to use pointers to the correct function and obtain the result of the operation. Not using function pointer will result in 0 marks.

Sample Input: 2.3 3.2 +

Output: 5.5000