ESS101 : Programming 1 (C Programming)
LAB - 7

Due: No submission

Problem 1: Write a (C) program that takes as input the names of 10 cities (names containing at least 10 characters). Construct a new 10 character string that has the first character of the first city name, second character of the second one and so on, in that order. Allocate dynamic memory for the city names. Use pointer arithmetic to access the appropriate character in each name.

Problem 2: Write a (C) function `strrindex(s,t)`, which returns the position of the rightmost occurence of `t` in `s`, or -1 is there is none. Write a (C) program that inputs two strings and calls the above function.

Problem 3: Implement your own version of `strncat`, `strncmp` and `strncpy` functions. Recall the functions `strcat`, `strcmp` and `strcpy` functions which concatenate, compare and copy two given strings respectively. The **n** versions operate on at most `n` characters of their arguments. For example, `strncpy(s,t,n)` copies at most `n` characters of `t` to `s`. Your (C) program should input two strings `s1` and `s2` (maximum length not more than 255 characters) and an integer. Use dynamic memory to store the input strings, intermediate results and final result. Print the final resultant string. Do no use arrays.

Problem 4: Understand Makefiles.
Modify the Lab 4 assignment such that the linear search and binary search are done by functions placed in different files. Place your `main` function in a third file and use **make** command to create one single executable that will

take as input whether to do a linear search or binary search and perform accordingly.

Problem 5: Understand options with gdb. Do `man gdb`.
Which option in gdb just compiles the given (C) file (does not create the executable) ? Understand what kind of file is output in the process.
Which option in gdb just performs pre-processing of the given (C) file (does not even compile the file) ? Examine the output obtained.