ID1063 Second Lab Exam
EE

Time: 3 hours

Total Marks: 5+10+10=25

1. Write a program to accept a positive integer n, right-rotate it and print the right-rotated number. For example, if $n = 1357$, the output is 7135.

2. (a) Create a struct data type called Point that can store a point in $\mathbb{R}^2$ and a function called distance that computes the distance of the point from the origin; the signature of the function should be void distance(void*,const void*); it accepts the address of a Point variable as the second argument and stores the result in the address is in the first argument, using suitable typecasting.

   (b) Create a function called map with the following signature: void map(void* output_arr, void* input_arr, size_t arr_size, size_t elem_size, void (*fun)(void*, const void*)). The function map takes two arrays of the same size ((arr_size) and each element of the type elem_size and replaces ouput_arr[i] by fun(input_arr[i]) for every index i.

   Test your map function with the input array being an array of Point variables and fun being the distance function of part (a), accepting the Point variables from the user and printing the distance array.

3. The number of syllables in a word is the number of sounds that are made when pronouncing that word. For example, the words "bag", "deer", "hare" have one syllable each; the word "program" has two syllables, and the word "computer" has three syllables.

   Write a program that accepts an English word and prints the number of syllables it has, using the files "1syllablenouns.txt","2syllablenouns.txt","3syllablenouns.txt","4syllablenouns.txt". If the word is not present in these files, you can print "Unable to find the number of syllables".