CS 6103D Software Systems Laboratory

PROBLEM 1A

The objective is to learn the following:

- basic data structuring facilities like array and struct
- use of pointers
- file operations
- function definitions

Submission date: On or before 30-08-22 Tuesday 1.00 PM
Submission: A single file named as per the following format

- Submit as a single .c file
- The name of this file must be $P1A\_ < FIRSTNAME > \_ < ROLLNO > .c$(eg : $P1A\_ARUN\_M180xxxCS.c$)

The problem is to write a C program to maintain a list of courses that you are planning to take in this semester. Complete the program in the sequence given below.

1. Write a program that declares an array of integers, reads in the 4 digit numeric part of the course code of each course, store in the array, and then print the elements in the array.

2. Modify the above program to store the complete course code of each course. For this, change the type of the array as an array of strings.

3. Maintain additional details for each course. For this, declare a *struct Course* with fileds *code*(string), *name*(string of size 3, store 2/3 letter short name, eg: SSL for Software Systems Lab), and *credits*(int). Change the type of the array as an array of *struct Course*. Write a function *createList()* that reads in course details, and store in the array. Write a function *getCredit()* that takes the array and a course code as arguments and returns the number of credits for that course.

4. Write a function *createFile()* that takes the array and number of courses as arguments and creates a text file named *course.txt* with each line containing course details in the order *code*, *name*, *credit*. Separate the fields in a line by spaces.

5. Declare the array as an array of pointers to *course struct*. Read in the course details from the text file (file name to be given as a command line argument), dynamically allocate memory for each *struct* and store a pointer to it in the array. Modify the definition of *getCredit()* accordingly.