PDS Lab Section 11

Lab Day 5 – December 30, 2020

The top two lines of your programs must contain the following information:
//Roll No.: <Type in your roll no.>
//Name: <Type in your name>

You have to give different names to your C files and upload them in Moodle. Please read the instructions given below.

Document your programs meaningfully using appropriately named variable and sufficient amount of comments as suggested in an earlier email. There wil be marks for documentation.

1. Write a C program that would read a singular noun (less than 20 characters) and form its plural by applying the following three rules:
    a. If the word ends in "y", remove "y" and add "ies".
    b. If the noun ends in "s", "ch", or "sh", add "es"
    c. In all other cases, just add "s".

    Print the noun entered along with its plural.

    Name your C program file as LD5_1_<roll_no>.c. **[15 Marks]**

2. Write a C program to fill a single dimensional integer array of maximum size 30 with random integral numbers in the range [10, 30] by appropriately calling the rand() library function. User will first enter the number of such numbers to be generated (maximum 30).

    Display the array contents. Then, reverse the elements of the integer array, so that the last element becomes the first, the second from last becomes the second, and so on. Reverse the elements in place – that is, without using another array. Display the contents of the array after reversal.

    Name your C program file as LD5_2_<roll_no>.c. **[10 Marks]**

3. Write a C program to fill a single dimensional integer array of size 30 with random integral numbers in the range [10, 40] by appropriately calling the rand() library function. User will first enter the number of such numbers to be generated (maximum 30).

    Display the array contents. Then, determine all the triplets that add up to 60 and display the corresponding array indices and the values stored in those locations.

    Name your C program file as LD5_3_<roll_no>.c. **[10 Marks]**

4. Write a C program to read from keyboard the roll number (unsigned integer) and CGPA (float) of up to 10 students. User will first enter the number of such students for which inputs will have to be taken (maximum 10). Use two arrays of maximum size 10 each.

    a. Display the details read, nicely formatted
    b. Display the average CGPA of the students.
    c. Display the roll numbers and CGPA of all students having identical CGPA (for checking equality of CGPA, consider two digit accuracy).

    Name your C program file as LD5_4_<roll_no>.c. **[15 Marks]**

5. Write a C program to read the first names (less than 15 characters) and ages (integer) of upto 10 students admitted to a department. User will first enter the number of such students for which inputs will have to be taken (maximum 10).

    a. Print the names and ages of all students having the same name.
    b. Print the names and ages of all students having identical ages.

    Name your C program file as LD5_5_<roll_no>.c. **[10 Marks]**

Submit your .c files in Moodle against the assignment submission link for Lab Day 5.