CS559: Computer Systems Lab

READ THE FOLLOWING INSTRUCTIONS CAREFULLY. FAILING TO ADHERE TO IT WILL LEAD TO DEDUCTION OF MARKS.

1. Make sure to give the correct information in your submission link. You will receive a response email for every submission. **You must save it for future reference for the whole semester as you will be asked to show it.**

2. Every assignment will have multiple questions. **For every question, you will save your solution (i.e. program) as a .c file.** So if "Assignment 01" has 4 questions (marked as 1, 2, 3 and 4), then you will save your solution program as 1.c, 2.c, 3.c and 4.c.

   Note: **Your program will be compiled to check if your solution is correct and you will be marked accordingly. If any solution file is missing or not submitted, the marks for that solution will be** **zero.**

3. Submit your files in a compressed folder (rar or zip) as per "submission instructions" given in your assignment question paper.

   Note: You must make sure to upload in .zip or .rar. **Folders submitted with any other extension or wrong extension will not be evaluated and awarded** **zero.**

4. The student must ensure that the submitted file is not corrupted and can be unzipped properly. **Corrupted files that cannot be opened will be given** **zero.** **Similarly bad filenames having any other extension than ".c" will not be evaluated and given** **zero.**

5. You will be able to upload your assignment multiple times within the deadline span, but only your last submission will be treated as final and considered for evaluation. **No plea/request to consider intermediate submissions for evaluation will be entertained.** So, make sure to carefully check that you are submitting the correct assignment.

6. The submission link will be automatically deactivated after the deadline, and no request/plea for extension will be accepted. **Non-submission** **/wrong submission** **will be automatically awarded** **zero.**

7. Your code will be checked for similarity and you will be penalized according to the following rule:

   Similarity above 75%: 50% deduction
   Similarity of 100%: full deduction

8. **Compiler Information: Program must be compiled using online gdb compiler. If your program can not be compiled using gdb compiler then marks will be reduced.**
   Compiler Link : `https://www.onlinegdb.com/online_c_compiler`

9. Marks for every assignment (other than practice assignments) will be mailed to you with remarks. **You will be allowed a deadline for rebuttal, after which no rebuttal will be entertained.**

Submission Instruction: Store your assignments in folder and compress it as a rar/zip file (filename should be in this format: roll-number_assign2.rar or roll-number_assign2.zip). For example, if your roll number is 2211CS01, store your assignment as 2211CS01_assign2.rar or 2211CS01_assign2.zip. Also, save each program in the format given beside each question. Upload the same at the below link:
`https://forms.gle/cfq3DswiFssP8B7P6`

Problem [1] (Save as 1.c) :- Write a program to subtract two BCD numbers. (Note: proper logic should be present in the program and output should be in the format stated below)   [5 point]

Sample Input:

Number of test cases: 2

First number: 333
Second number: 111

First number: 430
Second number: 501

Expected Output:

333(0011 0011 0011) - 111(1110 1110 1110) = 222(0010 0010 0010)
430(0100 0011 0000) - 501(1010 1111 1110) = -71(- 0000 0111 0001)

Problem [2] (Save as 2.c) :- You are given a set of integers [N], you have to find out if there exists any subset of those integers for which sum of subset is divisible by another given input say X. Solve this program by using one dimensional array and efficient dynamic programming. See the Explanation for output section below for better understanding.   [6 point]

Constraints:

- N and X should be user defined.

- $N \leq 1000, X \leq 500$.

Sample Input 1:

Enter the value of N : 3
Enter the value of X : 7
Array is : [2,5,7]

Expected Output:

Subsets are: [2],[2,5],[2,5,7],[2,7],[5],[5,7],[7].
Output: **Yes.**

Explanation For Output:

Since the sum of subset element [2,5],[7] is divided by 7 Hence you should return [**Yes**].

Sample Input 2:

Enter the value of N : 3
Enter the value of X : 7
Array is : [4,10,6]

Expected Output:

Subsets are: [4],[4,10],[4,10,6],[4,6],[10],[10,6],[6].
Output: **No.**