Data Structures and Algorithms Lab
SE-F22
LAB-06

Issue Date: March 14, 2024

Start Time: 8:15AM

Total Marks: 50

The objective of this lab is to:
Understanding recursive behavior

Instructions:
1) Follow the question instructions very carefully, no changes in function prototypes are allowed.
2) Make separate header files for ADTs. (.h_for function prototypes) (.cpp for function implementations)

Task 01(Binary Search) [10 Marks]

Implement binary search recursively.
Think of prototype yourself.

Task 02 (Even Digits) [15 Marks]

Write a recursive function evenDigits that accepts an integer and returns a new number containing only the even digits, in the same order. If there are no even digits, return 0;

Prototype: int evenDigits(int num);
Example:
1) **evenDigits(8342116) returns 8426**
2) **evenDigits(1133) returns 0**

Task 02 (Count 1 bits) [25 Marks]

Given a number N. The task is to find the number of set bits in its binary representation using recursion.

You are required to implement two **recursive** functions:
1) **decimalToBinary**
2) **countOnesInBinary**

Good Luck!
