**Computer Science 2**   **Lab # 07**



**Dr. Hanh Pham**

**Student Last Name: Carrasquillo Student First Name: Ariana**

**CS2 Section # \_\_3\_\_**

**Due:** Problem A by the **end of the lab** and Problems B by the end of **Saturday** of the same week.

**TOPIC: RECURSION 2**

**Problem B:**

**Problem Description:**

2) Problem B: MyProgrammingLab # 71047 (chapter 18, Programming Projects)

**Analysis:**

(Describe the problem including input and output in your own words. Type your answer in the following with **BLUE font color**)

|  |
| --- |
| **To convert a number to a hex number as a string. A user has to enter a number, output is a hex number** |

**Design:**

(Describe the major steps for solving the problem. Type your answer in the following with **BLUE font color**)

|  |
| --- |
| **Main method:**   * **Ask for user input** * **Print result**   **dec2Hex method**   * **Establish a base case if the int parameter/16 = 0 , return the remainder plus the result else recall the method** |

**Coding:** (Copy and Paste Source Code here. Type your answer in the following with **BLUE font color**)

|  |
| --- |
| **import java.util.Scanner;**  **public class DecimalToHex {**  **public static void main(String[] args) {**  **Scanner input = new Scanner(System.in);**  **System.out.print("Enter an integer to be converted to hex or hit enter to end program:");**  **int val = input.nextInt();**  **// Display the value's hex equivalent**  **System.out.println("The hex equivalent of "**  **+ val + " is " + dec2Hex(val));**  **}**  **public static String dec2Hex(int a) {**  **String result = " ";**  **return dec2Hex(a, result);**  **}**  **public static String dec2Hex(int a, String result) {**  **int r = a % 16; // Remainder**  **String remainder = r >= 10 ?**  **String.valueOf((char)('A' + r % 10)) : String.valueOf(r);**  **if (a/ 16 == 0) // Base case**  **return remainder + result;**  **else**  **return dec2Hex(a / 16, remainder + result); // Recursive call**  **}**  **}** |

**Testing:** (Describe how you test this program. Type your answer in the following with **BLUE font color**)

|  |
| --- |
| **RUN three times, using the same input as in the sample runs:**  **Test 1:**  **...**  **Test 2:**  **…**  **Test 3:**  **…** |