



AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH

Faculty of Science and Information Technology

Department of Computer Science

CSC 2106 Computer Organization and Architecture (Section: A and E)

Fall 2015-2016

Faculty: Mohammad Samawat Ullah

Lab Tasks Due on: Week-8 & 9

1. Write a program that prompts the user to enter a character, and on subsequent lines prints its ASCII code in binary, and the number of 1 bit in its ASCII code.

Sample execution:

TYPE A CHARACTER: **A**

THE ASCII CODE OF A IN BINARY IS: **01000001**

THE NUMBER OF 1 BITS IS: **2**

2. Write a program that prompts the user to enter a character and prints the ASCII code of the character in hex on the next line. Repeat this process until the user types a carriage return.

Sample execution:

TYPE A CHARACTER: **Z**

THE ASCII CODE OF Z IN HEX IS: **SA**

TYPE A CHARACTER:

3. Write a program that prompts the user to type a hex number of four hex digits or less, and outputs it **in binary** on the next line. If the user enters an illegal character, he or she should be prompted to begin again. Accept only uppercase letters. Also, your program **may ignore** any Input beyond four characters.

Sample execution:

TYPE A HEX NUMBER (0 TO FFFF): **1a**

ILLEGAL HEX DIGIT, TRY AGAIN: **IABC**

IN BINARY IT IS **0001 1010 1011 1100**

4. Write a program that prompts the user to type a binary number of 16 digits or less, and outputs it in hex on the next line. If the user enters an illegal character, he or she should be prompted to begin again. Also, your program may ignore any input beyond 16 characters.

Sample execution:

TYPE A BINARY NUMBER, UP TO 16 DIGITS: **11100001**

IN HEX IT IS **E1**



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5. Write a program that prompts the user to enter **two Binary numbers of up to 8 digits each**, and **prints their sum** on the next line in binary. If the user enters an illegal character, he or she should be prompted to begin again. Each input ends with a carriage return.

Sample execution:

TYPE First BINARY NUMBER, UP TO 8 DIGITS: **11001010**

TYPE Second BINARY NUMBER, UP TO 8 DIGITS: **10011100**

THE BINARY SUM IS: **101100110**

6. Write a program that prompts the user to enter two unsigned hex numbers, 0 to FFFFh, and prints their sum in hex on the next line. If the user enters an illegal character, he or she should be prompted to begin again. Your program should be able to handle the possibility of unsigned overflow. Each input ends with a carriage return.

Sample execution:

TYPE A HEX NUMBER, 0 - FFEF: **21AB**

TYPE A HEX NUMBER, 0 - FFFF: **FE03**

THE SUM IS: **11FAE**

7. Write a program that prompts the user to enter a string of decimal digits, ending with a carriage return, and prints their sum in hex on the next line. If the user enters an illegal character, he or she should be prompted to begin again.

Sample execution:

ENTER A DECIMAL DIGIT STRING: **1299843**

THE SUM OF THE DIGITS IN HEX IS: **0024**