Tasks

- 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 bits 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

- 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. 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

- 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

- 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