W04 Task Submission (Loops, Functions, and Bitwise Operators)

You should watch the videos under Instructor Videos for this module before completing these tasks. You may need to perform additional research to solve these tasks. You are encouraged to use the Support Forum to get help with these tasks. After completing your tasks, please submit your original C source files. You do not need to submit files you did not write. In each of your programs, use comments before each section of code to explain what the code does.

1. Write a program that reads standard input and sends to standard output the hexadecimal values of the characters input, each on its own line.

Example input/output:

```
Enter a string: gtfj
67
74
66
6A
```

2. Write a function that converts a number into a binary representation. This function takes two parameters: an unsigned int, and a character array, like this:

```
void convert_binary(unsigned int num, char *result);
```

You will store a sequence of "1" and "0" characters into the array according to the binary representation of the number. You may include leading zeroes and spaces between octets (sets of 8 bits) in the converted number.

In your main function, you will create an array of characters large enough to store the binary representation of all possible input values (including the string delimiter character), ask the user for the value to convert, and display the converted number. If you include spaces in the output representation of the number, be sure to make your array big enough to store these characters as well.

For example, given the input number 3, the output could be something like one of these:

```
11
00000011
00000000 00000000 00000000 00000011
```

3. Use the bitwise operators & ^ | ~ << >> using values and operations of your choice to perform bitwise operations and display the results to the user using the convert_binary function you already wrote. Use each operator at least once.