**(Spring 2014) CSC 555 Programming Project 2: Simple-DES**

Due date: 2/27/2014, 11:59pm

You are to write a program **simple-des.cpp** to simulate the encryption process of simple-DES. Your program should allow the user to enter a 10-bit key and a plaintext message in ASCII letters. The program will output the two round keys and the corresponding ciphertext.

Two sample executable programs are provided

**cp /export/home/public/zhang/crypto/sdes sdes**

**cp /export/home/public/zhang/crypto/sdes-debug sdes-debug**

Your program should give a similar output as the output of **sdes**. You can use the second sample program **sdes-debug** to verify the intermediate steps of your implementation.

**Sample output**

> ./sdes

Enter 10-bit key: 1010101010

Enter plaintext: this is a test

Encryption:

Round key 1: 11100100

Round key 2: 01010011

Ciphertext: 01111010 00011010 10000111 11000001 11010010 10000111 11000001 11010010 10101001 11010010 01111010 11101000 11000001 01111010

**(Bonus, 4 pts)** Be able to handle the decryption process, i.e., take the cipher text (in binary) and recover the corresponding plaintext message (in ASCII).