

UCSC ANNUAL CONTEST 2011

The following problems are an amalgamation of various challenges from different problem domains, the point being that you need to think in order to solve them. Good Luck!

Submission Guidelines

- The contest submission deadline is **Jan 1, 2012**
- Put your solution to each problem in a separate folder **numbered from 1 to 5**
- Compress **all of your solutions** into one **zip or tar** file and name the file with your name (ie. jon_doe.zip)
- Email a copy of your results to uoit.csc@gmail.com with the message title **CONTEST**
- For contest hints, questions about the contest, or to find out more about the computer science club, please email us or join our mailing list https://groups.google.com/group/uoit_csc?hl=en

Additional Problem Material!

- Download the following, which is **required for problems 2 and 5**
<http://goo.gl/8QeYM>

Contest Problems

1. The Huff Puff Problem
 - a. Write a program that prints the numbers from 1 to 50. But for multiples of two print "Huff" instead of the number and for the multiples of five print "Puff" instead of the number. For a number that is a multiple of both two and five print "HuffPuff".
 - b. Most implementations, awarded to whoever provides the most implementations of the above problem.
 - c. Most creative solution, awarded to the person with the most creative solution to the problem.
 - d. **(BONUS)** Implement a solution for the problem in assembly, must be done using "real" assembly language such as NASM, MASM, FASM, etc.
2. The programs for problem two are mocking your skills by displaying the message "UCSC Contest Problem Two is too hard for you, give up!". Change the program version appropriate for your operating system (Windows, Linux) so that it prints out **<student name> is smarter!** (ie. Jon Doe is smarter!)
 - a. **(BONUS)** If you solve the problem for both the Windows and Linux version

3. Solve **e99a18c428cb38d5f260853678922e03**
4. Mersenne primes are unique prime numbers of the form $2^p - 1$, on June 1, 1999 a GIMPS member found the first prime number of over a million digits, M6972593 ($2^{6972593} - 1$), with 2,098,960 digits to be exact, using an M38 Pentium (350 MHz). More recently a GIMPS member found a **Mersenne prime, M20996011 with 6,320,430 digits, find the last fifteen digits of this Mersenne prime number.**
5. You have managed to spoof the MYCAMPUS SSID and set it as an open wireless access point to lure unsuspecting students, aside from the usual plaintext Facebook accounts and MSN conversations you sniff, you spot some interesting packet data that stands out being sent between two students Alice and Bob on MSN.
 - a. Look at the following packet data section dumps for the message from Alice to Bob and the reply from Bob to Alice and use your skills to prove them wrong.
 - b. Using what you accomplished in part **a** impersonate Bob and create the packet data for a forged message that you will send to Alice to prove her wrong!