Homework H1: Practice Problems in C

CS 283 Systems Programming

Grading: 100 points

Problem 1. (40 points) Write a C program to print the contents of a text file line-by-line but backwards so that the last line is printed first. The filename should be specified as a command-line argument.

Problem 2. (30 points) Write a C program to convert a decimal number to binary in 32 bits. All 32 bits should be printed even if fewer bits are required to represent the number. The number should be specified as a command-line argument.

Problem 3. (30 points) Write a C program to find out how many bits a variable of type ***long int*** is. Your program should not call any system functions (not even sizeof) and it should not include any .h files. (In other words, write your own code).

Reading from a File

Here is code that reads a text file, line by line, and prints each line to standard out.

```
#include <stdio.h>
#define SIZE 128
int main (void)
 {
  char line[SIZE];
  FILE * fp = fopen("test.txt", "r");
  if (fp == NULL) return;
//Read each line of the file, and print it to screen
  while(fgets(line, SIZE, fp) != NULL)
   printf("%s", line);
 }
```

What to hand in:

Please submit three files with a .c extension each containing one of the three programs. Use the submission method specified in the Syllabus.