Workshop 2: Data Representation  
Dr. Tom Way  
June 11, 2007

Due: June 18, 2007  
Worth: 50 points

This workshop is designed to increase your understanding of data representation and basic input and output in a C program.

Description

You are to write a C program that prints an integer and a floating point value in different eight ways by re-interpreting it as the following data types or output formats:

- char
- hexadecimal
- scientific notation
- int
- unsigned int
- long
- long long
- float

You should compile and run your program with a variety of different values. Base your program on the example below.

Resources

- "man" page for printf
- other online C programming references
- see class web site "Reources" page

What to hand in

Email me with the name of your program file and I will retrieve it from your account, compile it and run it. In the email provide a brief explanation of what you observed.

Grading criteria

Program compiles and runs 25  
Accepts numeric input 5  
Rejects non-numeric input 5  
Prints output in 8 formats 5  
Brief explanation of observations 10
Example program

#include <stdio.h>

int main()
{
    int int_value = 65;
    double float_value = -67.5;

    // Print int_value as various types
    // --------------------------------
    printf("original int_value is %d\n", int_value);
    // as char
    // as hexadecimal
    // as scientific notation
    // as int
    // as unsigned int
    // long
    // as long long
    // as float
    printf("int_value as float: %f\n", int_value);

    // Print float_value as various types
    // ----------------------------------
    printf("original float_value is %f\n", float_value);
    // as char
    // as hexadecimal
    // as scientific notation
    // as int
    printf("float_value as int: %d\n", float_value);
    // as unsigned int
    // long
    // as long long
    // as float
}