

## CSI 201 — Computer Science I

Homework #04 - due February 17th, 2006

Write the following program on sampson. Hand it in by printing the source in GLDS 202 using `enscript hw4.cpp`. To receive a grade, your program MUST compile and execute on sampson in the 201 directory under the filename `hw4.cpp`

Remember to always `cd 201` and save your work. Your program output should exactly match the sample execution shown below for full credit. Executing `./p201` will test your program against some other sample executions.

In this homework, continue your work on homework two, to make a complete and working program. Write a program to compute the distance  $s$  an object moves according to acceleration  $a$ , velocity  $v$  and time  $t$  input by the user. The formula to compute distance from these inputs is:  $s = vt + \frac{1}{2}at^2$ . Negative accelerations and negative velocities are okay, but negative time does not make sense. A time of 0 seconds is acceptable. Your program should declare the appropriate variables, prompt the user for input, check for correct values in the input, compute the calculations and then output the result. Include a loop which prompts the user for an appropriate time value if a negative input is given. Sample program execution is attached.

### Sample Executions:

Input floating point velocity in ft/s: 3.5  
Input floating point acceleration in ft/(s\*s): 1.3  
Input floating point time in s: 4  
The distance is 24.4 feet.

Input floating point velocity in ft/s: 10  
Input floating point acceleration in ft/(s\*s): -4  
Input floating point time in s: -1  
ERROR time is negative  
Input positive time in s: -3.3  
ERROR time is negative  
Input positive time in s: 3.3  
The distance is 11.22 feet.

Input floating point velocity in ft/s: 30  
Input floating point acceleration in ft/(s\*s): -15  
Input floating point time in s: 2  
The distance is 30 feet.

Input floating point velocity in ft/s: -15  
Input floating point acceleration in ft/(s\*s): 15  
Input floating point time in s: 2  
The distance is 0 feet.