

# CS 105 Lab 2a

## Playing with X86 Assembly

See Calendar for Exercise Date and Due Date

September 25, 2003

10h 48min

### Introduction and Goals

The goal of this assignment is to do some basic investigation of the X86 architecture and assembly language.

### Task - 1

Practice Problem 3.5

- Write a small main program that calls the shift routine and then create an object file. Look at the assembly language and determine
- what registers are used for the shift amounts.
- Use GDB and step your way through the execution.
- Submit ONLY the C source code with comments indicating how the shift amounts were set up.

### Task - 2

Figure 3.8

- Change the example of Figure 3.8, pg 146 to be a C program called **main** with **x,y,z** having values **8,19,35**. Compile this to object code, saving the assembly language version in a file.
- Use GDB to walk the execution.
- Disassemble the object code and compare to the saved assembly language version.
- Submit ONLY the assembly language version with comments about any differences with the disassembled version.

### Task - 3

Practice Problem 3.9

- Change the source to have initial values for **a** and **p**, and a program name of **main**.
- Compile and execute the program using GDB.
- Do step **A** from the book, again compiling and executing with GDB.
- Submit ONLY the assembly language version with the **goto** statements with comments discussing step **B**.