COM 410, 1799, Computer Architecture: Task #3
The *x87* Instruction Set

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1 Introduction

All tasks must be written in *x86* assembly language for protected (32-bit) or long (64-bit) mode.

2 Tasks

1. Arithmetic Mean

   Given a series of real numbers. Write an application to calculate the arithmetic mean of this series. Each number is provided through standard input line by line. Input is terminated with the *EOF* (end of file) value which is equal to -1 in *glibc*.

2. Quadratic Equation

   Find real roots of the quadratic equation for the given constants a, b, c. Each constant is passed on a separate line through standard input. Your application should write each root on a separate line to standard output. The return code of your application should be 0 if at least one real root was found. If there are only complex roots, write nothing to standard output and set the exit code to -1.

3 Links

3.1 Intel® Developer's Manuals

Volume 1: Basic Architecture
`http://www.intel.com/Assets/PDF/manual/253665.pdf`

Volume 2A: Instruction Set Reference, A-M
`http://www.intel.com/Assets/PDF/manual/253666.pdf`

Volume 2B: Instruction Set Reference, N-Z
`http://www.intel.com/Assets/PDF/manual/253667.pdf`

3.2 The GNU Compiler Collection

GCC Online Documentation
`http://gcc.gnu.org/onlinedocs`

GCC Command Options
`http://gcc.gnu.org/onlinedocs/gcc/Invoking-GCC.html`

3.3 The Netwide Assembler

Online Documentation for NASM 2.09.06
`http://www.nasm.us/xdoc/2.09.06/html/nasmdoc0.html`