

ISA 656, Assignment 4 ***due May 11th, 11:59pm***

GENERAL INSTRUCTIONS

This homework has two parts: one part with a set of theory questions and a programming part. Programming can be done in either C or Java. Submissions should include the **annotated** source code. Programs that do not compile will get a low grade. Make sure your programs do not crash when given bad input, but rather produce a useful warning or error message and take the appropriate action (recover or quit).

SUBMISSION INSTRUCTIONS

The compressed files (either tar or zip) will be submitted using email to astavrou@gmu.edu.

A compressed (zip or tar, and gzipped) file named {your last name}-hw3.tgz or {your last name}-hw3.zip containing a subdirectory for each problem, named p1, p2, etc. Each subdirectory should contain:

- All source code, including any test programs, for the problem, if required.
- A file answering any questions posed.
- Any additional files required.

Please make sure that you send me **a single compressed file with all the documents and code. The compressed file should not exceed 1MB.**

THEORY/WRITTEN QUESTIONS (80 points)

- 1) List all the different types of Denial of Service (DoS) attacks for networked applications and mechanisms to defend against them.
- 2) Why do we implement several different forms of encryption when we protect Voice over IP (VoIP) systems and more specifically SIP?
- 3) How do we protect wired communications against eavesdropping?
- 4) What are the current security problems with Domain Name Service? Are there any proposed solutions?
- 5) How do we protect wireless communications against eavesdropping? Is WEP a good solution?

PROGRAMMING (20 points)

John Supercoder generated a very simple SSL server:

http://cs.gmu.edu/~astavrou/courses/isa_656_S08/isa656server.java

http://cs.gmu.edu/~astavrou/courses/isa_656_S08/isa656client.java

Unfortunately, his code has some errors both in terms of syntax and in terms of logic. Your task is to help John debug and test his code (prove that it is running).

(Hint: start with the syntax errors and then locate the logical ones).