The second CS 122 test will cover proof techniques and program correctness.

1. Proof techniques
   o Direct Proofs
     ▪ Definition of a direct proof
     ▪ Be able to prove statement using direct proof technique
   o Indirect Proofs
     ▪ Contraposition
       • Know the principles behind a contraposition proof
       • Be able to prove statement using contraposition proof
     ▪ Contradiction
       • Know the principles behind a contradiction proof
       • Be able to prove statement using contradiction proof
   o Proof by cases
     ▪ Know the principle behind proof by cases
     ▪ Be able to prove statement using proof by cases
   o Equivalence
     ▪ What is the definition of equivalence?
     ▪ Be able to determine if two statements are equivalent
2. Program Correctness
   o Understand definition of pre and post conditions
   o Determine if program correct given pre and post conditions
   o Determine post-condition, given pre-condition and program segment
   o Determine pre-condition, given post-condition and program segment
   o Understand proof rules for
     ▪ Statements
     ▪ Composition
     ▪ Conditionals
       • If and if/else
     ▪ Loops
       • Loop invariants