Exam 1 Study Guide

The exam is closed book and closed notes. It is comprehensive and includes all materials covered during the term so far, in lecture, lab, and on the projects.

Topics covered:

- Abstract Data Type definition
- ADTs: set, point, string, bigint
- Class, constructors, operator overloading
- Const methods
- Pre, post conditions, invariants, assertions
- Software testing
- Overloading I/O operators

Not on the exam: make, svn, or Unix commands

Sample Exam Questions

These questions are representative of the types and format of the exam questions. The instructor has given similar questions in the past.

1. Given the class definition below, write a member function that checks if two strings (as defined below) are equal. Give REQUIRES and ENSURES conditions for the operator== you write.

```
class String {
public:
          string() { s[0] = 0; };
    bool  operator==(const String&) const;

private:
    char  s[256];  //null terminated character array
};
```

2. What are the three components of an abstract data type (ADT)?

3. Overload `operator>>` for the string class defined in problem 1. You can assume it is a friend function. Read in a string from a stream until a semicolon (;) is read. Blanks MUST be included into the string, but the end of line character or semicolon should NOT. You do not need to check for end of file.

4. Overload `operator<<` for the bigint class in project 1. You can assume it is a friend function. Output such that there are a maximum of 60 digits per line. Assume there is a constant value called BIGINT_CAPACITY.