CS 620
Program 1: Due April 22, 2013

1 Learning Goals

1. To write a simple program in C++ that includes a main program and classes.
2. To utilize a Random class and the Vector container type of the C++ Standard Template Library effectively.

2 The Problem

Use your newly created Book class in conjunction with the Random class to randomly generate a list of 3 suggested titles from a database of at least 15 books.

1. To use the Vector container class.
2. To implement a random number generator for both integers and reals.
3. To provide a output operator for the book class.
4. To format the output neatly and easily read.

3 Instructions

The first thing you must do is implement the Random class. I have provided the class declaration below. Once you have a working Random class, you must implement your book class we discussed in class.
Your program must prompt the data entry person to enter the 15 or more books in a loop. Store these books in a Vector container object of the STL. Next prompt the bookstore customer for what genre the customer is interested in. Finally, randomly generate the 3 titles in the genre the customer is interested in and neatly print them for the user. When you print the books, include all member fields in your Book class. Also, randomly generate a price for your book between 5 and 15 dollars and display that with each book you print.
Note: I will run your code. So, be sure your Random class is generating random numbers.

4 The Random Class

```
#ifndef RANDOM_H
#define RANDOM_H

#include <ctime>
#include <climits>
#include <iostream>

using namespace std;
class Random
{
    public:
        Random(unsigned long=0);
        virtual ~Random();
        void ResetSeed(unsigned long=0);
        int Integer(unsigned long=ULONG_MAX, unsigned long=1);
        double Real();
```

```
    protected:
    private:
        unsigned long m_seed;
        void Randomize();
};

#endif // RANDOM_H
```

5 Submitting Your Work

1. Submit all work on Blackboard. I will not accept hand written work nor will I accept emails.
2. Hand in your fully commented code with explanations of your implementation. The explanation should be enough to guide me through your code easily. It should read a bit like a narrative.
3. However, limit your explanations to about two sentences per function, class, etc.
4. Provide at least 5 complete runs of your code.

6 Grading Rubric

points	Grading Criteria
2	Has a main program in a .cpp file.
2	Defines classes using .h files and a .cpp files.
2	All data parts are private and member functions are private when possible.
2	Has working non-default constructors.
2	Implements an output operator for the Book class.
2	Prints output neatly and correctly.
4	Correctly implements the Random class.
2	Code sufficiently commented and readable.
2	Correct and efficient use of Vector container.