CS 3710 Vocational Languages
Assignment 3

Due date: October 5, 2012
Submit your source code to d2l and bring a hard copy to the class.

1 Template Class (30 marks)
Implement a C++ function `vector<int> removeDuplicates(vector<int>)` which returns an integer vector where all duplicates in the given vector argument are removed. In the `main` function, use the following `values` vector to test your function:

```cpp
vector<int> values;
for (int i = 0; i < 5; i++)
{
    values.push_back(i);
    values.push_back(i+1);
}
```

2 Overloading Function (50 marks)
Add a C++ overloading function `vector<Book> removeDuplicates(vector<Book>)` to the previous implementation. You need to define a `Book` class in a file called `Book.h` and implement related functions in `Book.cc`:

```cpp
class Book {
    public:
        Book();
        Book(string, int);
        // other public functions
    private:
        string name;
        int year;
    }
```
In the `main` function, add the following `book` vector to test your function:

```cpp
vector<Book> books;
books.push_back(Book("The C Programming Language", 1990));
books.push_back(Book("JavaScript: The Good Parts", 2008));
books.push_back(Book("Accelerated C++: Practical Programming by Example", 2000));
books.push_back(Book("Scala for the Impatient", 2012));
books.push_back(Book("The C Programming Language", 1990));
books.push_back(Book("JavaScript: The Good Parts", 2008));
books.push_back(Book("Accelerated C++: Practical Programming by Example", 2000));
books.push_back(Book("Scala for the Impatient", 2012));
```

3 **Generic Function (20 marks)**

Implement a C++ generic function `<template class T> vector<T> removeDuplicates (vector<T>)`. Test your function using the values and `books` vectors from Questions 1 and 2.