

CMPSCI 182L Data Structures and Program Design

Project 5 – Trees (30 points)

Due 5/29/19

Write a program that provides a way for you to store and retrieve telephone numbers. Design a console program that provides the following operations:

Add: Adds a person's name and phone number to the phone book.

Delete: Deletes a given person's name and phone number from the phone book, given only the name.

Find: Locates a person's phone number, given only the person's name.

Change: Changes a person's phone number, given the person's name and new phone number.

Quit: Quits the application, after first saving the phone book in a text file.

You can proceed as follows:

- Design and implement the class **Person**, which represents the name and phone number of a person. You will store instances of this class in the phone book.
- Design and implement the class **PhoneBook**, which represents the phone book. The class should contain a reference to the root node of a **binary search tree** as a data field. This tree contains the people in the book.
- Add methods that use a text file to save and restore the tree.
- Design and implement the class **Menu**, which provides the program's user interface.

The program should read its data from a text file when it begins and save its data into the text file when the user quits the program.