San José State University
Department of Computer Science

CS 144
Advanced C++ Programming

Spring 2019
Instructor: Ron Mak

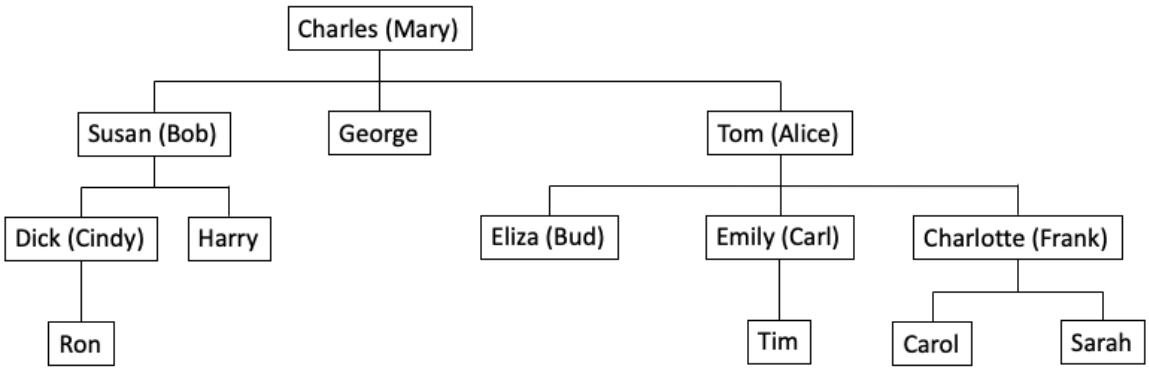
Assignment #10

Assigned:	Tuesday, April 16
Due:	Tuesday, April 23 at 8:30 AM
CodeCheck:	http://codecheck.it/files/19041518576w6zxu3d087msoaa93dezuvce
Canvas:	Assignment 10. Genealogy Tree
Points:	100

Genealogy tree

This assignment will give you practice writing recursive functions.

A genealogy tree for a person shows all the descendants of that person. Here is a tree for Charles:



You are provided the code that will build such a tree. Each node of the tree is an instance of the class **`Person`**, which you need to complete.

Expected output

Your output should exactly match what's on the right:

- Each person's name is followed in parentheses by his or her spouse's name, if married.
- Each person is followed by his or her children in order, if any. Each child is in turn followed by his or her children, if any.
- Note carefully the printing of the vertical bars, plus signs, and horizontal lines.

```
Charles (Mary)
|
+---Susan (Bob)
|   |
|   +---Dick (Cindy)
|   |   |
|   |   +---Ron
|   |
|   +---Harry
|
+---George
|
+---Tom (Alice)
    |
    +---Eliza (Bud)
    |
    +---Emily (Carl)
    |   |
    |   +---Tim
    |
    +---Charlotte (Frank)
        |
        +---Carol
        |
        +---Sara

deleted Ron
deleted Dick
deleted Harry
deleted Susan
deleted George
deleted Eliza
deleted Tim
deleted Emily
deleted Carol
deleted Sara
deleted Charlotte
deleted Tom
deleted Charles
```

Recursive member functions

You must use recursion in at least the following member functions:

- **`print`**: Print a person's name and the spouse name (if married), then recursively print the children (if any).
- **`print_bar`**: Recursively print spaces and/or vertical bars before each name (except for the name at the top).
- **`~Person:`** Recursively delete all the nodes of the tree. Print the name of the person being deleted.

What to submit

Submit the signed zip file into Canvas:
Assignment 10. Genealogy tree.

You can submit as many times as necessary to get satisfactory results, and the number of submissions will not affect your score. When you're done with your program, click the "Download" link at the very bottom of the Report screen to download the signed zip file of your solution.

Rubrics

Criteria	Max points
Correct program output (as determined by CodeCheck) • Positions of the names in the tree • Vertical and horizontal lines	40 • 20 • 20
Recursive functions • **`print`** • **`print_bar`** • **`~Person`**	60 • 20 • 20 • 20