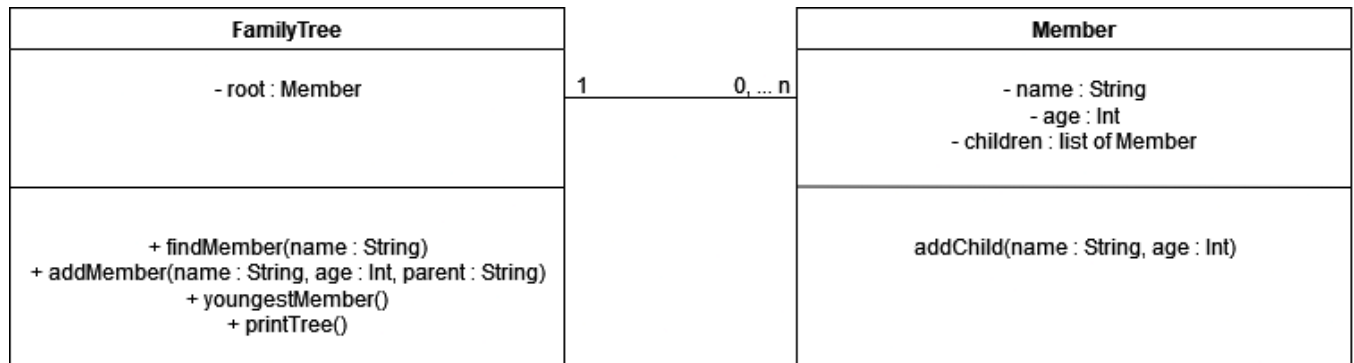


Trees Assignment

Preamble

In this assignment, you will be designing and creating a modular program that allows users to build and interact with a family tree. You will define two classes: `FamilyTree` and `Member`, and implement methods to interact with the family tree. You must implement the required methods, but you can define any additional methods you think are necessary. You will create a menu interface that allows users to interact with the family tree.



Question 1

Define a class `FamilyTree` and a class `Member` according to the UML diagram. The methods will be defined in later questions.

Question 2

Define a method `findMember` that returns a `Member` object that matches the name provided, or `None` if no `Member` with that name exists in the `FamilyTree`.

Question 3

Define a method `addMember` that adds a member to the family tree as a child of the provided parent.

Question 4

Define a method `youngestMember` that prints the name and age of the youngest member in the family tree.

Sample output:

Youngest member is: Ethan – age 15

Question 5

Define a method `printTree` that displays the family tree with proper indentation to indicate the hierarchy.

Sample output:

```
Abby
  Brad
    Danielle
  Charlie
    Ethan
```

Question 6

Create an interactive menu interface for the user. The user must be able to do the following:

- display the family tree
- find a member
- add a member
- find the youngest member
- end the program

Sample output:

```
Enter family member's name:Abby
Enter age of family member:60
```

```
*****MENU*****
1 - Display the family tree
2 - Find a member
3 - Add a member
4 - Find the youngest member
5 - Quit
```

```
Option: 1
Abby
```

```
*****MENU*****
1 - Display the family tree
2 - Find a member
3 - Add a member
4 - Find the youngest member
5 - Quit
```

```
Option: 2
Enter family member's name:Abby
Member found! Name: Abby Age: 60
```

```
*****MENU*****
1 - Display the family tree
2 - Find a member
3 - Add a member
4 - Find the youngest member
5 - Quit
```

```
Option: 3
Enter family member's name:Brad
Enter age of family member:40
Enter family member's parent:Abby
```

```
*****MENU*****
1 - Display the family tree
2 - Find a member
3 - Add a member
4 - Find the youngest member
5 - Quit
```

```
Option: 3
Enter family member's name:Charlie
```

Enter age of family member:38
Enter family member's parent:Bob
Unable to add member if parent is not in the family tree

*****MENU*****
1 - Display the family tree
2 - Find a member
3 - Add a member
4 - Find the youngest member
5 - Quit

Option: 3
Enter family member's name:Charlie
Enter age of family member:38
Enter family member's parent:Abby

*****MENU*****
1 - Display the family tree
2 - Find a member
3 - Add a member
4 - Find the youngest member
5 - Quit

Option: 1
Abby
 Brad
 Charlie

*****MENU*****
1 - Display the family tree
2 - Find a member
3 - Add a member
4 - Find the youngest member
5 - Quit

Option: 3
Enter family member's name:Danielle
Enter age of family member:24
Enter family member's parent:Brad

*****MENU*****
1 - Display the family tree
2 - Find a member
3 - Add a member
4 - Find the youngest member
5 - Quit

Option: 1
Abby
 Brad
 Danielle
 Charlie

*****MENU*****
1 - Display the family tree
2 - Find a member
3 - Add a member
4 - Find the youngest member

5 - Quit

Option: 4

Youngest member is: Danielle - age 24

*****MENU*****

- 1 - Display the family tree
- 2 - Find a member
- 3 - Add a member
- 4 - Find the youngest member
- 5 - Quit

Option: 3

Enter family member's name: Ethan

Enter age of family member: 15

Enter family member's parent: Charlie

*****MENU*****

- 1 - Display the family tree
- 2 - Find a member
- 3 - Add a member
- 4 - Find the youngest member
- 5 - Quit

Option: 1

Abby

Brad

Danielle

Charlie

Ethan

*****MENU*****

- 1 - Display the family tree
- 2 - Find a member
- 3 - Add a member
- 4 - Find the youngest member
- 5 - Quit

Option: 4

Youngest member is: Ethan - age 15

*****MENU*****

- 1 - Display the family tree
- 2 - Find a member
- 3 - Add a member
- 4 - Find the youngest member
- 5 - Quit

Option: 5