

Small Assignment #6

Due: Wednesday, 10/30/2024 by 11:59 PM

Submission: Submit this to Gradescope as a single PDF. Assign pages to questions. There are points associated with this for some of the questions below.

Question 1.

Implement a predicate `ancestralLine(L)` which means that `L` is a list of people (or hobbits) making up a direct line through parentage. You can use the `bagginsFamily` file for testing.

Example queries:

```
?- ancestralLine([frodo|T]).
T = [] ;
T = [drogo] ;
T = [drogo, fosco] ;
T = [drogo, fosco, largo] ;
T = [drogo, fosco, largo, balbo] ;
T = [drogo, fosco, largo, berylla] ;
T = [drogo, fosco, tanta] ;
T = [drogo, ruby] ;
T = [primula] ;
false.

?- ancestralLine([bilbo|T]).
T = [] ;
T = [bungo] ;
T = [bungo, mungo] ;
T = [bungo, mungo, balbo] ;
T = [bungo, mungo, berylla] ;
T = [bungo, laura] ;
T = [belladonna] ;
false.
```

Question 2.

Implement a predicate `friendGroup(N,G)` where `G` is a group of `N` people who are all friends with each other. You can use the friend facts from SA #5 for testing.

Example query (note that I'm not printing out all the possible answers):

```
?- friendGroup(3,X).
X = [deshawn, anna, ali] ;
X = [deshawn, ali, anna] ;
X = [coco, elena, lucas] ;
X = [coco, lucas, elena] ...
```

Question 3.

Implement a predicate `everyOtherOne(X,Y)` where X and Y are lists Y contains every other element in X.

Example Queries:

?- `everyOtherOne([1,2,3,4],X)`.

X = [1, 3].

?- `everyOtherOne([1,2,3,4,5],X)`.

X = [1, 3, 5].

Question 4.

Implement a predicate `removeDuplicates(X,Y)` where X and Y are lists and Y is X with all the duplicates removed. Do not use sort.

Example Query:

?- `removeDuplicates([1,0,2,0,3,3,6,0,4],X)`.

X = [1,2,3,6,0,4]