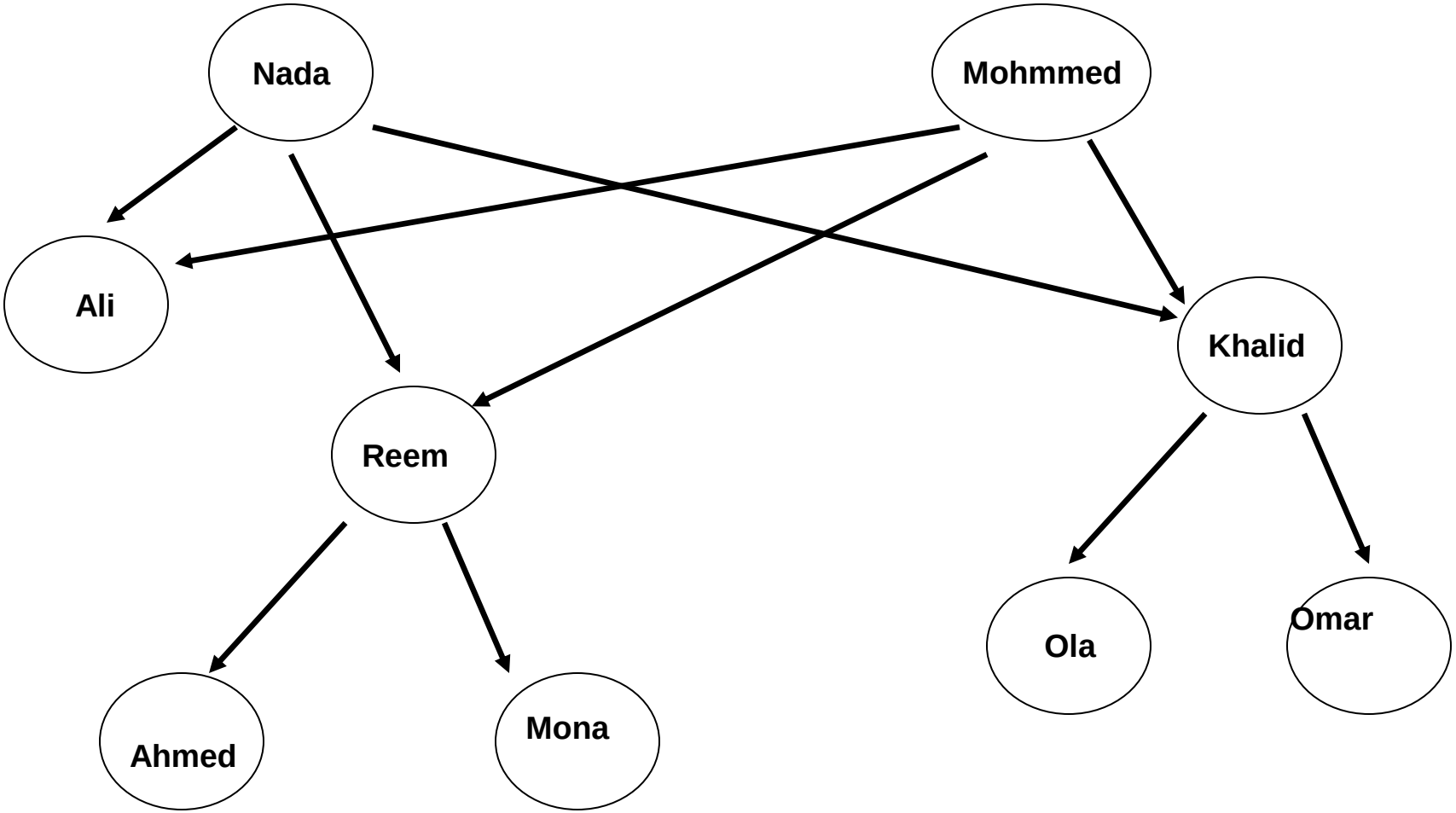
Lecture 2

Exercises

Ex. if you have the family tree that describe by networks representation, write a prolog program that describes this tree.



```
male(ali).
male(ahmed).
male(mohammed).
male(khalid).
male(omar).

female(nada).
female(reem).
female(mona).
female(ola).
```

```
parent(mohammed,reem).
parent(mohammed,ali).
parent(mohammed,khalid).
parent(nada,reem).
parent(nada,ali).
parent(nada,khalid).

parent(reem,ahmed).
parent(reem,mona).
parent(khalid,ola).
parent(khalid,omar).
```

1. Defines grandfather and grandmother relations

```
gfather(X,Y):-  male(X) , parent(X, Z)
                ,  parent(Z,Y).

gmother(X,Y):-  female(X), parent(X, Z)
                ,  parent(Z,Y).
```

2. Defines brother and sister relations

```
brother(X,Y):-  male(X) , male(Y), X<>Y,
                parent(Z,X),  parent(Z,Y).

sister(X,Y):-  female(X) , male(Y),
               parent(Z,X),  parent(Z,Y).

sister(X,Y):-  female(X) , female(Y) , X<>Y,
               parent(Z,X),  parent(Z,Y).
```

3. Defines uncle and aunt relations

```
uncle(X,Y):- male(X), parent(Z,Y)
             ,  brother(X,Z).

aunt(X,Y):- female(X), parent(Z,Y)
            , male(Z) ,  sister(X,Z).
```