ACTIVITY

Consider the following facts & rules:

Facts

- Mohammad is Saira’s father
- Asad is Omer’s and Jaweria’s father
- Bilal is Asad’s father
- Shahid is Madeeha’s father
- Saira is Madeeha’s mother
- Aleena is Mohammad’s and Jaweria’s mother
- Madeeha is Asma’s mother

Rules

- A person’s parent is their mother or father
- A person’s grand father is the father of one of their parents
- A person’s grand mother is the mother one of their parents

Convert them in PROLOG and write queries to answer the following Questions:

1. Who is the father of Saira?
2. Who is Asad the father of?
3. Is Asad the parent of Jaweria?
4. Who is the Grandmother of Jaweria?
5. Who is the Grandfather of whom?

SOLUTION

KNOWLEDGE BASE:

```
/*

* FACTS

*/

father(mohammad,saira).

father(asad,omer).
```
father(asad,jaweria).
father(bilal,asad).
father(shahid,madeeha).
mother(saira,madeeha).
mother(aleena,mohammad).
mother(aleena,jaweria).
mother(madeeha,asma).

/*
 * RULES
 */
parent(X,Y):-father(X,Y);mother(X,Y).

grandfather(X,Y):-father(X,A),parent(A,Y).

grandmother(X,Y):-mother(X,A),parent(A,Y).

**QUERIES (SWI-PROLOG OUTPUT):**

1 ?-
   % z:/AI/lab1.pl compiled 0.00 sec, 2,008 bytes
   1 ?- father(X,saira).

   X = mohammad ;
   No

2 ?- father(asad,X).

   X = omer ;
   X = jaweria ;
   No

3 ?- parent(asad,jaweria).

   Yes

4 ?- grandmother(X,jaweria).
5 \?- grandfather(X,Y).

\begin{align*}
X &= \text{mohammad} \\
Y &= \text{madeeha} ;
\end{align*}

\begin{align*}
X &= \text{bilal} \\
Y &= \text{omer} ;
\end{align*}

\begin{align*}
X &= \text{bilal} \\
Y &= \text{jaweria} ;
\end{align*}

\begin{align*}
X &= \text{shahid} \\
Y &= \text{asma} ;
\end{align*}

No

6 \?- halt.