

Assignment 9

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AP21110010201

1. Write a PROLOG program to find the number is ODD or EVEN. [20]

Ex: Even(25). Ans: False

 Odd(25). True

```
even(X) :-  
    mod(X, 2) == 0.
```

```
odd(X) :-  
    mod(X, 2) == 1.
```

▲

```
% e:/srm/artificial intelligence/prolog/demo compiled 0.00 sec, 0 clauses  
?- odd(9).  
true.  
  
?- even(7).  
false.  
  
?- even(8).  
true.  
  
?-
```

2. Define your family members of the Pandavas of the Mahabharat.
Define the relationship of grandfather and grandmother using
rules.

male(bhishma) .
male(vyasa) .
male(santanu) .
male(vichitravirya) .
male(pandu) .
male(dhritarashtra) .
male(yudhishtira) .
male(bhima) .
male(arjuna) .
male(nakula) .
male(sahadeva) .
male(krishna) .

female(ganga) .
female(satyawati) .
female(kunti) .
female(gandhari) .
female(draupadi) .
female(subhadra) .

father(bhishma, vichitravirya) .
father(santanu, bhishma) .
father(vyasa, dhritarashtra) .
father(vyasa, pandu) .
father(vyasa, vichitravirya) .
father(pandu, yudhishtira) .
father(pandu, bhima) .
father(pandu, arjuna) .
father(pandu, nakula) .
father(pandu, sahadeva) .
father(dhritarashtra, duryodhana) .
father(dhritarashtra, duhsasana) .
father(dhritarashtra, dushala) .
father(krishna, pradyumna) .
father(yudhishtira, prativindhya) .
father(bhima, sutasoma) .
father(arjuna, srutakirti) .
father(nakula, sataneeka) .
father(sahadeva, srutasena) .▲

```
mother(ganga, bhishma).
mother(satyavati, vichitravirya).
mother(kunti, yudhishtira).
mother(kunti, bhima).
mother(kunti, arjuna).
mother(kunti, nakula).
mother(kunti, sahadeva).
mother(gandhari, duryodhana).
male(bhishma).
male(vyasa).
male(santanu).
male(vichitravirya).
male(pandu).
male(dhritarashtra).
male(yudhishtira).
male(bhima).
male(arjuna).
male(nakula).
male(sahadeva).
male(krishna).

female(ganga).
female(satyavati).
female(kunti).
female(gandhari).
female(draupadi).
female(subhadra).

father(bhishma, vichitravirya).
father(santanu, bhishma).
father(vyasa, dhritarashtra).
father(vyasa, pandu).
father(vyasa, vichitravirya).
father(pandu, yudhishtira).
father(pandu, bhima).
father(pandu, arjuna).
father(pandu, nakula).
father(pandu, sahadeva).
```

```

father(dhritarashtra, duryodhana).
father(dhritarashtra, duhsasana).
father(dhritarashtra, dushala).
father(krishna, pradyumna).
father(yudhishtira, prativindhya).
father(bhima, sutasoma).
father(arjuna, srutakirti).
father(arjuna, abhimanyu).
father(nakula, sataneeka).
father(sahadeva, srutasena).

```

```

mother(ganga, bhishma).
mother(satyavati, vichitravirya).
mother(kunti, yudhishtira).
mother(kunti, bhima).
mother(kunti, arjuna).
mother(kunti, nakula).
mother(kunti, sahadeva).
mother(gandhari, duryodhana).
mother(gandhari, duhsasana).
mother(gandhari, dushala).
mother(subhadra, abhimanyu).

```

```

grandfather(X, Y) :- father(X, Z), parent(Z, Y).
grandmother(X, Y) :- mother(X, Z), parent(Z, Y).

```

```

parent(X, Y) :- father(X, Y).
parent(X, Y) :- mother(X, Y).mother(gandhari, duhsasana).
mother(gandhari, dushala).
mother(subhadra, abhimanyu).

```

```

grandfather(X, Y) :- father(X, Z), parent(Z, Y).
grandmother(X, Y) :- mother(X, Z), parent(Z, Y).

```

```

parent(X, Y) :- father(X, Y).
parent(X, Y) :- mother(X, Y).

```

Outputs

```
?- male(arjuna).  
true.  
  
?- female(bhima).  
false.  
  
?- female(ganga).  
true.  
  
?- father(vyasa,X).  
false.  
  
?- father(vyasa,X).  
X = dhritarashtra .  
  
?- mother(vyasa,X).  
false.  
  
?- mother(kunti,X).  
X = yudhishtira .  
  
  
?- parent(kunti,X).  
X = yudhishtira .  
  
?- parent(kunti,X).  
X = yudhishtira ;  
X = bhima ;  
X = arjuna ;  
X = nakula ;  
X = sahadeva.
```

```
?- grandfather(pandu, abhimanyu).  
true .
```

```
?- grandmother(kunti, abhimanyu).  
true .
```

```
?- grandfather(vyasa, nakula).  
true .
```

```
?- grandmother(kunti, sutasoma).  
true .
```

```
?- grandmother(kunti, X).  
X = prativindhya ;  
X = sutasoma ;  
X = srutakirti ;  
X = abhimanyu ;  
X = sataneeka ;  
X = srutasena ;  
false.
```

```
?- grandmother(X, sutasoma).  
X = kunti ;  
false.
```