Lab-2 WAP using variables in PROLOG.
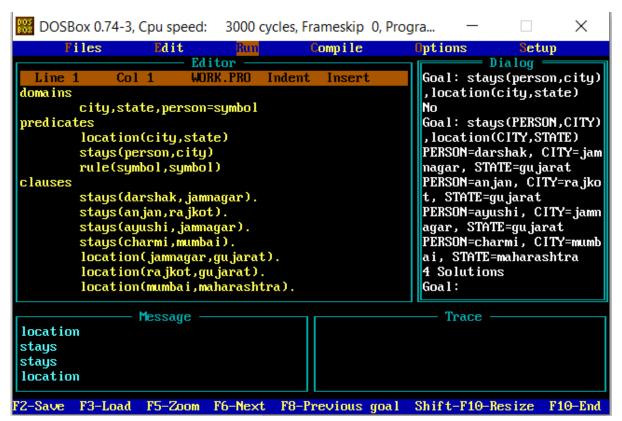
Write a Prolog program containing facts related to following predicates

a) Location (city, state)

b) Stays (person, city) in clauses section.

    (i) list of person, state and city.
    (ii) Given person staying in which state.

Code:

domains

    city,state,person=symbol

predicates

    location(city,state)

    stays(person,city)

    rule(symbol,symbol)

clauses

    stays(darshak,jamnagar).

    stays(anjan,rajkot).

    stays(ayushi,jamnagar).

    stays(charmi,mumbai).

    location(jamnagar,gujarat).

    location(rajkot,gujarat).

    location(mumbai,maharashtra).

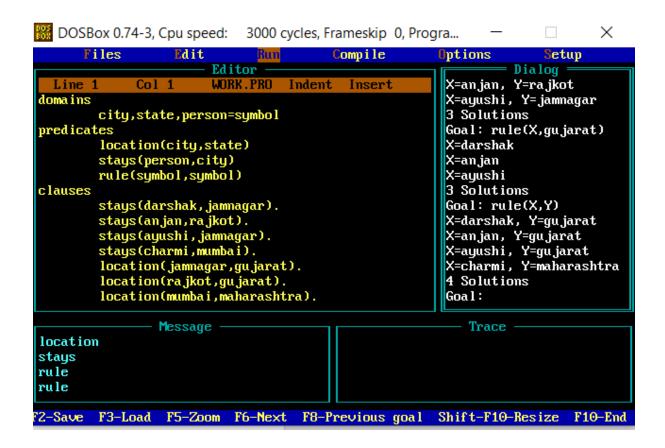   rule(X,Z):-stays(X,Y),location(Y,Z).

Output:

(i) list of person, state and city.

```
DOSBox 0.74-3, Cpu speed:   3000 cycles, Frameskip  0, Progra...    —    □    ✕

    Files         Edit         Run          Compile        Options        Setup
┌──────────────── Editor ────────────┐ ┌──────────── Dialog ════════╗
│ Line 1      Col 1     WORK.PRO  Indent   Insert │ │Goal: stays(person,city)│
│domains                                          │ │,location(city,state)   │
│     city,state,person=symbol                    │ │No                      │
│predicates                                       │ │Goal: stays(PERSON,CITY)│
│     location(city,state)                        │ │,location(CITY,STATE)   │
│     stays(person,city)                          │ │PERSON=darshak, CITY=jam│
│     rule(symbol,symbol)                         │ │nagar, STATE=gujarat    │
│clauses                                          │ │PERSON=anjan, CITY=rajko│
│     stays(darshak,jammagar).                    │ │t, STATE=gujarat        │
│     stays(anjan,rajkot).                        │ │PERSON=ayushi, CITY=jamm│
│     stays(ayushi,jammagar).                     │ │agar, STATE=gujarat     │
│     stays(charmi,mumbai).                       │ │PERSON=charmi, CITY=mumb│
│     location(jammagar,gujarat).                 │ │ai, STATE=maharashtra   │
│     location(rajkot,gujarat).                   │ │4 Solutions             │
│     location(mumbai,maharashtra).               │ │Goal:                   │
└─────────────────────────────────────┘ └────────────────────────────┘
┌──────────── Message ────────────┐ ┌──────────── Trace ────────────┐
│location                         │ │                               │
│stays                            │ │                               │
│stays                            │ │                               │
│location                         │ │                               │
└─────────────────────────────────┘ └───────────────────────────────┘
 F2-Save  F3-Load  F5-Zoom  F6-Next  F8-Previous goal  Shift-F10-Resize  F10-End
```

```
4 Solutions
Goal: stays(darshak,X),l
ocation(X,Y)
X=jammagar, Y=gujarat
1 Solution
Goal: stays(X,Y),locatio
n(Y,gujarat)
X=darshak, Y=jammagar
X=anjan, Y=rajkot
X=ayushi, Y=jammagar
3 Solutions
Goal: _
```

(ii) Given person staying in which state.

```
DOSBox 0.74-3, Cpu speed:   3000 cycles, Frameskip 0, Progra...   —   □   ✕

  Files        Edit        Run        Compile       Options       Setup
─────────── Editor ───────────        ─────────── Dialog ═══════════
 Line 1     Col 1     WORK.PRO  Indent   Insert    X=anjan, Y=rajkot
domains                                            X=ayushi, Y=jammagar
      city,state,person=symbol                     3 Solutions
predicates                                         Goal: rule(X,gujarat)
      location(city,state)                         X=darshak
      stays(person,city)                           X=anjan
      rule(symbol,symbol)                          X=ayushi
clauses                                            3 Solutions
      stays(darshak,jammagar).                     Goal: rule(X,Y)
      stays(anjan,rajkot).                         X=darshak, Y=gujarat
      stays(ayushi,jammagar).                      X=anjan, Y=gujarat
      stays(charmi,mumbai).                        X=ayushi, Y=gujarat
      location(jammagar,gujarat).                  X=charmi, Y=maharashtra
      location(rajkot,gujarat).                    4 Solutions
      location(mumbai,maharashtra).                Goal:

─────────── Message ───────────       ─────────── Trace ───────────
location
stays
rule
rule

F2-Save  F3-Load  F5-Zoom  F6-Next  F8-Previous goal  Shift-F10-Resize  F10-End
```

```
4 Solutions
Goal: rule(darshak,X)
X=gujarat
1 Solution
Goal: rule(charmi,Y)
Y=maharashtra
1 Solution
Goal: stays(charmi,X)
X=mumbai
1 Solution
Goal: _
```