Lab:1

Aim: Practice basic program of Prolog and try different goals.

Task1: Write a prolog program for the following facts.

- Colour of b1 is red
- Colour of b2 is blue
- Colour of b3 is yellow
- Shape of b1 is square
- Shape of b2 is circle
- Shape of b3 is square
- Size of b1 is small
- Size of b2 is small
- Size of b3 is large

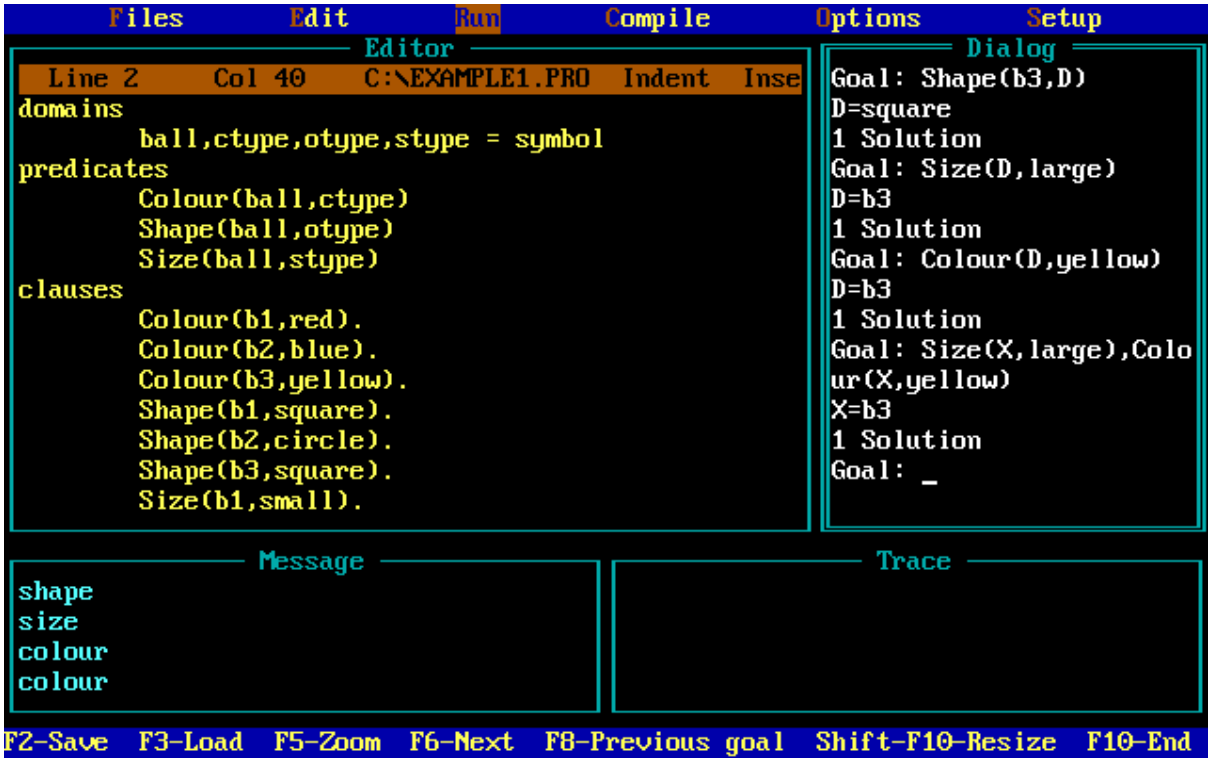
What will be the outcome of each of the following queries?

- What is the shape of b3?
- Which component is having large size and yellow colour?

Code:

```
domains
    ball,ctype,otype,stype = symbol
predicates
    Colour(ball,ctype)
    Shape(ball,otype)
    Size(ball,stype)
clauses
    Colour(b1,red).
    Colour(b2,blue).
    Colour(b3,yellow).
    Shape(b1,square).
    Shape(b2,circle).
    Shape(b3,square).
    Size(b1,small).
    Size(b2,small).
    Size(b3,large).
```

Output:


Files Edit Run Compile Options Setup
Editor
Line 2 Col 40 C:\EXAMPLE1.PRO Indent Inse
domains
ball,ctype,otype,stype = symbol
predicates
Colour(ball,ctype)
Shape(ball,otype)
Size(ball,stype)
clauses
Colour(b1,red).
Colour(b2,blue).
Colour(b3,yellow).
Shape(b1,square).
Shape(b2,circle).
Shape(b3,square).
Size(b1,small).
Dialog
Goal: Shape(b3,D)
D=square
1 Solution
Goal: Size(D,large)
D=b3
1 Solution
Goal: Colour(D,yellow)
D=b3
1 Solution
Goal: Size(X,large),Colo
ur(X,yellow)
X=b3
1 Solution
Goal:
Message
shape
size
colour
colour
Trace
F2-Save F3-Load F5-Zoom F6-Next F8-Previous goal Shift-F10-Resize F10-End

Task 2: The following queries yield the specified answers

| ?- likes(mary,food).

yes.

| ?- likes(john,wine).

yes.

| ?- likes(john,food).

no.

How can you answer following questions?

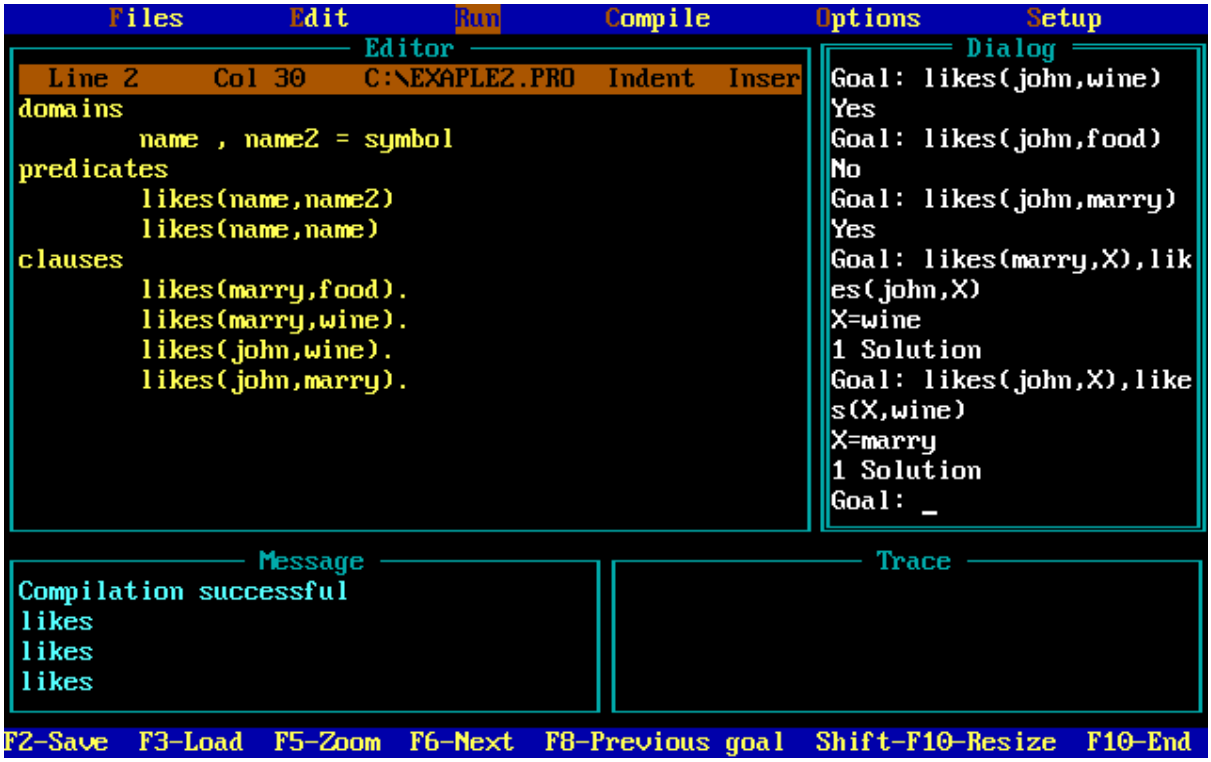
1. John likes anything that Mary likes

2. John likes anyone who likes wine

Code:

```
domains
        name , name2 = symbol
predicates
        likes(name,name2)
        likes(name,name)
clauses
        likes(marry,food).
        likes(marry,wine).
        likes(john,wine).
        likes(john,marry).
```

Output:


Files Edit Run Compile Options Setup
Editor
Line 2 Col 30 C:\EXAPLE2.PRO Indent Inser
domains
name , name2 = symbol
predicates
likes(name,name2)
likes(name,name)
clauses
likes(marry,food).
likes(marry,wine).
likes(john,wine).
likes(john,marry).
Dialog
Goal: likes(john,wine)
Yes
Goal: likes(john,food)
No
Goal: likes(john,marry)
Yes
Goal: likes(marry,X),likes(john,X)
X=wine
1 Solution
Goal: likes(john,X),likes(X,wine)
X=marry
1 Solution
Goal:
Message
Compilation successful
likes
likes
likes
Trace
F2-Save F3-Load F5-Zoom F6-Next F8-Previous goal Shift-F10-Resize F10-End

Task 3: Here are some simple clauses.

has(jack,apples).

has(ann,plums).

has(dan,money).

fruit(apples).

fruit(plums).

How can you answer following questions?

1. what Jack has?

2. Does Jack have something?

3. Who has apples and Who has plums?

4. Does someone have apples and plums?

5. Has Dan fruits?

Code:

```
domains
        name, f =symbol
predicates
        has(name,f)
        fruit(f)
clauses
        has(jack,apples).
        has(ann,plums).
        has(dan,money).
        fruit(apples).
```

fruit(plums).

Output: