**25.Write a Prolog Program for fruit and its color using Back Tracking.**

**Program:**

% Define the possible fruits and their colors fruit(apple, red).

fruit(banana, yellow). fruit(grape, purple). fruit(orange, orange). fruit(watermelon, green).

% Define a predicate to match a fruit with its color match\_fruit\_color(Fruit, Color) :-

fruit(Fruit, Color).

% Define a predicate to find all fruits with a certain color

% Note: The color argument is expressed as a variable to enable backtracking fruits\_with\_color(FruitList, Color) :- findall(Fruit, match\_fruit\_color(Fruit, Color), FruitList).

% Sample queries and expected outputs

%

% Query: match\_fruit\_color(apple, Color).

% Expected output: Color = red.

%

% Query: match\_fruit\_color(banana, Color).

% Expected output: Color = yellow.

%

% Query: match\_fruit\_color(pear, Color).

% Expected output: false.

%

% Query: fruits\_with\_color(FruitList, red).

% Expected output: FruitList = [apple].

%

% Query: fruits\_with\_color(FruitList, green).

% Expected output: FruitList = [watermelon]. %

% Query: fruits\_with\_color(FruitList, purple).

% Expected output: FruitList = [grape].

**Output:**

Fruit = apple,

Color = red ;

Fruit = banana,

Color = yellow ;

Fruit = grape,

Color = purple ;

Fruit = orange,

Color = orange ;

Fruit = pear, Color = green ; false.