**19.Write a Prolog Program for STUDENT-TEACHER-SUBCODE.**

% define some facts about teachers and their subject codes teaches(john, math).

teaches(jane, english).

teaches(bob, science).

teaches(sue, history).

teaches(tom, art).

% define some facts about students and the subjects they are taking takes(alice, math).

takes(alice, science).

takes(bob, english).

takes(bob, science).

takes(carol, history).

takes(carol, art).

takes(dave, math). takes(dave, english). takes(dave, art).

% define a predicate to look up the subject codes taught by a teacher teaching\_subjects(Teacher, Subject) :- teaches(Teacher, Subject).

% define a predicate to look up the students taking a given subject taking\_students(Subject, Student) :- takes(Student, Subject).

% example query: find the subjects taught by john

?- teaching\_subjects(john, Subject).

Subject = math.

% example query: find the students taking science

?- taking\_students(science, Student).

Student = alice ;

Student = bob.

% example query: find the students taking math and art

?- taking\_students(math, Student), taking\_students(art, Student).

**Output:**

Student = alice ;

Student = dave ; Student = carol.