Name – Pranav Salunkhe

TY CS-D

Batch-1

Roll no – 09

Assignment 5

Code –

% Facts about the family members

is\_male(pranav).

is\_male(raghunath).

is\_male(datta).

is\_male(vishal).

is\_male(gaurav).

is\_male(sanjay).

is\_male(aniket).

is\_male(ashitosh).

is\_male(preetam).

is\_male(kailas).

is\_male(nitish).

is\_male(kaivalya).

is\_male(rutik).

is\_male(santosh).

is\_female(dhanashree).

is\_female(raahi).

is\_female(anushka).

is\_female(heera).

is\_female(nanda).

is\_female(mansi).

is\_female(shilpa).

is\_female(roshni).

is\_female(shobha).

is\_female(saloni).

is\_female(sangita).

is\_female(deepali).

% Parent-child relationships

parent\_of(shilpa, pranav).

parent\_of(raghunath, roshni).

parent\_of(datta, raghunath).

parent\_of(datta, sanjay).

parent\_of(heera, shobha).

parent\_of(sanjay, aniket).

parent\_of(nanda, mansi).

parent\_of(ashitosh, preetam).

parent\_of(shobha, deepali).

parent\_of(shobha, dhanashree).

parent\_of(dhanashree, anushka).

parent\_of(deepali, raahi).

parent\_of(kailas, kaivalya).

parent\_of(raghunath, pranav).

parent\_of(shilpa, roshni).

parent\_of(heera, raghunath).

parent\_of(heera, sanjay).

parent\_of(datta, shobha).

parent\_of(sanjay, mansi).

parent\_of(nanda, aniket).

parent\_of(shobha, preetam).

parent\_of(ashitosh, deepali).

parent\_of(ashitosh, dhanashree).

parent\_of(nitish, anushka).

parent\_of(kailas, raahi).

parent\_of(deepali, kaivalya).

parent\_of(aniket, saloni).

parent\_of(sangita, saloni).

parent\_of(roshni, santosh).

parent\_of(rutik,santosh).

% Marriage relationships

are\_couple(raghunath, shilpa).

are\_couple(datta, heera).

are\_couple(sanjay, nanda).

are\_couple(ashitosh, shobha).

are\_couple(kailas, deepali).

are\_couple(nitish, dhanashree).

are\_couple(aniket, sangita).

are\_couple(rutik,roshni).

% Rules

mother\_of(Mother, Child) :- is\_female(Mother), parent\_of(Mother, Child).

father\_of(Father, Child) :- is\_male(Father),parent\_of(Father, Child).

are\_sibling(Person1, Person2) :-

    parent\_of(Parent, Person1),

    parent\_of(Parent, Person2),

    Person1 \= Person2.

brother\_of(Brother, Person) :- is\_male(Brother), are\_sibling(Brother, Person).

sister\_of(Sister, Person) :- is\_female(Sister), are\_sibling(Sister, Person).

son\_of(Son, Parent) :- is\_male(Son), parent\_of(Parent, Son).

daughter\_of(Daughter, Parent) :- is\_female(Daughter), parent\_of(Parent, Daughter).

husband\_of(Husband, Wife) :- is\_male(Husband), is\_female(Wife), are\_couple(Husband, Wife).

wife\_of(Wife, Husband) :- is\_female(Wife), is\_male(Husband), are\_couple(Husband, Wife).

cousin\_of(Cousin, Person) :-

    parent\_of(Parent1, Person),

    parent\_of(Parent2, Cousin),

    are\_sibling(Parent1, Parent2),

    Person \= Cousin.

maternal\_aunt\_of(MaternalAunt, Person) :-

    is\_female(MaternalAunt),

    ((mother\_of(Mother, Person),

    sister\_of(Mother, MaternalAunt),

    MaternalAunt \= Mother);(mother\_of(Mother, Person), are\_sibling(Mother, Uncle), husband\_of(Uncle,MaternalAunt))).

maternal\_uncle\_of(MaternalUncle, Person) :-

    is\_male(MaternalUncle),

    (   (   mother\_of(Mother, Person),

    sister\_of(Mother,MaternalUncle)); (mother\_of(Mother, Person), are\_sibling(Mother,Aunt), wife\_of(Aunt, MaternalUncle))).

paternal\_aunt\_of(PaternalAunt, Person) :-

    is\_female(PaternalAunt),

    (   (   father\_of(Father, Person),

    sister\_of(PaternalAunt, Father));(father\_of(Father, Person), are\_sibling(Father, Uncle), husband\_of(Uncle,PaternalAunt))).

paternal\_uncle\_of(PaternalUncle, Person) :-

    is\_male(PaternalUncle),

    ( (   father\_of(Father, Person),

    brother\_of(Father,PaternalUncle),

    PaternalUncle \= Father) ; ( father\_of(Father, Person), are\_sibling(Father,Aunt), wife\_of(Aunt, PaternalUncle))).

uncle\_of(Uncle, Person):-

    paternal\_uncle\_of(Uncle,Person); maternal\_uncle\_of(Uncle,Person).

aunt\_of(Aunt, Person):-

    paternal\_aunt\_of(Aunt,Person); maternal\_aunt\_of(Aunt,Person).

niece\_of(Niece, AuntUncle) :-

    is\_female(Niece),

    (maternal\_aunt\_of(AuntUncle, Niece); maternal\_uncle\_of(AuntUncle, Niece);paternal\_aunt\_of(AuntUncle, Niece); paternal\_uncle\_of(AuntUncle, Niece)).

nephew\_of(Nephew, AuntUncle) :-

    is\_male(Nephew),

    (maternal\_aunt\_of(AuntUncle, Nephew); maternal\_uncle\_of(AuntUncle, Nephew);paternal\_aunt\_of(AuntUncle, Nephew); paternal\_uncle\_of(AuntUncle, Nephew)).

in\_law\_of(InLaw, Person) :-

    (are\_couple(Person, Spouse); are\_couple(Spouse, Person)),

    (parent\_of(InLaw, Spouse); are\_sibling(Spouse, Person)).

son\_in\_law\_of(Person1, Person2) :-

        husband\_of(Person1,Person3),

        (   parent\_of(Person2,Person3);uncle\_of(Person2,Person3);aunt\_of(Person2,Person3)).

daughter\_in\_law\_of(Person1, Person2) :-

        wife\_of(Person1,Person3),

        (   parent\_of(Person2,Person3);uncle\_of(Person2,Person3);aunt\_of(Person2,Person3)).

father\_in\_law\_of(Person1, Person2):-

    is\_male(Person1),

    son\_in\_law\_of(Person2,Person1);daughter\_in\_law\_of(Person2,Person1).

mother\_in\_law\_of(Person1, Person2):-

    is\_female(Person1),

    son\_in\_law\_of(Person2,Person1);daughter\_in\_law\_of(Person2,Person1).

grandparent\_of(Grandparent, Grandchild) :-

    parent\_of(Parent, Grandchild),

    (   parent\_of(Grandparent, Parent)).

grandchild\_of(Grandchild, Grandparent) :- grandparent\_of(Grandparent, Grandchild).

grandfather\_of(Grandfather,Grandchild):-

    is\_male(Grandfather),

    grandparent\_of(Grandfather, Grandchild).

grandmother\_of(Grandmother,Grandchild):-

    is\_female(Grandmother),

    grandparent\_of(Grandmother, Grandchild).

great\_grandparent\_of(GreatGrandparent, GreatGrandchild) :-

    parent\_of(Grandparent, GreatGrandchild),

    grandparent\_of(GreatGrandparent, Grandparent).

great\_grandchild\_of(GreatGrandchild, GreatGrandparent) :-

    great\_grandparent\_of(GreatGrandparent, GreatGrandchild).