**LAB 12**

**Task1:**

**Write Prolog Program to Create following database.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Age** | **Hobby** | **Pet** |
| **Rahim** | **15** | **Football** | **Dog** |
| **Mohsan** | **11** | **Volleyball** | **Cat** |
| **Sohail** | **25** | **Card** | **Cow** |
| **Kamal** | **30** | **Swimming** | **Dog** |
| **Haseeb** | **11** | **Football** | **Goat** |
| **Shakeel** | **25** | **Volleyball** | **Cat** |
| **Abrar** | **15** | **Swimming** | **Dog** |
| **Raju** | **30** | **Swimming** | **Dog** |
| **Javed** | **40** | **Football** | **Cow** |
| **Waleed** | **30** | **Volleyball** | **Cat** |

1. **Write Query to display P\_name and age, P\_Name and hobby.**
2. **Find How many of them are child if age <=15 is child..**

|  |
| --- |
| PREDICATES  person\_info(symbol,symbol,symbol,symbol)  CLAUSES  person\_info("Rahim","15","FootBall","Dog").  person\_info("Mohsin","11","VolleyBall","Cat").  person\_info("Sohail","25","Card","Cow").  person\_info("Kamal","30","Swimming","Dog").  person\_info("Haseeb","11","FootBall","Goat").  person\_info("Shakeel","25","VolleyBall","Cat").  person\_info("Abrar","15","Swimming","Dog").  person\_info("Raju","30","Swimming","Dog").  person\_info("Javed","40","FootBall","Cow").  person\_info("Waleed","30","VolleyBall","Cat").  GOAL:  person\_info(P\_name,Age,Hobby,Pet),Age<="15". |



**Q2) Translate the following sentences into a Prolog program:**

**The sun is a star.**

**Venus is a planet.**

**The earth is a planet.**

**The moon orbits around the earth.**

**Every planet orbits the sun.**

**A satellite is any heavenly body which orbits around another.**

**Anything is a heavenly body if it is a star or a planet.**

**The solar system is geocentric if the sun orbits the earth.**

**The solar system is heliocentric if the earth orbits the sun.**

**Do the following Goals:**

1. **Is the Sun is a star ?**
2. **Is moon orbit around the earth ?**
3. **Write a Prolog query to ask if the solar system is heliocentric.**
4. **Write a separate Prolog query to ask if there is anything which orbits something which orbits the sun**

**(a)**

|  |
| --- |
| PREDICATES  nondeterm star(symbol)  nondeterm planet(symbol)  nondeterm orbits(symbol,symbol)  nondeterm heavenlyBody(symbol)  nondeterm geoCentric(symbol)  CLAUSES  star(sun).  planet(venus):- orbits(venus,sun).  orbits(moon,earth).  heavenlyBody(satellite):- orbits(satellite,satellite).  heavenlyBody(x):- star(x),planet(y).  geoCentric(solarSystem):-orbits(star,planet).  GOAL  star(sun). |
|  |

**(b)**

|  |
| --- |
| PREDICATES  nondeterm star(symbol)  nondeterm planet(symbol)  nondeterm orbits(symbol,symbol)  nondeterm heavenlyBody(symbol)  nondeterm geoCentric(symbol)  CLAUSES  star(sun).  planet(venus):- orbits(venus,sun).  orbits(moon,earth).  orbits(x,y).  heavenlyBody(satellite):- orbits(satellite,satellite).  heavenlyBody(x):- star(x),planet(y).  geoCentric(solarSystem):- orbits(star,planet).  GOAL  %star(sun).  orbits(moon,earth). |



**(c)**

|  |
| --- |
| PPREDICATES  nondeterm star(symbol)  nondeterm planet(symbol)  nondeterm orbits(symbol,symbol)  %nondeterm heavenlyBody(symbol)  %nondeterm geoCentric(symbol)  nondeterm helioCentric(symbol)  CLAUSES  star(sun).  planet(earth).  planet(venus).  orbits(moon,earth).  orbits(planet,star).  helioCentric(solarsSystem):-orbits(planet,star).  GOAL  %star(sun).  %orbits(moon,earth).  helioCentric(solarSystem). |



**(d)**

|  |
| --- |
| PREDICATES  nondeterm star(symbol)  nondeterm planet(symbol)  nondeterm orbits(symbol,symbol)  nondeterm heavenlyBody(symbol)  nondeterm geoCentric(symbol)  nondeterm helioCentric(symbol)  CLAUSES  star(sun).  planet(earth).  planet(venus).  heavenlyBody(star).  heavenlyBody(planet).  heavenlyBody(satellite):-orbits(satellite,satellite).  orbits(moon,earth).  orbits(planet,star).  geoCentric(solarSystem):-orbits(star,planet).  helioCentric(solarSystem):-orbits(planet,star).  GOAL  %star(sun).  %orbits(moon,earth).  %helioCentric(solarSystem).  heavenlyBody(satellite). |