**Workshop 2**

Exercise 1a:

(1)Why is Prolog suitable for Knowledge Representation?

It deals with logic in a direct way using facts and rules to manipulate data

(2) Complete the following:

(a) Rules in English are characterised by the presence of the word if.

(b) Facts are stored in Prolog's internal Database.

(c) When a variable is matched to a constant, the variable becomes unified/instantiated to the

constant.

(d) Failure is when the interpreter attempts to solve a query in a different way

because a sub-goal has failed.

(e) The process by which rules are selected by matching variables and constants is called unification.

(f) Constants in Prolog are often called atoms.

(g) Functions such as 'fail' and 'write' are usually referred to as queries.

(3) What might be the Prolog representation for the fact that an elm is a kind of tree.

tree(elm).

(4) Enter three facts that represent three different types of tree into Prolog's database

tree(elm) :- type(deciduous).

tree(apple) :- fruit(apple).

tree(sequoia) :- size(large)

Exersice 1b: Question 3:

(3) Using the above database on cars, make the following queries:

a) Get details of all cars manufactured by ford

car(Man,Mod,Trim,Origin,Cc,Type,Price), (Man = ford).

Or

car(ford,Mod,Trim,Origin,Cc,Type,Price).

b) Get a ford saloon car of greater than 1300 capacity costing less than 9000.

car(Man,Mod,Trim,Origin,Cc,Type,Price),

(Cc > 1300),

(Price < 9000).

c) Find all the rover cars that cost more than any fiat car.

car(rover, ModRover, \_, \_, \_, \_, PriceRover),

car(fiat, ModFiat, \_, \_, \_, \_, PriceFiat),

PriceRover > PriceFiat,

write(ModRover),

nl,

fail.

Exercise 1c:

(1) Write the solutions for the above two queries.

Query 1: car(Man,metro,\_,\_,\_,\_,\_), supplier(Man,\_,Address,\_).

Output 1:

Address = '18 Beadle Road, Cowley', Man = rover

Address = '18 Beadle Road, Cowley', Man = rover

Query 2: car(Man,Model,\_,\_,\_,\_,\_), supplier(Man,\_,Address,\_).

Output 2:

Address = '21 Tinsgate, Dagenham', Man = ford, Model = fiesta

Address = '21 Tinsgate, Dagenham', Man = ford, Model = orion

Write the queries for:

(2) Get the address of the supplier of the metro mg.

car(\_,Model,City,\_,\_,\_,\_), supplier(\_,\_,Address,\_),(Model = metro), (City = mg).

(3) Get all the names and telephone numbers of saloon car suppliers in the uk.

car(Man,\_,\_,uk,\_,saloon,\_), supplier(Man,uk,\_, Telephone).

(4) Get the telephone numbers of all the suppliers of cars with engine capacity greater

than 1300.

car(Man,\_,\_,\_,Cap,\_,\_), supplier(Man,\_,\_, Telephone), (Cap > 1300).

CourseWork Assignment 1:

car(Man,\_,\_,\_,Cap,\_,\_), (Cap > 1000), (Cap =< 1600), supplier(Man,\_,Address, Telephone).