Prolog Assignment Description

I started the program by converting the string of modes e.g. ‘fct’ to a list of modes e.g.[f, c, t]. In order to do this, I created a predicate called “string\_to\_list\_of\_characters”. This used the built-in function “name” to change the character into a list of numbers. I then used the built-in function “maplist” to map the list of numbers to their corresponding letter.

I then defined a predicate “from\_string\_to\_list\_of\_modes”. This contains my route predicate from the facts at the top of the program. This returns a list of modes depending on the values subbed in from the route predicate. E.g. from\_string\_to\_list\_of\_modes(dublin, cork, List,200, X). X = [f, c, t]. I handled cycles by putting any passed location(source) into a list.

I wanted to be able to go through each mode in the list of modes separately. So, I created a predicate “in\_my\_list\_of\_elements”. This used the built-in function member to see if a Character is in the list of modes(M).

I defined a predicate for each mode of transport (foot, car, train, plane). All these predicates contained 1 value(X) and X is the speed associated with each predicate.

This leads on to the “get\_distance\_and\_character” predicate. This returns the individual character along with the distance which I will need in order to get the speed. I got the speed of each mode of transport and defined a predicate for each.

In order to get the time it took to travel from Source to Destination, I created a predicate “time” which divided the distance by the speed we previously got.

I used the built-in function “findall”, to find all journey times for each mode of transport and put them in a list.

To get the quickest time, I had to get the minimum time in the list of times. I created a predicate “min\_list”. The base case contained 1 element because if there is only one element in the list then that element is the minimum of the list. If there is more than 1 element in the list, recursively call min\_list with the tail and value.

I created a journey predicate which uses the “min\_list” predicate and returns the quickest time it takes to get from source to destination.

Although my journey predicate is slightly different to the expected one given in the assignment brief, the one defined in my program will return the quickest time using the modes only in the string defined in the route predicate.

In order to call my journey predicate, the following will have to be used.

journey(dublin,cork,'fct',\_,\_,\_,\_,\_,X).