$Id: asg5-prolog-airline.mm,v 1.1 2011-05-19 20:18:57-07 - - $

1. Logic Programming in Prolog

You are to write an airline reservation system for Twilight Zone Airlines. Given a request to travel from one city to another, print out a flight schedule. For each leg of the trip, print out departure airport, departure city, and departure time, and the same information for arrival. Example:

```
?-   fly (lax, sea).
     depart  lax  Los Angeles      14:22
     arrive  sfo  San Francisco    15:29
     depart  sfo  San Francisco    16:02
     arrive  sea  Seattle-Tacoma   17:42
yes
```

A database has been provided which list some airports, their cities, and the latitudes and longitudes of the airports. A flight schedule has also been provided showing departure airport, arrival airport, and departure time in hours and minutes.

In response to a query, if there is more than one flight plan that might be scheduled, the one with the shortest time from initial departure to final arrival time must be chosen.

2. Twilight Zone Logic

The point of this assignment is coding in Prolog, so you may make some strange simplifications.

(a) All latitudes are North, all longitudes are West, and the earth is flat. Thus, rather than spherical trigonometry, you can use the theorem of ὁ Πυθαγόρας ὁ Σάμιος [**http://en.wikipedia.org/wiki/Pythagoras**] to compute distances. One degree at the equator is 69 miles. On a flat earth, this is universal.

(b) Flight durations, departures and arrivals are kept in Twilight Zone Standard Time (TZST). That means you don't deal with PST, PDT, EST, EDT, etc.

(c) Planes fly at a constant speed of 500 miles per hour and always in straight lines, even through mountains if necessary, so the arrival time can always be computed from the departure time and the distance travelled.

(d) Since this is the Twilight Zone, planes always depart and arrive on time. Passengers never get bumped nor are planes ever full. A flight transfer connection always takes 30 minutes, so during a transfer at a hub, the departure of a connecting flight must be at least 30 minutes later than the arrival of the incoming flight in order for the itinerary to be valid.

(e) There are no overnight trips: all flights must depart from the original destination and arrive at the final destination within the same day.

3. What to Submit

Submit one file: **functions.pl** with the usual name and partner information in comments.

The grader will copy in the files **database.pl** and **group*.tests** Testing will be done with the command

```
gprolog <group0.tests 2>&1 | tee group0.output
```

followed by testing the other groups.