Rapport

Exo 01 :

1)addh/3 Predicate:

Calculates the addition of a given number of minutes (Minutes) to a given time represented as [H, M].

TotalMinutes represents the total time in minutes.

RHeure is the resulting hour (in 24-hour format).

RMinute is the resulting minute.

2)affiche/1 Predicate:

Formats a time represented as [H, M] into a string with a colon separator.

Uses atomics_to_string and format to achieve this.

Exo 02

1)lig/3 Predicate:

Establishes a connection between two stops (Arret1 and Arret2) if they are part of the same bus line.

Utilizes the ligne/5 fact.

2)ligtot/4 Predicate:

Given two stops (Arret1 and Arret2), a bus line (Ligne), and a variable for storing the resulting time (Horaire), it finds the departure time from Arret1 on the specified bus line.

Uses lig/3, ligne/5, member/2, affiche/1, and addh/3 predicates.

3)ligtard/4 Predicate:

Similar to ligtot/4 but finds the arrival time at Arret2 on the specified bus line.

Uses lig/3, ligne/5, member/2, affiche/1, and addh/3 predicates.

Facts

Facts representing bus lines (ligne/5):

Specifies bus lines with their respective stops, schedules, and operating days.

Facts representing stops (arret/1):

Enumerates stops.

Facts representing connections between stops (connexion/2):

Defines connections between stops.

Exo 03 :

The code defines two Prolog predicates: itinTot/4 and itinTard/4. These predicates are designed to find itineraries (bus routes) between two bus stops (Arret1 and Arret2) given a specified time ([HR, MR] representing an hour and minute). Here's a breakdown of each predicate:

1)itinTot/4:
Input Parameters:

Arret1: The starting bus stop.

Arret2: The destination bus stop.

[HR, MR]: The specified time to depart from Arret1.

Parcours: The resulting itinerary, which includes the departure time from Arret1.

Logic:

1)Calls the predicate ligtot/4 to find a bus line (Nom) and the corresponding departure time from Arret1 to Arret2 given the specified time.

2) Retrieves information about the bus line using the ligne/5 fact.

3)Calculates the actual departure time using the addh/3 predicate.

4) Compares the specified time with the calculated departure time, and if the specified time is earlier, it returns the corresponding itinerary; otherwise, it returns false.

itinTard/4:

Input Parameters:

1)Arret1: The starting bus stop.

2)Arret2: The destination bus stop.

3) [HR, MR]: The specified time to arrive at Arret2.

4)Parcours: The resulting itinerary, which includes the latest arrival time at Arret2.

Logic:

1)Calls the predicate ligtard/4 to find a bus line (Nom) and the corresponding arrival time at Arret2 given the specified time.

2)Retrieves information about the bus line using the ligne/5 fact.

3)Calculates the actual arrival time using the addh/3 predicate.

4)Compares the specified time with the calculated arrival time,

and if the specified time is later, it returns the corresponding itinerary; otherwise, it returns false.