PROJECT REPORT

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PROJECT PRESENTATION

Introduction

The goal of the project is either to create a mobile application or a web-based application to map students' main points of interest (home, parking, university...), calculating Origin-Destination (OD) matrices for these spaces, and facilitating group meetups among registered friends.

This application is designed to efficiently determine optimal meeting places and time windows for groups of friends.
Additionally, it aims to generate individual routes for each friend and offer real-time tracking to signal any delays or advancements.

Specification of the subject

As specified in the subject, we must create an application that should have the capability to map various student locations. These locations can include homes, classrooms, places of daily activity, meeting points, car parks, and more.

We will also need to calculate the Origin-Destination matrix (with a size of 30 locations) for these locations. This matrix should provide details such as distances, time estimates, and route options between different places. This feature is vital for determining optimal meetup locations.

Three functions are to do using the map and the Origin-Destination matrix:

1. The main function is to determine a place X and a time-window where a group of friends can meet at the earliest taking into account each friend's location and schedule.
2. The second major function is to generate individual routes for each friend to reach the meetup location.
3. The third and last function is to follow friends as they make their way to the meetup location to provide alerts for delays or advancements.

Environment to consider

We should consider creating a map where we need to show some places frequented by students (in our case at Belfort-Montbéliard).

We will also need to register friends in order to place them on the points of interest depending on their actual position and also to allow the use of the Origin-Destination matrix where we need to determine the meeting point.

Next we need to include roads on the map in order to allow the generation of customized routes for each friend and also to determine, by tracking the friend going to the meeting point, if he is late or early.

CONCEPTION

Graphical resolution

Origin-Destination matrix

We will provide here our static version of our Origin-Destination matrix. The values within the matrix are the time (in minutes) taken to go from origin to destination based on the use of a car to travel.

Guillaume's house (Belfort)

CROUS Duvillard (Belfort)

UTBM Building B room 409 (Belfort)

UTBM Building E Amphitheater (Belfort)

CROUS J-P Sartre (Belfort)

Bakery (Belfort)

Drugstore (Belfort)

Library (Belfort)

Cinema (Belfort)

Gas station (Belfort)

Train station (Belfort)

Train station (Montbéliard)

CROUS René Thom (Montbéliard)

Gas station (Montbéliard)

Park (Montbéliard)

Campus' Parking (Montbéliard)

University restaurant (Montbéliard)

UFR STGI Building C room MM2D (Montbéliard)

UFR STGI Building A Secretariat (Montbéliard)

University Library (Montbéliard)

CROUS Portes du Jura (Montbéliard)

Mac Donalds (Montbéliard)

Killian's house (Joncherey-Delle)

Bond (Joncherey-Delle)

Gas station (Joncherey-Delle)

Bakery (Joncherey-Delle)

Intermarché (Joncherey-Delle)

Cycle path (Joncherey-Delle)

Coffee (Joncherey-Delle)

Mac Donalds (Joncherey-Delle)