Project 1: Online Carpooling Reputation System

CSC309: Programming on the Web

June 1, 2011

1 Description

Carpooling [1] (also known as car-sharing, ride-sharing, lift-sharing and covoiturage), is the sharing of car journeys so that more than one person travels in a car. Carpooling reduces the costs involved in car travel by sharing journey expenses such as fuel, tolls, and car rental between the people travelling. Carpooling is also seen as a more environmentally friendly and sustainable way to travel as sharing journeys reduces carbon emissions, traffic on the roads, and the need for parking spaces. Authorities often encourage carpooling, especially during high pollution periods and after fuel rises. Carpooling where the driving is shared can also decrease driving stress as each driver gets a break from being at the wheel.

2 How it Works

Drivers and passengers offer and search for journeys through one of the several mediums available. After finding a match they contact each other to arrange any details for the journey(s). Costs, meeting points and other details like space for luggage are discussed and agreed on. They then meet and carry out their shared car journey(s) as planned. Carpooling is commonly implemented for commuting but is also popular for longer one-off journeys, with the formality and regularity of arrangements varying between schemes and journeys. Carpooling is not always arranged for the whole length of a journey. Especially on long journeys, it is common for passengers to only join for parts of the journey, and give a contribution based on the distance that they travel. This gives carpooling extra flexibility, and enables more people to share journeys and save money.

3 Challenges for carpooling

Carpooling can struggle to be flexible enough to accommodate en-route stops or changes to working times/patterns. Another problem for carpooling is the reliability of the informal arrangements made between the parties involved. Due to the lack of formality, occasionally passengers or drivers do not turn up for the journeys that they have arranged, wasting the time of and increasing the costs for others involved. Several internet schemes are addressing this problem by introducing reputation systems, enabling more informed decisions to be made about reliable and unreliable drivers and passengers.

[1] Wikipedia article: `http://en.wikipedia.org/wiki/Carpool`

4 Your Project

Your team is in charge of designing and developing a fully functional website for supporting the arrangements of carpooling online. Here is a limited list of features that your system should support:

- **User Authentication**: Authentication is the process of verifying who a person is. There are a number of methods for doing this, but the most common process is a two way matching process between a public identifier (i.e. a user name or userid) and a private identifier (i.e. a password). On the internet, this is the most common and convenient mechanism.
- **User Profiling**: Each user in your system has a profile. A user profile is a collection of personal data associated to a specific user and it may include information about her identity, her reputation, the journeys she has created or participated, the distance (in km) she has used carpooling, the amount of money (in $) she has saved, and perhaps an enviromental consciousness index based on less air polluting act due to carpooling.
- **User Interactions**: A user can act either as driver or passenger. As a driver she can add a new journey, select passengers (from the interested ones), rate passengers. As a passenger she can navigate through the available journeys, express interest to join a journey, rate a driver.
- **Implicit Social Networking**: Your system should be the basis for an implicit social network. In this social network users that have participated in a carpooling for at least one time are automatically considered 'friends'.
- **Reputation System**: Your system will resemble a reputation system that computes and publishes reputation scores for drivers and passengers that participate in journeys based on a collection of opinions. The opinions are typically passed as ratings (like/dislike, star system, 1-10 grade, etc.) to the reputation system which uses a reputation algorithm to dynamically compute the reputation scores based on the received ratings.
- **Administrative View**: Your system should support an administrative view of the system. Administrators can set global variables used in the system, such as, the daily gas price and can see aggregate information about the system's performance, such as, total number of journeys, total distances, total savings, and other useful analytics.

5 Administrative

Some administrative issues:

Team Formation: Teams should consist of at most 4 students, but this is a preference. Note, however, that this is for a reason, as the project is expected to be large and requires several and diverse competences, from design and look-and-feel issues, to feature development, database design and administration, reports, etc. It is expected that all students at your level have many competences and can be a lot of help in the various aspects of the project. Remember, as well, that learning is a social process and you should expect to learn from and to transfer knowledge to other students of your team. If you still insist to work on your own, then that is possible, but not encouraged, and there you need to consider that there will be no 'favorable' marking due to the fact that your team is less numerous. As such, my strong recommendation is to try to find other

students to work with. Students are responsible to find and join a team. In the rare case that you would like to, but have difficulty finding a team, you can contact me; I will try to accommodate individuals by assigning them to less numerous teams, but hopefully there will be none or just a few of these cases.

Meetings & Status Reports: There will be no office hours. Instead, we will be running 'short meetings' one week before the deadlines of the 2nd, 3rd and 4th deliverable. The meetings will be run by TAs. One TA will be assigned to each team. Meetings will be attended by only one team representative. You need to decide who the representative of your team is. The team representative is responsible for communicating all information gathered in the meeting to the rest of the team. The objective of each meeting is to communicate any question you have to the TAs, ask for 'advices' and troubleshooting. The TA will also inquire about the status of your project, to make sure that all teams are on track towards the deliverable. To keep the meetings short and efficient, the team representative needs to send a 1-page maximum status report (in a bulleted format) to the assigned TA with the current status and issues to be raised from the team in the meeting. The status report needs to be sent to the assigned TA 1 day before the meeting.

6 Team Project Schedule

Phase	Weight	Due Date	Deliverable	Summary
1st	-	Tue, 7 June	Team Formation, Project Selection	A completed form with the synthesis of the team, competences, and the selected project.
2nd	20%	Tue, 21 June	Specification, Requirements, Features	A report that provides information about the design of the system, technologies to be used, description of the features, etc.
3rd	20%	Tue, 12 July	Report, Source Code, Prototype URL	A report that documents aspects of the system, implemented features and future developments, as well as, a URL to access the prototype.
4th	60%	Tue, 9 Aug	Final Report, Source Code, Demo URL	A report that documents aspects of the system and provided features, as well as, a URL to access the demo.