CE 3201 Lab #4

Understanding the rational of Traffic Assignment Problem

1. Grades

Lab 4 contains three parts: online preview, final game score, and online post evaluation. Your grade for Lab 4 will be evaluated based on the above three parts.

You will fill in the online preview before coming to the lab, play the game during the lab session, and submit a post-evaluation afterwards.

You need to complete the online post evaluation form and submit it after the lab session. Failure to submit the post-evaluation form will result in 0 points for Lab 4. I will send you a spreadsheet of the game record after your game-play session, you need it to fill in the post evaluation form.

DUE Date of online Preview: **noon Thursday April 24, 2014**

DUE Date of online Post-evaluation: **mid-night Monday, April 28, 2014**

After each lab session, I will send you a spreadsheet of everyone's route choice history as your reference when filling out the post-evaluation form.

2. Rules: You are not allowed to chat with others while playing games!

3. Game description

You will play a multiplayer online game. This session contains two sets of games, called `Game 1' and `Game 2'.

3.1 Game 1

Game 1 contains four scenarios and you will be presented with a network in each scenario (See Figure 2):

- Scenario 1: A small network with four links (See Figure (1a));
- Scenario 2: A new bridge is built between A and B (See Figure (1b)).

In Figure 1, lines with arrow represent directional streets. Formulas (unit: sec) on each line represent a street travel time function. For example, X_1 on street 1 means the travel time of street 1 based on how many users use street 1; this represents congestion in reality: the

more users that travel on the street, the more congested it is. The constant travel time, 15, is the free flow travel time, indicating the street's travel time is not dependent on how many users on it.

Figure 1: Game 1 networks

(a) Scenario 1	(b) Scenario 2
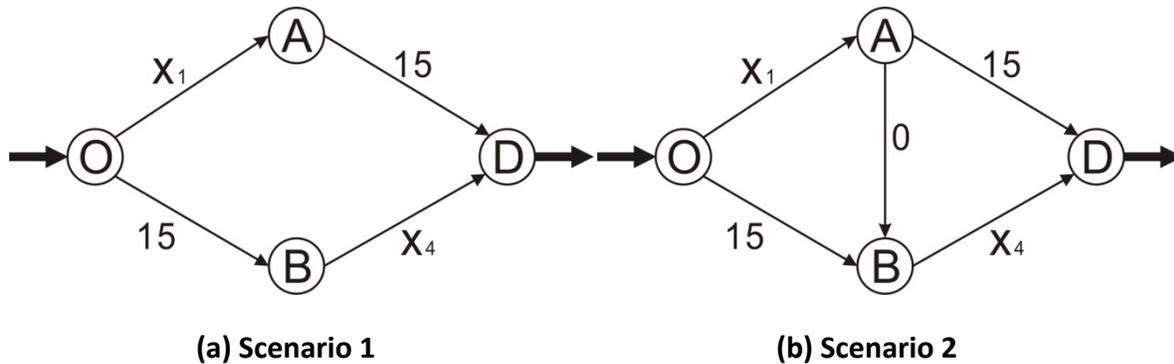
You will play each scenario in Game 1 for 5~10 rounds. In each round, you are asked to pick a route from home (O) to school (D). After all players finish submitting their choices, you will be told the travel time information (see Figure below):

Before playing Game 1, read following questions carefully:

- **Comparing the average travel time you experienced in Scenario 1 to that in Scenario 2, if it was longer, why do you think your travel time was worsened after one road was added? If it was shorter, why do you think your travel time was shortened?**
- **What have you learnt by playing Game 1?**

Keep in mind the above questions while playing games. You need to fill in an online post evaluation form (due Monday) including answers to the above questions.
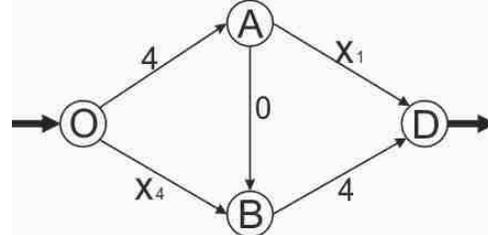
3.2 Game 2

Game set 2 contains three scenarios and you will be presented with a network for each scenario (See Figure 2):

- Scenario 1: A small network with four streets (See Figure (2a));
- Scenario 2: A bridge is built in the network from A to B (See Figure (2b)).

Figure 2: Game set 2 networks
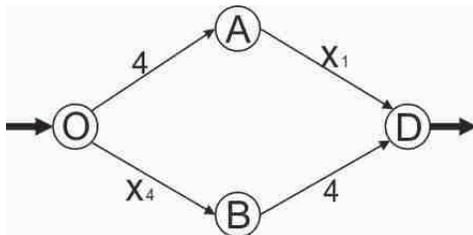
| (a) Scenario 1 | (b) Scenario 2 |

You are trying to travel from Home (O) to School (D). In each round, you are asked to pick a route. You will play each scenario in Game 2 for 5~10 rounds. After all players finish submitting their choices, you will be told the travel time information.

Before playing Game 2, read following questions carefully:

- **Comparing the average travel time you experienced in Scenario 1 to that in Scenario 2, if it was longer, why do you think your travel time was worsened after one road was added? If it was shorter, why do you think your travel time was shortened?**
- **What have you learnt by playing Game 2?**

3.3 Game Payoff

At the beginning of the game, you will have 800 payoff points. After each round, the travel time you experienced will be subtracted from your current deposit, and it will be your new payoff for next round. Your grade for the game playing session will be based on the final payoff you have after all games are played.

Steps of playing game in CE 3201 Lab #4

1. Find a folder in your desktop named "2014 Spring CE 3201 game". If this folder does not exist, let me know immediately;
2. Open folder: C:\Documents and Settings\Administrator\Desktop\2014 Spring CE 3201 game folder\2014 Spring CE 3201 game \Debug;
3. Double click "CSWinFormSingleInstanceApp.exe", a login window pops up;

   If you cannot open it, press "crtl+Alt+Delete" and start the task manager. Go to tab "Processes": find a process named "CSWinFormSingleInstanceApp.exe", press "End Processes". Then try to open it again.

4. Enter your student X.500 ID and "Server IP" written on the blackboard;
5. Do NOT click "login" button until I ask you to;
6. After loggining, a welcome window pops up. Do NOT click "Ready to Play" button until I ask you to;
7. After clicking "Ready to Play" button, a window called "Four Link Network Game" pops up. Do NOT click "Submit" button until I ask you to;
8. Choose the route you want to take, and click "Submit" button;
9. Then a small dialogue "You Submit Route 1/2/3. Submitted Successfully! Press OK and Please wait…" pops up, click "OK" button ONLY once and wait patiently. Do NOT keep clicking;

   Warning: click "OK" button only once. If there is no response, just wait. Do NOT click "OK" button more than once. It is absolutely essential you follow this warning.

10. When everyone submits the choice, a "ResultsForm_Two routes" will pop up: in this window, some information about the route you take will be shown. Click "Ready to play next round" button when you are ready for the next round.

    Note: It is also advised to wait for any additional instructions at each step.