BusToGo

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1 Inspiration

Taking public transport in Vancouver is already very slow compared to larger cities such as Toronto. The process of purchasing bus tickets in Vancouver is rather inefficient and takes an extended period of time for two main reasons. One of the main issues with the current system is that each user must pay the fee once they are already on the bus. This leads to lines developing which can result in delays in the bus schedule, especially during rush hour periods. Another issue is that users aren't able to know in advance whether there will be enough room on the bus to accommodate everyone at the stop. With the limited capacity of the buses, combined with the surge of large groups of people, busses quickly fill up leaving many users waiting for the next bus (which can take up to an hour).

2 Configuration

Please note that this application wouldn't work unless you install the MySql database on your computer, add JDK java library and configure it properly and finally adjust the databaseCon class correspondingly.

Please find a reference video in the following link about how to download the Mysql database and add JDK library to configure your connection:

Video for installing Mysql database: https://youtu.be/BOUMR85B-V0

Video for adding JDK library:
https://youtu.be/9rTJa4l8YQ0

3 Solution Explanation

To solve the issues highlighted above with our current bus-ticket purchasing system, we created BusToGo. BusToGo is a program which increases the efficiency of the current system through the following ways. Within the BusToGo program you can complete three of the following tasks:

1. Creating a new bus route

2. Insert time data to a certain route

3. Get the List of Routes

BusToGo starts by gathering the following pieces of information :

1. What Would You Like to Do?
    - I. Creating a new bus route
        - i. Enter the name of the route
        - ii. Enter the id of the route
        - iii. Enter the start time of the route
        - iv. Enter the id Of the stop you would like to depart on
        - v. Enter the id Of the stop you would like to get of

vi. Enter the number of the tickets you would like to book
vii. Enter the stop name
viii. Add another stop? Y/N
ix. Enter the id of the route and time you would like to choose
x. Would You Like to Finalize? Y/N

II. Insert time data to a certain route

III. Get the List of Routes

i. You can either book a bus ticket by seeing all the available routes and times manually,or you can simply enter your desired location and time and BustoGo will find you the best option right away
ii. Please Choose an option:
    A. Seeing and Choosing a route and a time manually
    B. Find me the earliest bus
iii. Enter the id of the route you would like to choose
iv. What stop would you like to depart on?(Enter the ID)
v. Enter the time of your departure
vi. What stop would you like to get off at?(Enter the ID)
vii. How many tickets do you need?

The BusToGo program connects to the SQL database which stores all the data for bus schedules, capacity, timing, etc. Thus, the program immediately updates the datatables in the database as the user adds information about their bus trip. When the user has answered all the necessary questions about their root, BusToGo will display the next possible bus time that has sufficient capacity to facilitate all the users throughout their trip.

Looking at the client part of the program, we believe that BusToGo is able to solve the main issues with the current bus ticketing system in Vancouver. It allows the users to book bus tickets prior to boarding the bus which reduces the chance for line ups and delays while stopping at each bus station. Secondly, by using our platform users can also clearly see the current availability on each bus. This allows them to better plan their bus schedule without having to worry about the bus being too full to accommodate everyone.

4 Possible Improvements

For future versions, BusToGo could be expanded/improved in the following ways. First, we plan on developing the platform's user interface. Creating a more aesthetic design of the platform would help make BusToGo more user friendly and thus more readily used by everyday bus users. In addition, we plan on implementing a function to the platform which gets the current time and location of the user, and based on this information, provides various options for bus routes that the user can reserve. This would reduce the number of questions the user would need to manually input before getting the list of possible routes. Lastly, an extension can be designing an admin side function to use the google map api in order to scrap the bus schedule data directly.

5 Program Screening

You can also simply watch the following video to see how the program works completely.

The link below is the client side of BusToGo platform. A video showing the admin side is soon to be added.

Video of the program: https://youtu.be/tIcgLdXuujM

6 Program Architecture

Figure 1 depicts the overall architecture of the BusToGo platform.

You can also view the figure in this link:
https://github.com/farazkh80/BusToGo/blob/master/BusToGo_FlowChart.jpg

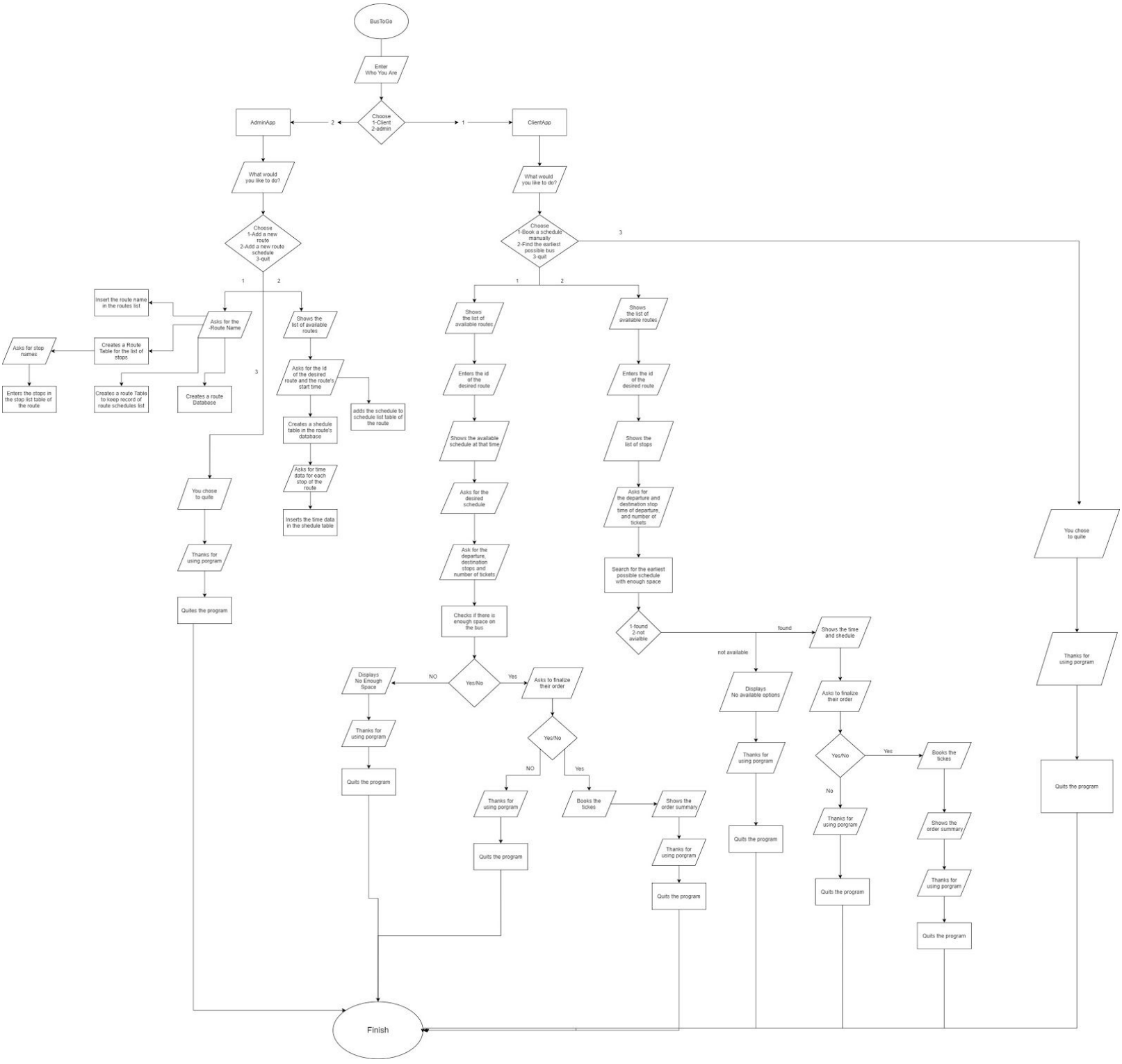
BusToGo
Enter Who You Are
Choose 1-Client 2-admin
AdminApp
ClientApp
What would you like to do?
What would you like to do?
Choose 1-Add a new route 2-Add a new route schedule 3-quit
Choose 1-Book a schedule manually 2-Find the earliest possible bus 3-quit
Insert the route name in the routes list
Asks for the -Route Name
Shows the list of available routes
Asks for stop names
Creates a Route Table for the list of stops
Enters the stops in the stop list table of the route
Creates a route Table to keep record of route schedules list
Creates a route Database
Asks for the Id of the desired route and the route's start time
adds the schedule to schedule list table of the route
Creates a shedule table in the route's database
Asks for time data for each stop of the route
Inserts the time data in the shedule table
You chose to quite
Thanks for using porgram
Quites the program
Shows the list of available routes
Enters the id of the desired route
Shows the available schedule at that time
Asks for the desired schedule
Ask for the departure, destination stops and number of tickets
Checks if there is enough space on the bus
Yes/No
Displays No Enough Space
Asks to finalize their order
Thanks for using porgram
Quits the program
Yes/No
Thanks for using porgram
Books the tickes
Shows the order summary
Thanks for using porgram
Quits the program
Quits the program
Shows the list of available routes
Enters the id of the desired route
Shows the list of stops
Asks for the departure and destination stop time of departure, and number of tickets
Search for the earliest possible schedule with enough space
1-found 2-not avialbie
found
not available
Displays No available options
Thanks for using porgram
Quits the program
Shows the time and shedule
Asks to finalize their order
Yes/No
Books the tickes
Shows the order summary
Thanks for using porgram
Quits the program
Thanks for using porgram
Quits the program
You chose to quite
Thanks for using porgram
Quits the program
Finish

Figure 1