Readme for GUI

In order to run the GUI for the Routed System, we can execute the following command at the code folder:

pycharm.exe GUI.py

To transfer the prompt current directory to the code folder, we use cd command to change directory and ls command to list the contents of a directory.

The GUI mainly contains all the individual scripts as well as integration logic. To understand the code in depth, please refer individual scripts before referring the GUI code.

User Manual

This manual mainly depicts the various user interface elements of the solution. We also depict the format of the various files that are generated by the system.

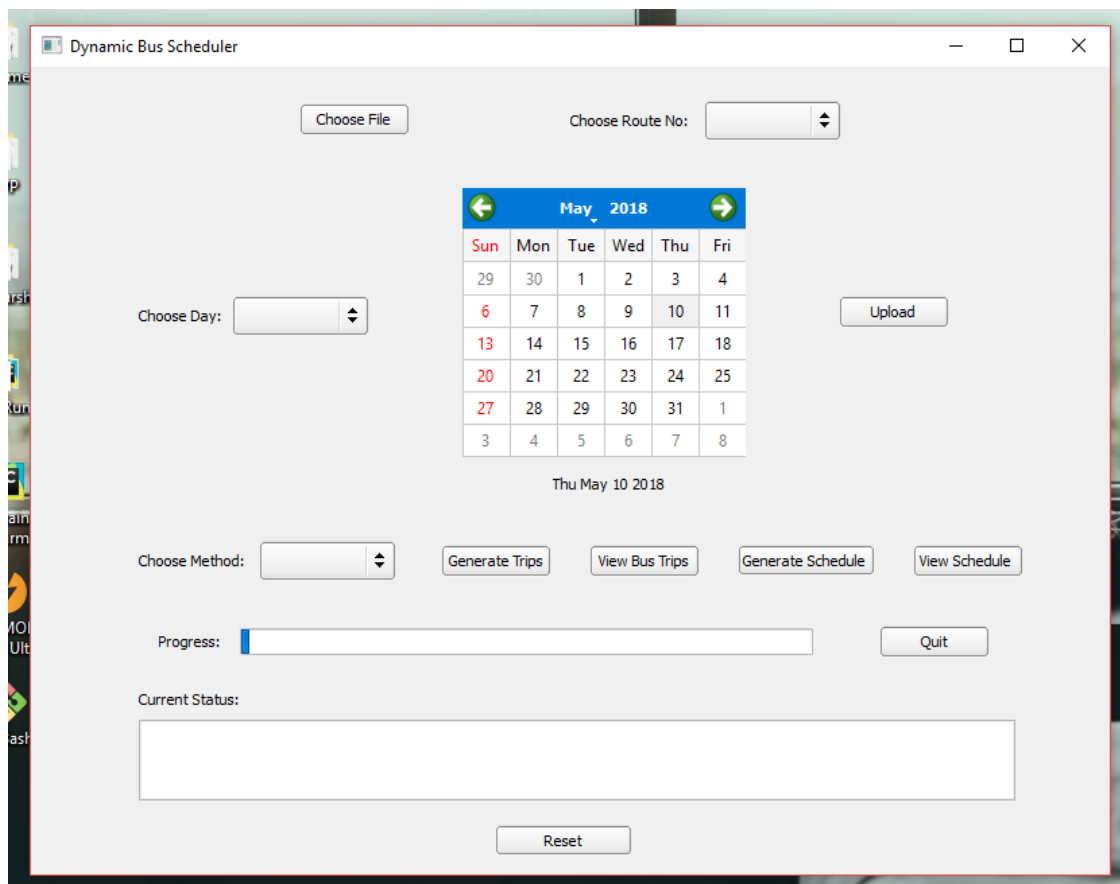## 1. Main layout of the GUI for the Routed System

Figure B.1 – User Interface Layout of Routed System

The layout mainly depicts the different interaction components such as,

- File picker to upload the passenger data file for the current day.
- Route selector for selecting the correct route and to tune the internal parameters accordingly.
- Day selector for selecting the day of the week to input day type.
- Date picker for selecting the date we want to create the forecast for.
- Upload button to commit the input and selection data to the system.
- Method selector to select the forecast method to use.
- Generate trip button to forecast the trips for selected date.
- View trips button for displaying the .csv file created containing all the trip forecasts.
- Generate schedule button to create bus schedule and bus allocations for given route, day and date using the algorithm from Algorithm 3.2.4.1 in **chapter 3**.
- View Schedule button to open the .csv file containing the bus schedule and allocation predictions for given route, day and date.
- Progress bar to provide visual feedback about the amount of processing left.
- Status box which provides information about internal state of system and success/failure status of different operations.
- Reset button to reset the state of the system in case the system fails or becomes unresponsive.
- Quit button to close the application.

2. System operations

The Routed system can in simplest terms, pre-process and store passenger data (Data collection and Data pre-processing modules), forecast trips using the selected method (Forecasting trips module), schedule and allocate buses for given route, day and date (Allocating and scheduling buses module).

- File selection and upload
  We select the input file using choose file button and fill in the details about the day for which the forecast is to be generated using other selection tools.
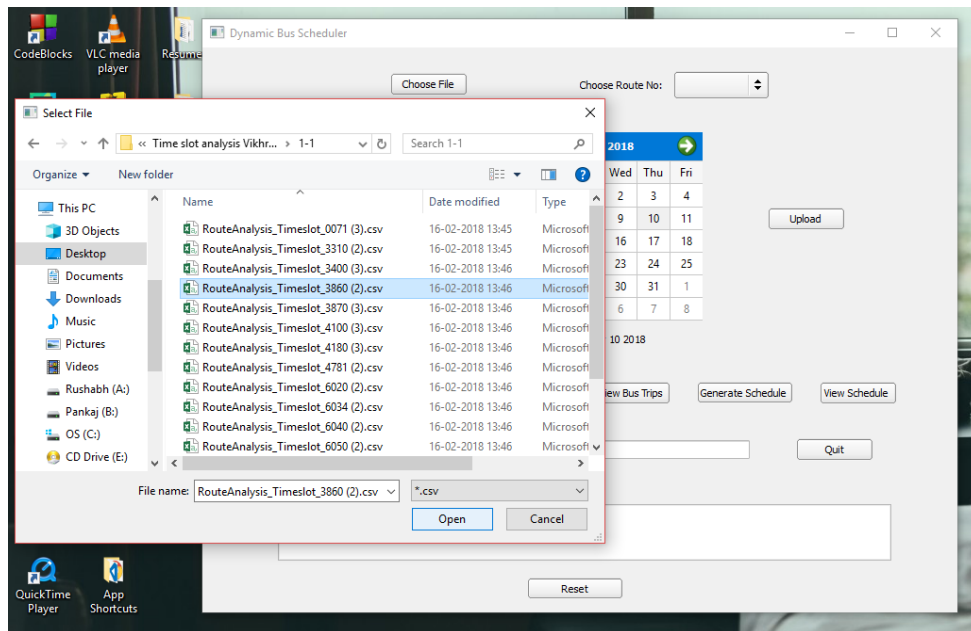
Figure B.2 – File selection and upload

- File Cleaning and storage

  The system cleans the file after uploading of file and creates a new cleaned file at the location shown in status box.
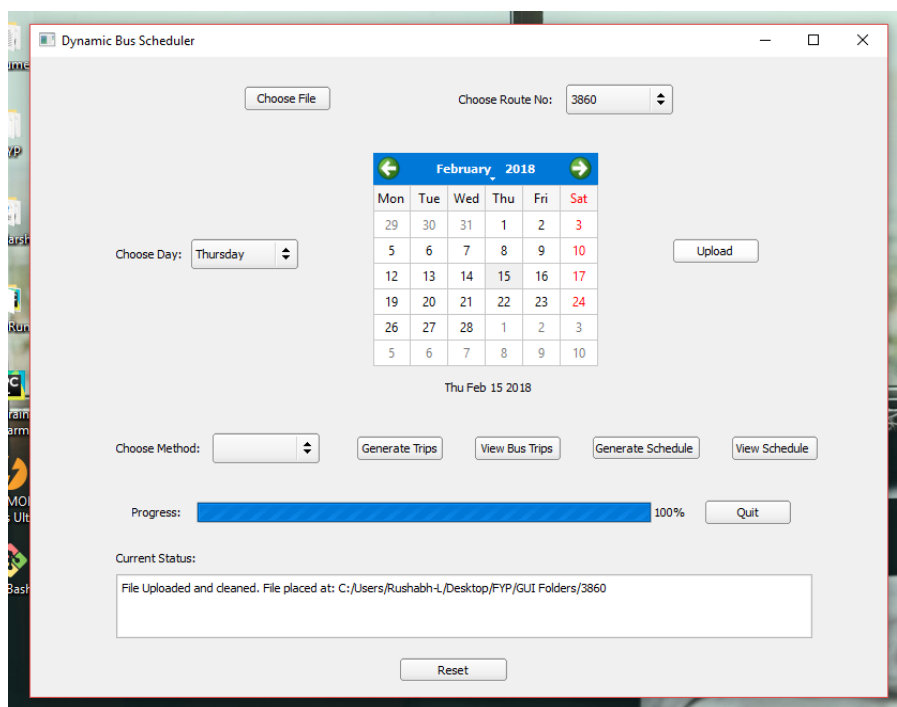

Figure B.3 – File cleaning and storage

- Forecasting trip method selection and processing

  Here, we mainly show an example execution using Arimax method for trip forecasting in both directions and the created file has been displayed using view trips button.
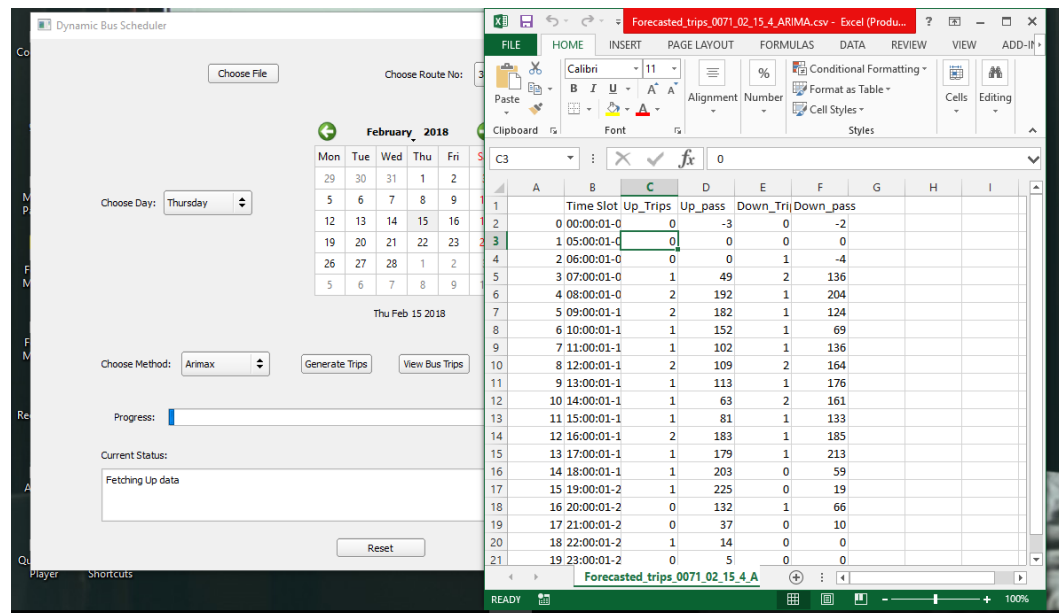

Figure B.4 – Forecasting trip method selection and processing

- Generating Bus Schedule and Allocation

  By using the generate schedule button from **figure B.1**, we can generate bus schedules and allocation of buses and store the output file. To open the file, we use view schedule bus button.
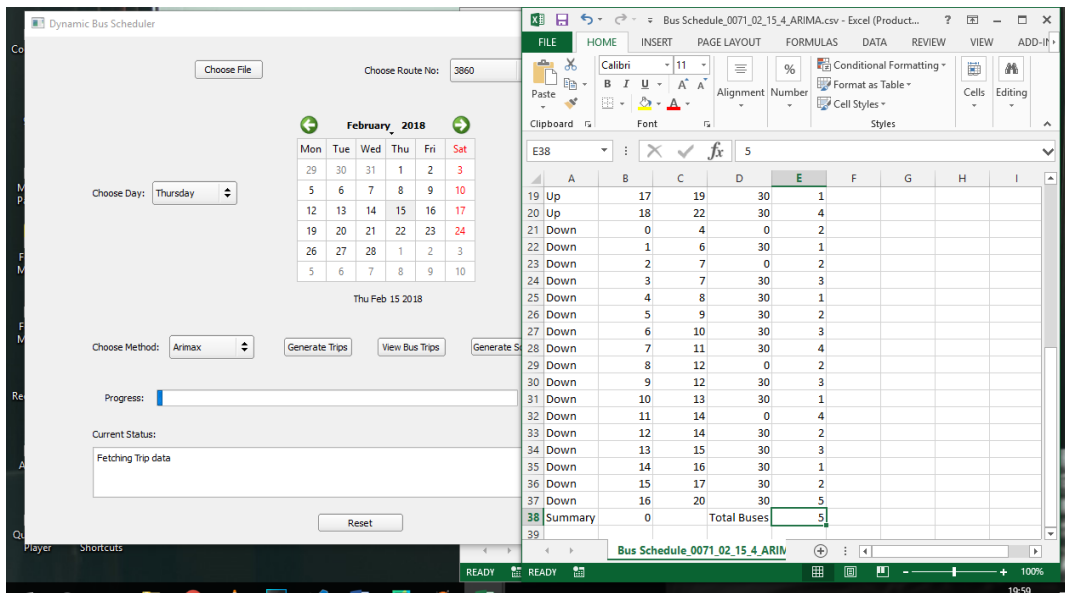
Figure B.5 – Generating Bus Schedule and Allocation

- Reset System

  In case of error/failure or if the system becomes unresponsive, we use the reset button to reset the state of the system.
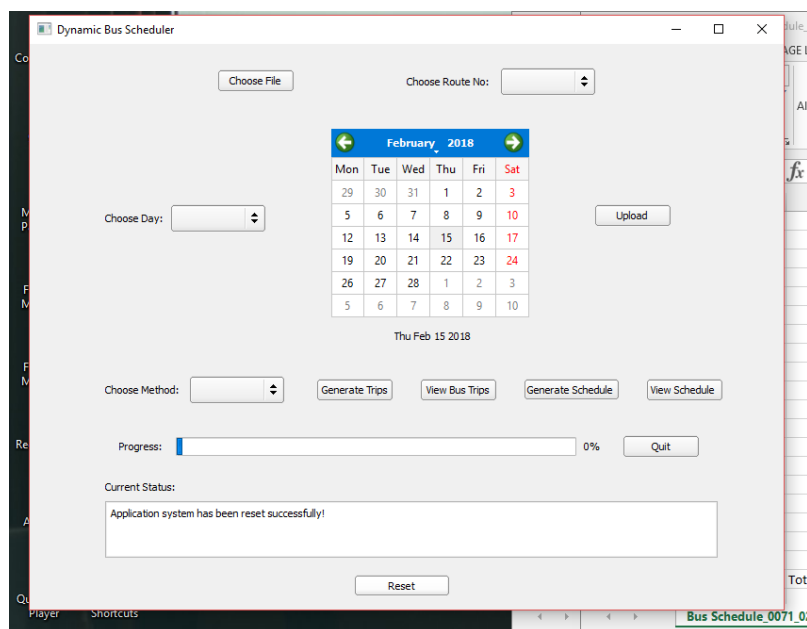

Figure B.6 – System Reset

The system thus provides a simple interface that is easy to use.