

Project Overview

Purpose and Problem

The **Bus Allocator** app is designed to streamline the process of assigning company buses to employee-selected routes for specific incoming and outgoing times. The primary objective is to minimize transportation costs while ensuring efficient use of bus capacities. Previously, this allocation process was performed manually by the logistics team. The app automates this task, reducing manual labor and improving accuracy, while also factoring in the need for buffer seats to accommodate unexpected passengers and enhance overall bus utilization.

Core Functionality

The MVP of the Bus Allocator app supports the following functionalities:

- **Bus Rate Spreadsheet Upload:** Users can upload a spreadsheet containing bus rates based on size and route, which the app uses to calculate allocation costs.
- **Demand Upload:** There are two modes for inputting employee demand:
 1. **Individual Department Mode:** Allows the upload of separate demand spreadsheets for each department. These demands are combined to allocate buses. The user can also manually edit demands.
 2. **Total Demand Mode:** Accepts a single spreadsheet with pre-calculated total demand for all departments.
- **Optional Allocation with Incomplete Data:** In Individual Department Mode, there is an option to allow bus allocation even if some departments have not submitted their demand data.
- **Variable Settings:** Key variables, such as bus rates, empty seat buffers, maximum bus capacities, time sets, departments, and routes, are all stored in the `Vars` class and used in allocation calculations.

Target Users

The app is intended for use by the company's **logistics department**, which is responsible for managing employee bus allocations and communicating the finalized schedule to the bus company.

Known Limitations

- The MVP does not support historical data analysis, meaning it doesn't track or learn from past allocations to improve future recommendations.

Next Steps for Complete Project Development

To move from MVP to a full-fledged application, several features need to be completed:

- Implementation of most **JSON file reading** functionalities.
- Completion of the **Settings Form functionality**, including necessary editing window forms.
- Creation and development of the **Advanced Settings Form UI** and its associated functionality.
- MainForm log saving to text files
- Automatically adjust diesel rate price every week on Tuesday 6am
- Add confirmation popup to Clear Demands button
- Convert all code to PHP to be used on the IM webserver
- Update UI design for maximum UX