



Bus System Management

DESIGN DOCUMENT

Project Brief

The aim of this assignment is to create a functional bus management system in Java which allows the user to input queries regarding bus stops, trips, stop times and transfer locations.

Underlying Data Structures

The underlying data structure used for this project consists of Stop objects and Trip objects organised in ArrayLists. ArrayLists were chosen for their versatility and the Stop and Trip objects were chosen for their ease of understandability by humans. The Stop and Trip objects interact with each other as a Trip object consists of an ArrayList of Stops that share the same trip ID in order of when they appear in the stop_times.txt file provided.

Underlying Algorithm

Although this project lacks the implementation of main algorithms, the primary algorithm that would have been used was Dijkstra's Shortest Path algorithm. This algorithm was chosen for its efficiency and versatility. It is ideal for finding the shortest path when given a hashmap of objects as input. It is also an algorithm that was studied closely in this course, which allowed for greater confidence during its implementation and as such would be the perfect choice for this system.