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Divvy Van Assistant

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Introduction

Divvy Van Assistant is a GUI application for Divvy Van drivers which aims to help them to transport divvy bikes and scooters from one station to another while ensuring optimal travel routes. The main idea is to build a system that will keep track of all the divvy stations and the bikes available at each station. Our goal is to increase the efficiency of the entire system without affecting the day to day activities in and around the city. Our application can be used by other companies with certain modifications but the core principle will remain the same.

For this application, we will be using a few datasets (public domain license) from kaggle.

Project Overview

The application starts when the Divvy van driver starts the day by logging in to the Divvy van assistant system. The system would display a login page where the driver will be prompted to log in to the system using their official credentials. Along with this a set of instructions on how to sign into the application would be present for the new users.

Once the Divvy driver has logged into the system with their official credentials, with the help of GPS, driver's location is obtained and that information will be used to create a task section which will display the information about nearest Divvy station (within a 0.5 mile radius initially)to the driver's current location along with the distance and optimal route to the same station.All the tasks are ranked with respect to close proximity to the divvy stations itself. Then the Divvy van driver would be able to choose any tasks available according to their preferences.

After the driver reaches the destination which was chosen from a list of tasks,based on that particular divvy station, our application will then prompt the driver to add 'n' number of bikes to the dock and acknowledge the same in the application interface.

Some of the features to be implemented during first sprint :

1. GUI User Interface: Will contain different options for the user (Divvy van driver). The user can navigate through these different icons to retrieve certain information, take on a task, send a report/message to the office, request assistance if needed and so on.
2. Search icon: Search icon can be used to search a number of things just by entering the zip code of a particular location.

3. Getting data from different Divvy Stations: Data depicting the number of bikes in use.
4. Login Credentials page :Will have username and password icons with usual boilerplate functions.
5. Help: Will be redirected to an entirely different page which contains solutions / case studies to most of the queries/ problems faced by the user.

Key Features for First Scenario

1. Drivers should be able login to the system and the current location of the driver will be shared. Application login is only available for Divvy Van Drivers.
2. The driver will be provided with a number of possible tasks from which he can choose. Each task will have the following specifics:
    a. Start Divvy station with an excess supply (name and location).
    b. End Divvy station with a shortage of supply (name and location).
    c. Number of bikes that need to be transported
    d. Path that needs to be traversed.
3. Once the transport is complete, a database will be automatically updated to show the following details.
    a. Change in the number of bikes and scooters at that respective stations
    b. The driver details
    c. Time taken to complete the task as well as delays if any.
4. Using information from this database,reports will be generated so that HR managers will be able to determine the efficiency of the process, delays (if any) along with possible reasons and find a way to optimize the process.

Requirements

1. Divvy Bike data : Public domain access data.
2. Weather Bike data : Forecast data.

Conclusion

Features described in the overview will be implemented using technologies like python and its associated packages.