CS551P Web Development Report

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Render URL: https://bus-stops.onrender.com/

The assignment is about building a database driven web application using Flask. In the first place, a dataset of the detailed information about bus stops in Perth and Kinross containing more than 2,000 records was obtained from Open Data Scotland as the database basis. (https://opendata.scot/datasets/perth+%2526+kinross+council-bus+stops/)

The software architecture for the application was designed using the design pattern of MVC, particularly to have three units of Model, View and Controller. A parse_csv.py file was created in the Model unit to read the data from the database, create two linked tables, and parse the data extracted from the database into the tables. For the View unit, a number of html files were included in a folder of "templates" for presentation of the data for different web pages of the application. More specifically, an index.html file was included to start the main page of the application having a hyperlink for a list of bus stops and a hyperlink for the details of the bus stops. A bus_stops.html file was created to direct a user to the page of the bus stops list, while a details.html file was created to direct a user to the page for the details of the bus stops. In the Controller unit, a main app file was created to set up the logic of the application and manage requests and responses.

The project was connected to GitHub for source version control, and the application has been published on Render at https://bus-stops.onrender.com/. The work related to source version control involves creating a GitHub account and a repository on GitHub for the project, and pushing the project to the repository to keep track of changes in the project. Also, a Render account was created to be connected with the GitHub account so that the repository of the project can be eventually published on Render.

The application is for providing the detailed information about all the bus stops in the area of Perth and Kinross. The main page of the application shows the brief information about the website and two links respectively directed to the list of bus stops in the area and the detailed information of the bus stops. By clicking on the left link, a user can be directed to a new page showing a list of all bus stops in Perth and Kinross, containing NaptanCode (National Public Transport Access Node) and common name of each bus stop. By clicking on the right link, a user can be directed to a new page showing a list of the details for each bus stop, including the information of the type of the bus stop and the coordinates of the bus stop. On the page of for the list of bus stops, hyperlinks are provided for NaptanCode to also direct a user to the page for the details of bus stops.

To sum up, the web application was developed with the Flask based on the open-source data of bus stops in Perth and Kinross, with front-end design using HTML. The data structure of the application involves two linked tables derived from the database, which can be navigated therebeween by hyperlinks on the web pages. The application was designed on the MVC basis, and has been pushed into a repository on GitHub and published on Render for easy access.