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Project 1

CS4310

Design Document

For this project, I used python 3 because I think it is one of the best languages around. I split this project into four different files to keep everything abstracted and easier to find.

Helper.py is the file with the importing of data, and the system arguments

Route.py is where all the DV packet stuff happens

Run.py is to run the program and print the data to the screen

Main.py is a simple call the run.py to get the program to run.

Helper.py:

I choose to implement this file this way because in the past for command line arguments and importing files this is how I have done it. I think it looks clean and allows you to pick the dash value(-i ) to be whatever you want. I also choose to import the data in this file to keep everything all in one place with reading file/ command line arguments. For the data, I choose to import the entire list into array and then later split the data. I also chose to add allData() here to split the data. I felt like because it had to do with the data that this would be a good place for it.

Run.py:

This file takes everything from helper.py function and implements it based on the data. This file keeps track of just the data points, and then sends them to the route.py file to be send in DV packets. The function preFillDataInRoute() in this file is for sending the number of data point to the route file and then also sending the neighboring data point to route, and then the printAllRounds() function prints all the rounds, and then tell the route to start sending DV pakcets.

Route.py

This file is where all the routing of DV packets happens. This file has three main functions and few sub functions for utility. The three main functions are send(), receive(), and updateTable(). The send() function pairs the data into packets and then sends it to the receive() function. The receive() function then takes the packets, and calls the updateTable() function to update the routing table. The updateTable() function updates the routing table based on the DV packets pairs, and if they have converged or not. The it uses the Bellman-ford algorithm to update the routing tables base on cost, and where the nexthop is.

Main.py

This file just calls the run.py. I thought this made for a clean and simple main run file.