USER MANUAL

Instructions for how to run the program:

Provided with a zip file. Extract the file.

It includes

- 2 Rules files, one is of Project Part1's and other for Part2 names accordingly.
  - RulesforPart1
  - RulesforPart2(for part2)
- 3 data set files
  - deffacts_ds1 for first data set provided
  - deffacts_ds2 for second and
  - deffacts_ds3 for third.
- 3 output files, Reports generated with the above mentioned data set files. The report contains Truck Report, Package Report and Average Package Report
  - Output_ds1
  - Output_ds2
  - Output_ds3

Steps to run the program.

- In CLIPS load the file deffacts_ds1
- Reset clips either by typing (reset) at prompt or select reset from Execution tab.
- Then load the file RulesforPart2
- Run the program either by typing (run) at prompt or select run from Execution tab.
- Output (Reports) can be seen in the dialog window.

How Data is specified:

Given map is prepared in the form of facts (city) with slots defining city name and the cities to which it is connected to along with the distance between them.

(city)

- City_name- name of the city
- Connected_cities- list of cities to which the city is directly connected to along with the distance between them

From this data collected shortest path among all possible cities is calculated by using four rules defined in rules file along with other rules

(shortest_path)

- City1- start city from which distance must be calculated
- City2- end city to which distance must be calculated

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- Time- min time to travel from start city to end city
- Via- list of cities in between start city and end city shortest path

Truck details are specified as facts (truck) with slots

- truck_no- defines truck number
- current_city- trucks current city
- multislot destination_city- all those destinations truck must visit to deliver packages it is carrying
- current_action- defined to be “idle”, ”going to pick a package”, ”in route to deliver a package”, “delivered package ”. to best fit all the scenarios while delivering a pacakge
- waiting_time- truck idle time without a pick to pick up or deliver
- busy_time- time spent for travelling, while picking up and delivering the package
- reached_time- time to reach the next destination, used to update the clock
- Available_space- space available in the truck after picking up the package
- space_occupied- space occupied by the packages which truck currently carrying
- packages_carrying- Total number of packages a truck delivered in total time
- tot_space_occupied- total amount of truck’s space utilized by the packages it delivered. It may suggest the admin whether to place a truck with more capacity among particular routes so as to reduce the waiting time of the package
- non_del_time- travel time spent by truck to pick up a truck
- del_time- time spent by truck to deliver the package after it picks it up
- numofpack- list of packages a truck is carrying at present time

Package details are specified as facts (package) with slots

- package_no- defines the package number
- depart_city- city to which the packet is arrived
- deliver_city- city to which the packet must be delivered
- size_of_package- package size, given in the data set
- arrival_time- time at which the packet is arrived
- exp_delivery_time- time at which the packaet is expected to be delivered
- ppick_up_time- time at which thepacket is picked
- pdelivery_time- time at which the packet is delivered
- wait_time- time for which the packet waited for it to pick up(also in queue)
- status- defined it to be “arrived”, “waiting to pick up”, “in-transit”, “delivered”

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What output is generated:

3 reports are generated as output

- Truck Report
    - Truck_no- truck number in ascending order
    - Wait-time- total amount of time for which truck is idle
    - Total-busy-time- total time spent by truck to pick up and deliver the package
    - %busy- time
    - Total-packages-carried- total number of packages a truck delivered
    - Avg-occupancy- Average space occupied by packages a truck has delivered
    - Non-delivery travel time- time spent by truck to pick up packages
    - %non-delivery-time
    - Delivery-travel-time- time spent by truck in delivering packages after picking them up
    - %delivery-time

- Package Report
    - Package number- package number in ascending order
    - Total-wait-time- total wait time of package after its arrival
    - Pick-up-time- time at which package is picked by a truck
    - Delivery-time- time at which package is delivered by the truck
    - On-time delivery-status- states whether package is delivered on time. True or false
    - Delivered delayed by- time by which a package is delayed in its delivery

- Package Average Report
    - Avg-wait-time
    - Number of packages delivered on time
    - Number of packages delayed
    - Avg lateness of late packages
    - Avg lateness of all packages