Shane McBryde, Student ID: 00077514

A: ALGORITHM SELECTION

Self-adjusting algorithm used:

Greedy Algorithm

Used in:

route.closest() to choose the next package to be loaded from the available packages that is closest to the HUB or to the current package destination.

route.return_trip() in place of route.closest() when the packages that must be delivered together have all been loaded and the truck capacity hasn't been reached. Chooses package from the available packages whose distance from the current package plus the distance to the HUB is the shortest.

route.sort_load() to choose each successive package from those that are loaded and within the current zip code that is closest to the HUB, to the current package destination, or to the last package in the previously sorted zip code.

B1: LOGIC COMMENTS

Core algorithm within route.closest():

1. Loop through the package list.
2. Determine if the package item is available for delivery.
3. Retrieve the zip_code list of destinations within the zip code that matches the package item zip code.
4. Loop through the destination zip_code list until the destination item address matches the package item address.
5. Compare the distance from the previously stored present_location (initially the HUB) to the matched destination item to the previously stored distance (initially 100 miles).
6. If the compared distance is shorter then store the compared distance as distance, the compared destination item as closest_destination and the current package item as closest_package.
7. When the package list loop completes, the destination item stored as the current closest_destination and the package item stored as the current closest_package have been determined.

Core algorithm within return_trip():

Similar to that of route.closest() with the only difference being that the distance from the compared destination item back to the HUB is added to the compared distance.

Core algorithm within sort_load():

1. Retrieve the zip_code list of destinations that matches the zip code of the package stored in closest_package.
2. Loop through the loaded packages beginning at the first package (designate index i) going to destinations within the zip code being sorted. The location of these packages within the loaded packages list is identified using the stored index_sorted locator (initially index 0).
3. Store the index of the current looping loaded package item (index i) as index_shortest.
4. Loop through the destination zip_code list until the destination item address matches the loaded package item (at index i) address.
5. Store the distance from the stored location (initially the previously stored present_location) to the matched destination item as shortest_distance and store the destination item ID as temp_destination.
6. Again, loop through the loaded packages beginning at the second package (designate index j) going to destinations within the zip code being sorted.
7. Loop through the destination zip_code list until the destination item address matches the loaded package item (at index j) address.
8. Store the distance from the stored location to the matched destination item as temp_distance.
9. Compare temp_distance to shortest_distance.
10. If temp_distance is shorter than shortest_distance then make shortest_distance equal to temp_distance, make temp_destination equal to the matched destination item ID, and make index_shortest equal to index j.
11. Swap the packages in the loaded packages list at index i and the index stored in index_shortest.
12. In preparation for sorting the next group of loaded packages, store the final sorted package's destination ID to present_location and store the length of the loaded packages list as index_sorted.

B2: APPLICATION OF PROGRAMMING MODELS

The application was created using Python 3.8 and PyCharm 2020.1.3 (Community Edition) running in a Windows 10 environment.

The data files are found within the application itself which is stored on the same local computer used to run the application. The original package and destination Excel files have been converted to CSV formatted files and are provided within the csv folder. A CSV library reader object is used to access the data within the opened files which is then converted into a list data type for convenient processing.

B3: SPACE-TIME AND BIG-O

- Time complexity: $O(n^5)$
- Space complexity: $O(n)$

B4: ADAPTABILITY

Because the use of the core algorithm is divided into two phases, each demanding only limited utilization of the algorithm, the application should have no problem handling a growing number of packages, package destinations, or trucks on the road. In the first phase, the core algorithm only needs to identify the next closest available package destination outside of the current package destination's zip code and only after the bulk of the package selection has already been performed. This selection is performed by simply choosing available packages with destinations within the same zip code as that of the current package destination. In the second phase, the algorithm is used to efficiently route the relatively few packages between and within each individual zip code segment on the route. As well, since no individual HUB will ever be responsible for an unwieldy number of package deliveries, this simple approach to package routing can efficiently handle any number of likely package delivery scenarios.

B5: SOFTWARE EFFICIENCY AND MAINTAINABILITY

The efficiency of the application in Big-O is limited to polynomial complexity for both time and space usage. In fact, even though the time complexity of the application is $O(n^5)$ in a hypothetical worst-case scenario, unless each package is going to a unique destination and on its own unique truck, in any real-world scenario its time complexity will never actually approach anything near even this relatively limited complexity.

The application is logically divided into multiple, individual self-contained files responsible for performing a portion of the processing and then handing the results off to the next section of code for additional processing. This modularity not only makes finding the proper section of code requiring maintenance easy, it allows for additional enhancements to be added without having to rewrite whole sections of code. As well, each file name and function name within each file makes its purpose clear and immediately understandable and the provided section comments further explain the underlying purpose of those sections. Further, all pertinent data fields which might be subject to change due to location logistics, future expansion, or daily package details are conveniently accessible at the top of the main file. Combined, these factors make maintainability of the code relatively intuitive and uncomplicated.

B6: SELF-ADJUSTING DATA STRUCTURES

DestinationTable: The hash table is keyed to the Destination object's zip code. As such, insertion, removal, and search, while adding complexity to the individual operation, reduce the time overall from O(n) to that of O(1) time complexity. Searches, in particular, are convenient since all destinations within the zip code are returned as a list of destinations without having to loop through all of the destinations and accessing and comparing each object's zip code

attribute before returning the matching destination individually. Insertion and removal operations can automatically adjust the bucket contents associated with the hash key.

C: ORIGINAL CODE

The application produces a combined total mileage of all trucks and their runs of 97.2 miles while delivering all packages within the requirements. An interface is provided to check the status of either all packages or any individual package at any time throughout the day.

C1: IDENTIFICATION INFORMATION

The initial comment is located within the first line of code and includes my name and student ID.

"# Shane McBryde, Student ID: 00077514"

C2: PROCESS AND FLOW COMMENTS

Includes comments at each major block of code explaining the process and flow of the code.

D: DATA STRUCTURE

DestinationTable: Hash table that stores the Destination objects grouped by zip code using only the list primitive data structure. Includes an insert and remove function and a retrieval function.

PackageTable: Hash table that stores the Package objects using only the list primitive data structure. Includes an insert and remove function and a retrieval function.

TruckTable: Hash table that stores the Truck objects using only the list primitive data structure. Includes an insert and remove function and a retrieval function.

D1: EXPLANATION OF DATA STRUCTURE

DestinationTable: Hashed using the Destination object's zip code attribute and contains a bucket of destinations for each zip code and is sized by the number of zip codes. Used to store and retrieve the details of each destination and their distances from other destinations.

PackageTable: Hashed using the Package object's ID attribute and is sized by the number of packages. Used to store and retrieve the details of each package including possible deadlines and special delivery details.

TruckTable: Hashed using the truck number and is sized by the possible number of truck/driver pairs. Used to store and retrieve the details of each truck including a running tally of miles traveled during deliveries.

E: HASH TABLE

Each hash table includes an insertion function that includes, as input, all of the given components.

F: LOOK-UP FUNCTION

The look-up function includes all of the given data elements, completes searches via package ID, returns the data corresponding to the provided ID including the package' status (at the hub, en-route, or delivery time).

G: INTERFACE

A command line interface is provided for the user to view the status and info of any package at any time by allowing the user to input a time and then allowing the user to choose either all packages or an individual package ID.

G1-G3: 1st, 2nd, and 3rd status checks.

Screenshots are provided showing package details and their statuses at the following times:

- *9:00 am*
- *10:20 am*
- *1:00 pm*

(find below)

H: SCREENSHOTS OF CODE EXECUTION

A screenshot is provided showing successful completion of the code free from runtime errors or warnings.

(find below)

I1: STRENGTHS OF THE CHOSEN ALGORITHM

- Next package selection is straight-forward and easy to implement. It's as simple as finding the shortest distance from the present location to the package destination.
- The time complexity of the greedy algorithm can be linear 0(n). In my case, since the distance value is separate from the package, the time complexity is still only $0(n^2)$.

I2: VERIFICATION OF ALGORITHM

The verification includes the total miles added to all trucks, and it states that all packages were delivered on time. (see the initial screenshot below)

I3: OTHER POSSIBLE ALGORITHMS

- Dijkstra's algorithm
- Floyd-Warshall algorithm

I3A: ALGORITHM DIFFERENCES

Floyd–Warshall algorithm: Compares all possible paths between each pair of destinations. This is in comparison to a simple greedy algorithm which only compares the distance in a direct path from the current location to each of the other individual destination without passing through any of the other destinations.

Dijkstra's algorithm: Creates a tree of shortest paths from the current location to all other destinations in the graph. A greedy algorithm does not create any such graph. It only considers the very next step in in the construction of the overall path.

J: DIFFERENT APPROACH

In the beginning, I decided to use the assumption that destinations within the same zip code are generally closer to each other than to those in other zip codes. As such, delivering all available packages within a zip code should keep my miles down. However, while this assumption is true, it doesn't account for the huge differences in distances between individual destinations between zip codes nor the return trip distance. As well, I assumed that the shortest path from one location to another would be the direct path. It turns out that this isn't true according to the distance table. Knowing this now, I would use a more dynamic approach to creating the routes and use either of the other algorithms mentioned above. Doing so would only affect a relatively small portion of my existing code. The only real issue would be to dismiss any route in which deadlines were not met. As well, I would have segregated all packages available for delivery at time of loading from the rest. This would've saved some redundant code throughout.

K1: VERIFICATION OF DATA STRUCTURE

The verification shows all the criteria have been met: the least number of total miles added to all trucks, all packages were delivered on time, the hash table with look-up function is present, and the reporting needed is accurate and efficient. (see the initial screenshot below)

K1A: EFFICIENCY

DestinationTable: Hash table that stores the Destination objects grouped by zip code. Destinations objects are used in address matching with Package objects and retrieval of distances between package destinations. The hash table allows for quick access to all destinations within a queried zip code.

PackageTable: Hash table that stores the Package objects. Package objects are used in address matching with Destination objects and retrieval of package delivery details. The hash table allows for quick access to any package by querying the hash table using a package ID.

TruckTable: Hash table that stores the Truck objects. Truck objects are used to differentiate individual routes and to record the number of miles driven during deliveries. The hash table allows for quick access to particular truck details by querying the hash table using a truck number.

KB: OVERHEAD

The hash tables are designed to allow for quick insertion and lookup of any individual destination, package, or truck value with an access time complexity of O(1) and a space complexity of O(n). Bandwidth is not used since the application is run from a local machine.

K1C: IMPLICATIONS

Any increase in the number of packages, destinations, or trucks would require an increase to the size of the hash table and a change to the algorithm used to create the hash-key. The time and space complexity would not be affected.

K2: OTHER DATA STRUCTURES

Dictionary: A dictionary could easily be used in place of the hash table due to similar insertion and lookup functionality using key:value pairs as well as similarly not having any restrictions of the types of values they can store. A dictionary would also provide additional potentially useful functionality with their own built-in methods.

Link List: A linked list could be implemented such that it would work in place of the hash table. However, doing so would increase insertion and lookup time complexity to O(n) since the linked list would need to be searched sequentially in order to insert or locate data. Although the

allowed types of values would be identical, a linked list would be a less than ideal replacement for a hash table.

K2A: DATA STRUCTURES DIFFERENCES

The description includes the attributes of each data structure identified in part K2 and compares these attributes to the attributes of the data structure used in the solution.

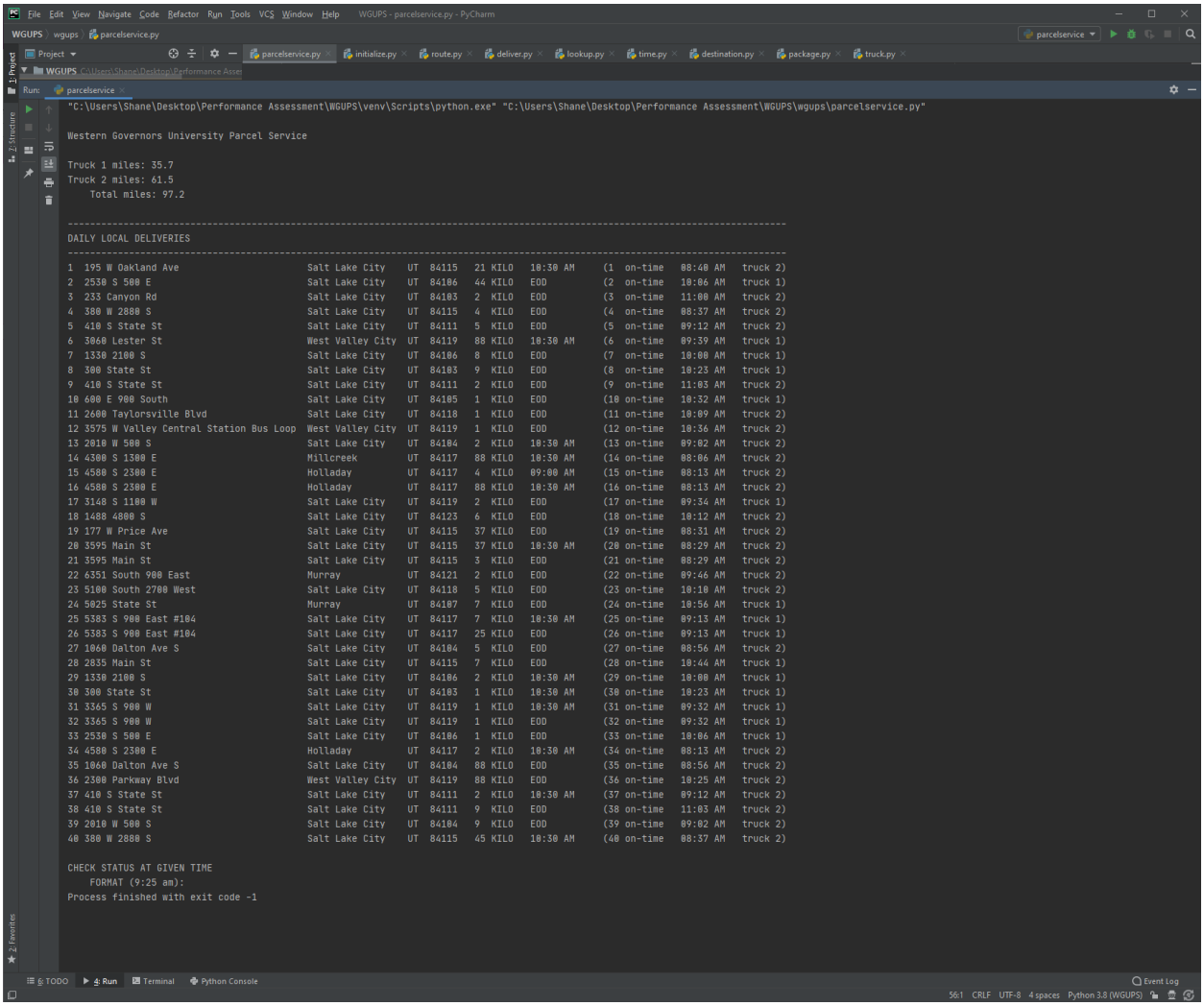
L: SOURCES

NA: No sources were used.

M: PROFESSIONAL COMMUNICATION

The content reflects an attention to detail, is organized, and focuses on the main ideas as prescribed in the task or chosen by the candidate. Terminology is pertinent, is used correctly, and effectively conveys the intended meaning. Mechanics, usage, and grammar promote accurate interpretation and understanding.

Screenshot showing successful completion of the code free from runtime errors or warnings:



Screenshot showing package details and their statuses at 9:00 am:

```
------------------------------------------------------------------------------------------------------------------------------------------
STATUS OF PACKAGES AT 09:00 AM:
------------------------------------------------------------------------------------------------------------------------------------------
1  195 W Oakland Ave                       Salt Lake City    UT  84115   21 KILO   10:30 AM   1  DELIVERED - AT: (08:40 AM) (truck 2)
2  2530 S 500 E                            Salt Lake City    UT  84106   44 KILO   EOD        2  HUB - EXPECTED: (10:06 AM) (truck 1)
3  233 Canyon Rd                           Salt Lake City    UT  84103   2  KILO   EOD        3  HUB - EXPECTED: (10:46 AM) (truck 2)
4  380 W 2880 S                            Salt Lake City    UT  84115   4  KILO   EOD        4  DELIVERED - AT: (08:37 AM) (truck 2)
5  410 S State St                          Salt Lake City    UT  84111   5  KILO   EOD        5  EN ROUTE - DUE: (09:12 AM) (truck 2)
6  3060 Lester St                          West Valley City  UT  84119   88 KILO   10:30 AM   6  HUB - EXPECTED: (DELAYED FLIGHT)
7  1330 2100 S                             Salt Lake City    UT  84106   8  KILO   EOD        7  HUB - EXPECTED: (10:00 AM) (truck 1)
8  300 State St                            Salt Lake City    UT  84103   9  KILO   EOD        8  HUB - EXPECTED: (10:23 AM) (truck 1)
9  300 State St                            Salt Lake City    UT  84103   2  KILO   EOD        9  HUB - EXPECTED: (WRONG ADDRESS)
10 600 E 900 South                         Salt Lake City    UT  84105   1  KILO   EOD        10 HUB - EXPECTED: (10:32 AM) (truck 1)
11 2600 Taylorsville Blvd                  Salt Lake City    UT  84118   1  KILO   EOD        11 HUB - EXPECTED: (09:55 AM) (truck 2)
12 3575 W Valley Central Station bus Loop  West Valley City  UT  84119   1  KILO   EOD        12 HUB - EXPECTED: (10:22 AM) (truck 2)
13 2010 W 500 S                            Salt Lake City    UT  84104   2  KILO   10:30 AM   13 EN ROUTE - DUE: (09:02 AM) (truck 2)
14 4300 S 1300 E                           Millcreek         UT  84117   88 KILO   10:30 AM   14 DELIVERED - AT: (08:06 AM) (truck 2)
15 4580 S 2300 E                           Holladay          UT  84117   4  KILO   09:00 AM   15 DELIVERED - AT: (08:13 AM) (truck 2)
16 4580 S 2300 E                           Holladay          UT  84117   88 KILO   10:30 AM   16 DELIVERED - AT: (08:13 AM) (truck 2)
17 3148 S 1100 W                           Salt Lake City    UT  84119   2  KILO   EOD        17 HUB - EXPECTED: (09:34 AM) (truck 1)
18 1488 4800 S                             Salt Lake City    UT  84123   6  KILO   EOD        18 HUB - EXPECTED: (09:59 AM) (truck 2)
19 177 W Price Ave                         Salt Lake City    UT  84115   37 KILO   EOD        19 DELIVERED - AT: (08:31 AM) (truck 2)
20 3595 Main St                            Salt Lake City    UT  84115   37 KILO   10:30 AM   20 DELIVERED - AT: (08:29 AM) (truck 2)
21 3595 Main St                            Salt Lake City    UT  84115   3  KILO   EOD        21 DELIVERED - AT: (08:29 AM) (truck 2)
22 6351 South 900 East                     Murray            UT  84121   2  KILO   EOD        22 HUB - EXPECTED: (11:06 AM) (truck 1)
23 5100 South 2700 West                    Salt Lake City    UT  84118   5  KILO   EOD        23 HUB - EXPECTED: (09:57 AM) (truck 2)
24 5025 State St                           Murray            UT  84107   7  KILO   EOD        24 HUB - EXPECTED: (10:56 AM) (truck 1)
25 5383 S 900 East #104                    Salt Lake City    UT  84117   7  KILO   10:30 AM   25 HUB - EXPECTED: (DELAYED FLIGHT)
26 5383 S 900 East #104                    Salt Lake City    UT  84117   25 KILO   EOD        26 HUB - EXPECTED: (DELAYED FLIGHT)
27 1060 Dalton Ave S                       Salt Lake City    UT  84104   5  KILO   EOD        27 DELIVERED - AT: (08:56 AM) (truck 2)
28 2835 Main St                            Salt Lake City    UT  84115   7  KILO   EOD        28 HUB - EXPECTED: (DELAYED FLIGHT)
29 1330 2100 S                             Salt Lake City    UT  84106   2  KILO   10:30 AM   29 HUB - EXPECTED: (10:00 AM) (truck 1)
30 300 State St                            Salt Lake City    UT  84103   1  KILO   10:30 AM   30 HUB - EXPECTED: (10:23 AM) (truck 1)
31 3365 S 900 W                            Salt Lake City    UT  84119   1  KILO   10:30 AM   31 HUB - EXPECTED: (DELAYED FLIGHT)
32 3365 S 900 W                            Salt Lake City    UT  84119   1  KILO   EOD        32 HUB - EXPECTED: (DELAYED FLIGHT)
33 2530 S 500 E                            Salt Lake City    UT  84106   1  KILO   EOD        33 HUB - EXPECTED: (10:06 AM) (truck 1)
34 4580 S 2300 E                           Holladay          UT  84117   2  KILO   10:30 AM   34 DELIVERED - AT: (08:13 AM) (truck 2)
35 1060 Dalton Ave S                       Salt Lake City    UT  84104   88 KILO   EOD        35 DELIVERED - AT: (08:56 AM) (truck 2)
36 2300 Parkway Blvd                       West Valley City  UT  84119   88 KILO   EOD        36 HUB - EXPECTED: (10:12 AM) (truck 2)
37 410 S State St                          Salt Lake City    UT  84111   2  KILO   10:30 AM   37 EN ROUTE - DUE: (09:12 AM) (truck 2)
38 410 S State St                          Salt Lake City    UT  84111   9  KILO   EOD        38 HUB - EXPECTED: (10:50 AM) (truck 2)
39 2010 W 500 S                            Salt Lake City    UT  84104   9  KILO   EOD        39 EN ROUTE - DUE: (09:02 AM) (truck 2)
40 380 W 2880 S                            Salt Lake City    UT  84115   45 KILO   10:30 AM   40 DELIVERED - AT: (08:37 AM) (truck 2)
```

Screenshot showing package details and their statuses at 10:20 am:

```
------------------------------------------------------------------------------------------------------------------------------------------
STATUS OF PACKAGES AT 10:20 AM:
------------------------------------------------------------------------------------------------------------------------------------------
1  195 W Oakland Ave                       Salt Lake City    UT  84115   21 KILO   10:30 AM   1  DELIVERED - AT: (08:40 AM) (truck 2)
2  2530 S 500 E                            Salt Lake City    UT  84106   44 KILO   EOD        2  DELIVERED - AT: (10:06 AM) (truck 1)
3  233 Canyon Rd                           Salt Lake City    UT  84103   2  KILO   EOD        3  EN ROUTE - DUE: (10:46 AM) (truck 2)
4  380 W 2880 S                            Salt Lake City    UT  84115   4  KILO   EOD        4  DELIVERED - AT: (08:37 AM) (truck 2)
5  410 S State St                          Salt Lake City    UT  84111   5  KILO   EOD        5  DELIVERED - AT: (09:12 AM) (truck 2)
6  3060 Lester St                          West Valley City  UT  84119   88 KILO   10:30 AM   6  DELIVERED - AT: (09:39 AM) (truck 1)
7  1330 2100 S                             Salt Lake City    UT  84106   8  KILO   EOD        7  DELIVERED - AT: (10:00 AM) (truck 1)
8  300 State St                            Salt Lake City    UT  84103   9  KILO   EOD        8  EN ROUTE - DUE: (10:23 AM) (truck 1)
9  410 S State St                          Salt Lake City    UT  84103   2  KILO   EOD        9  EN ROUTE - DUE: (10:53 AM) (truck 2)
10 600 E 900 South                         Salt Lake City    UT  84105   1  KILO   EOD        10 EN ROUTE - DUE: (10:32 AM) (truck 1)
11 2600 Taylorsville Blvd                  Salt Lake City    UT  84118   1  KILO   EOD        11 DELIVERED - AT: (09:55 AM) (truck 2)
12 3575 W Valley Central Station bus Loop  West Valley City  UT  84119   1  KILO   EOD        12 EN ROUTE - DUE: (10:22 AM) (truck 2)
13 2010 W 500 S                            Salt Lake City    UT  84104   2  KILO   10:30 AM   13 DELIVERED - AT: (09:02 AM) (truck 2)
14 4300 S 1300 E                           Millcreek         UT  84117   88 KILO   10:30 AM   14 DELIVERED - AT: (08:06 AM) (truck 2)
15 4580 S 2300 E                           Holladay          UT  84117   4  KILO   09:00 AM   15 DELIVERED - AT: (08:13 AM) (truck 2)
16 4580 S 2300 E                           Holladay          UT  84117   88 KILO   10:30 AM   16 DELIVERED - AT: (08:13 AM) (truck 2)
17 3148 S 1100 W                           Salt Lake City    UT  84119   2  KILO   EOD        17 DELIVERED - AT: (09:34 AM) (truck 1)
18 1488 4800 S                             Salt Lake City    UT  84123   6  KILO   EOD        18 DELIVERED - AT: (09:59 AM) (truck 2)
19 177 W Price Ave                         Salt Lake City    UT  84115   37 KILO   EOD        19 DELIVERED - AT: (08:31 AM) (truck 2)
20 3595 Main St                            Salt Lake City    UT  84115   37 KILO   10:30 AM   20 DELIVERED - AT: (08:29 AM) (truck 2)
21 3595 Main St                            Salt Lake City    UT  84115   3  KILO   EOD        21 DELIVERED - AT: (08:29 AM) (truck 2)
22 6351 South 900 East                     Murray            UT  84121   2  KILO   EOD        22 EN ROUTE - DUE: (11:06 AM) (truck 1)
23 5100 South 2700 West                    Salt Lake City    UT  84118   5  KILO   EOD        23 DELIVERED - AT: (09:57 AM) (truck 2)
24 5025 State St                           Murray            UT  84107   7  KILO   EOD        24 EN ROUTE - DUE: (10:56 AM) (truck 1)
25 5383 S 900 East #104                    Salt Lake City    UT  84117   7  KILO   10:30 AM   25 DELIVERED - AT: (09:13 AM) (truck 1)
26 5383 S 900 East #104                    Salt Lake City    UT  84117   25 KILO   EOD        26 DELIVERED - AT: (09:13 AM) (truck 1)
27 1060 Dalton Ave S                       Salt Lake City    UT  84104   5  KILO   EOD        27 DELIVERED - AT: (08:56 AM) (truck 2)
28 2835 Main St                            Salt Lake City    UT  84115   7  KILO   EOD        28 EN ROUTE - DUE: (10:44 AM) (truck 1)
29 1330 2100 S                             Salt Lake City    UT  84106   2  KILO   10:30 AM   29 DELIVERED - AT: (10:00 AM) (truck 1)
30 300 State St                            Salt Lake City    UT  84103   1  KILO   10:30 AM   30 EN ROUTE - DUE: (10:23 AM) (truck 1)
31 3365 S 900 W                            Salt Lake City    UT  84119   1  KILO   10:30 AM   31 DELIVERED - AT: (09:32 AM) (truck 1)
32 3365 S 900 W                            Salt Lake City    UT  84119   1  KILO   EOD        32 DELIVERED - AT: (09:32 AM) (truck 1)
33 2530 S 500 E                            Salt Lake City    UT  84106   1  KILO   EOD        33 DELIVERED - AT: (10:06 AM) (truck 1)
34 4580 S 2300 E                           Holladay          UT  84117   2  KILO   10:30 AM   34 DELIVERED - AT: (08:13 AM) (truck 2)
35 1060 Dalton Ave S                       Salt Lake City    UT  84104   88 KILO   EOD        35 DELIVERED - AT: (08:56 AM) (truck 2)
36 2300 Parkway Blvd                       West Valley City  UT  84119   88 KILO   EOD        36 DELIVERED - AT: (10:12 AM) (truck 2)
37 410 S State St                          Salt Lake City    UT  84111   2  KILO   10:30 AM   37 DELIVERED - AT: (09:12 AM) (truck 2)
38 410 S State St                          Salt Lake City    UT  84111   9  KILO   EOD        38 EN ROUTE - DUE: (10:50 AM) (truck 2)
39 2010 W 500 S                            Salt Lake City    UT  84104   9  KILO   EOD        39 DELIVERED - AT: (09:02 AM) (truck 2)
40 380 W 2880 S                            Salt Lake City    UT  84115   45 KILO   10:30 AM   40 DELIVERED - AT: (08:37 AM) (truck 2)
```

Screenshot showing package details and their statuses at 1:00 pm:

```
------------------------------------------------------------------------------------------------------------------------------------------
STATUS OF PACKAGES AT 01:00 PM:
------------------------------------------------------------------------------------------------------------------------------------------
1  195 W Oakland Ave                        Salt Lake City    UT  84115   21 KILO   10:30 AM   1  DELIVERED - AT: (08:40 AM) (truck 2)
2  2530 S 500 E                             Salt Lake City    UT  84106   44 KILO   EOD        2  DELIVERED - AT: (10:06 AM) (truck 1)
3  233 Canyon Rd                            Salt Lake City    UT  84103   2  KILO   EOD        3  DELIVERED - AT: (10:46 AM) (truck 2)
4  380 W 2880 S                             Salt Lake City    UT  84115   4  KILO   EOD        4  DELIVERED - AT: (08:37 AM) (truck 2)
5  410 S State St                           Salt Lake City    UT  84111   5  KILO   EOD        5  DELIVERED - AT: (09:12 AM) (truck 2)
6  3060 Lester St                           West Valley City  UT  84119   88 KILO   10:30 AM   6  DELIVERED - AT: (09:39 AM) (truck 1)
7  1330 2100 S                              Salt Lake City    UT  84106   8  KILO   EOD        7  DELIVERED - AT: (10:00 AM) (truck 1)
8  300 State St                             Salt Lake City    UT  84103   9  KILO   EOD        8  DELIVERED - AT: (10:23 AM) (truck 1)
9  410 S State St                           Salt Lake City    UT  84103   2  KILO   EOD        9  DELIVERED - AT: (10:53 AM) (truck 2)
10 600 E 900 South                          Salt Lake City    UT  84105   1  KILO   EOD        10 DELIVERED - AT: (10:32 AM) (truck 1)
11 2600 Taylorsville Blvd                   Salt Lake City    UT  84118   1  KILO   EOD        11 DELIVERED - AT: (09:55 AM) (truck 2)
12 3575 W Valley Central Station bus Loop   West Valley City  UT  84119   1  KILO   EOD        12 DELIVERED - AT: (10:22 AM) (truck 2)
13 2010 W 500 S                             Salt Lake City    UT  84104   2  KILO   10:30 AM   13 DELIVERED - AT: (09:02 AM) (truck 2)
14 4300 S 1300 E                            Millcreek         UT  84117   88 KILO   10:30 AM   14 DELIVERED - AT: (08:06 AM) (truck 2)
15 4580 S 2300 E                            Holladay          UT  84117   4  KILO   09:00 AM   15 DELIVERED - AT: (08:13 AM) (truck 2)
16 4580 S 2300 E                            Holladay          UT  84117   88 KILO   10:30 AM   16 DELIVERED - AT: (08:13 AM) (truck 2)
17 3148 S 1100 W                            Salt Lake City    UT  84119   2  KILO   EOD        17 DELIVERED - AT: (09:34 AM) (truck 1)
18 1488 4800 S                              Salt Lake City    UT  84123   6  KILO   EOD        18 DELIVERED - AT: (09:59 AM) (truck 2)
19 177 W Price Ave                          Salt Lake City    UT  84115   37 KILO   EOD        19 DELIVERED - AT: (08:31 AM) (truck 2)
20 3595 Main St                             Salt Lake City    UT  84115   37 KILO   10:30 AM   20 DELIVERED - AT: (08:29 AM) (truck 2)
21 3595 Main St                             Salt Lake City    UT  84115   3  KILO   EOD        21 DELIVERED - AT: (08:29 AM) (truck 2)
22 6351 South 900 East                      Murray            UT  84121   2  KILO   EOD        22 DELIVERED - AT: (11:06 AM) (truck 1)
23 5100 South 2700 West                     Salt Lake City    UT  84118   5  KILO   EOD        23 DELIVERED - AT: (09:57 AM) (truck 2)
24 5025 State St                            Murray            UT  84107   7  KILO   EOD        24 DELIVERED - AT: (10:56 AM) (truck 1)
25 5383 S 900 East #104                     Salt Lake City    UT  84117   7  KILO   10:30 AM   25 DELIVERED - AT: (09:13 AM) (truck 1)
26 5383 S 900 East #104                     Salt Lake City    UT  84117   25 KILO   EOD        26 DELIVERED - AT: (09:13 AM) (truck 1)
27 1060 Dalton Ave S                        Salt Lake City    UT  84104   5  KILO   EOD        27 DELIVERED - AT: (08:56 AM) (truck 2)
28 2835 Main St                             Salt Lake City    UT  84115   7  KILO   EOD        28 DELIVERED - AT: (10:44 AM) (truck 1)
29 1330 2100 S                              Salt Lake City    UT  84106   2  KILO   10:30 AM   29 DELIVERED - AT: (10:00 AM) (truck 1)
30 300 State St                             Salt Lake City    UT  84103   1  KILO   10:30 AM   30 DELIVERED - AT: (10:23 AM) (truck 1)
31 3365 S 900 W                             Salt Lake City    UT  84119   1  KILO   10:30 AM   31 DELIVERED - AT: (09:32 AM) (truck 1)
32 3365 S 900 W                             Salt Lake City    UT  84119   1  KILO   EOD        32 DELIVERED - AT: (09:32 AM) (truck 1)
33 2530 S 500 E                             Salt Lake City    UT  84106   1  KILO   EOD        33 DELIVERED - AT: (10:06 AM) (truck 1)
34 4580 S 2300 E                            Holladay          UT  84117   2  KILO   10:30 AM   34 DELIVERED - AT: (08:13 AM) (truck 2)
35 1060 Dalton Ave S                        Salt Lake City    UT  84104   88 KILO   EOD        35 DELIVERED - AT: (08:56 AM) (truck 2)
36 2300 Parkway Blvd                        West Valley City  UT  84119   88 KILO   EOD        36 DELIVERED - AT: (10:12 AM) (truck 2)
37 410 S State St                           Salt Lake City    UT  84111   2  KILO   10:30 AM   37 DELIVERED - AT: (09:12 AM) (truck 2)
38 410 S State St                           Salt Lake City    UT  84111   9  KILO   EOD        38 DELIVERED - AT: (10:50 AM) (truck 2)
39 2010 W 500 S                             Salt Lake City    UT  84104   9  KILO   EOD        39 DELIVERED - AT: (09:02 AM) (truck 2)
40 380 W 2880 S                             Salt Lake City    UT  84115   45 KILO   10:30 AM   40 DELIVERED - AT: (08:37 AM) (truck 2)
```