

Simulation Step 4 Model Verification v2

July 7, 2024

1 Prelude

```
[1]: import matplotlib.pyplot as plt
import pulp
import math
import random
import pandas as pd
import numpy as np
import sympy
```

2 Utilities

2.1 Points and Distances

```
[2]: def dist(p1, p2):
    (x1, y1) = p1
    (x2, y2) = p2
    return int(math.sqrt((x1-x2)**2+(y1-y2)**2))
```

2.2 PlotMap

```
[3]: def label(i):
    return (label(i//26-1)+chr(65+i%26)) if i>25 else chr(65+i)
```

```
[4]: def plotMap(G, T=[], P=[], w=None,
    style='r-o', lw=1, ms=3,
    styleT='go', msT=3,
    styleP='b-o', lwP=2, msP=3,
    stylePT='go', msPT=7,
    styleW='ro', msW=9,
    text=None, grid=False, labels=False, scale=False):

    V, E = G

    def round_down(x, level): return (x//level)*level
    def round_up(x, level): return (x//level+1)*level
```

```

xmin = round_down(min([ x for (x, _) in V ]), 100)
xmax = round_up(max([ x for (x, _) in V ]), 100)
ymin = round_down(min([ y for (_, y) in V ]), 100)
ymax = round_up(max([ y for (_, y) in V ]), 100)
dx = xmax-xmin
dy = ymax-ymin
yoffset = (ymax-ymin)//10

fig = plt.gcf()
fig.set_size_inches(4, 4)
plt.xlim(xmin, xmax)
plt.ylim(ymin-yoffset, ymax)

if not grid:
    plt.axis('off')

for e in E:
    p1, p2 = e
    plt.plot( [ p1[0], p2[0] ],
              [ p1[1], p2[1] ],
              style, lw=lw, ms=ms)

if scale:
    # plot 1000m scale
    ybar = ymin-0.9*yoffset
    D = [ (xmin, ybar+50), (xmin, ybar), (xmin+1000, ybar), (xmin+1000,
↪ybar+50) ]
    plt.plot( [ d[0] for d in D ], [ d[1] for d in D ], 'k-', lw=0.5)
    plt.text(xmin+500, ymin-0.7*yoffset, '1000m' ,
↪horizontalalignment='center', size=8)

if labels:
    for i in range(len(V)):
        x, y = V[i]
        plt.text(x+0.0150*dx, y-0.0350*dy, label(i), size=8)

for t in T:
    plt.plot( [ t[0] ], [ t[1] ],
              styleT, ms=msT)

plt.plot( [ p[0] for p in P ],
          [ p[1] for p in P ],
          styleP, lw=lwP, ms=msP)

for p in P:
    if p in T:
        plt.plot( [ p[0] ], [ p[1] ],
                  stylePT, ms=msPT)

```

```

if w is not None:
    plt.plot( [ w[0] ], [ w[1] ],
              styleW, ms=msW)
if text is not None:
    plt.text(xmax, ymin-0.7*yoffset, text, horizontalalignment='right',
↪size=8)
if grid:
    plt.grid()
plt.show()

```

2.3 Add Targets

```

[5]: def addTarget(M, T):
    V, E = M
    E = E.copy()
    V = V.copy()
    for t in T:
        minD = math.inf
        minE = None
        for e in E:
            P, Q = e
            distT = dist(P, t)+dist(t, Q)-dist(P, Q)
            if distT < minD:
                minD = distT
                minE = e
        P, Q = minE
        E.remove( (P, Q) )
        E.append( (P, t) )
        E.append( (t, Q) )
        V.append(t)
    return V, E

```

2.4 Generate Central Warehouse Location

```

[6]: from statistics import median

def generateWarehouseLocation(M):
    V, _ = M
    xc = median([ x for (x, y) in V ])
    yc = median([ y for (x, y) in V ])
    cloc = (xc, yc)
    minloc = V[0]
    mindist = dist(minloc, cloc)
    for i in range(1, len(V)):
        d = dist(V[i], cloc)
        if d<mindist:
            minloc = V[i]

```

```
mindist = dist(V[i], cloc)
return minloc
```

2.5 Time Handling (NEW)

Convention: In this project we measure simulation time in seconds. The simulation will start at 0:00. Time related methods will be added as they are needed.

timestamp(t) generates a timestamp string in the form [dd] hh:mm:ss.d

```
[7]: def timestamp(t):
    t = round(t, 1)
    day = int(t)//(24*3600)
    t = t - day*24*3600
    hour = int(t)//3600
    t = t - hour*3600
    mins = int(t)//60
    t = t - mins*60
    secs = int(t)
    t = int(round((t-secs)*10,1))
    return f"[{day:2d}] {hour:02d}:{mins:02d}:{secs:02d}.{t:1d}"
```

```
[8]: timestamp(24*3600*3+17*3600+615.1)
```

```
[8]: '[ 3] 17:10:15.1'
```

```
[9]: timestamp(24*3600*12+3*3600+122.96)
```

```
[9]: '[12] 03:02:03.0'
```

```
[10]: def day(now):
    return int(now//(24*3600))
```

```
[11]: def nextHour(env, hour):
    beginningOfDay = int(env.now//(24*3600))*24*3600
    timeOfDay = env.now-beginningOfDay
    if hour*3600 > timeOfDay:
        return hour*3600 - timeOfDay
    else:
        return hour*3600 + 24*3600 - timeOfDay
```

3 Finding Shortest Path (as before)

```
[12]: def pathLength(P):
    return 0 if len(P)<=1 else \
        dist(P[0], P[1])+pathLength(P[1:])
```

```
[13]: def shortestPath(M, A, B):

    def h(p):
        return pathLength(p)+dist(p[-1],B)

    # candidates C are pairs of the path so far and
    # the heuristic function of that path,
    # sorted by the heuristic function, as maintained by
    # insert function
    def insert(C, p):
        hp = h(p)
        c = (p, hp)
        for i in range(len(C)):
            if C[i][1]>hp:
                return C[:i]+[c]+C[i:]
        return C+[c]

    V, E = M
    assert(A in V and B in V)
    C = insert([], [A])

    while len(C)>0:
        # take the first candidate out of the list of candidates
        path, _ = C[0]
        C = C[1:]
        if path[-1]==B:
            return path
        else:
            for (x, y) in E:
                if path[-1]==x and y not in path:
                    C = insert(C, path+[y])
                elif path[-1]==y and x not in path:
                    C = insert(C, path+[x])

    return None
```

4 Finding Short Delivery Route (as before)

4.1 Greedy Algorithm

```
[14]: def FW(M):

    V, E = M

    n = len(V)
    d = [ [ math.inf for j in range(n) ] for i in range(n) ]
    p = [ [ None for j in range(n) ] for i in range(n) ]
```

```

for (A, B) in E:
    a = V.index(A)
    b = V.index(B)
    d[a][b] = d[b][a] = dist(A, B)
    p[a][b] = [A, B]
    p[b][a] = [B, A]

for i in range(n):
    d[i][i] = 0
    p[i][i] = [V[i]]

for k in range(n):
    for i in range(n):
        for j in range(n):
            dk = d[i][k] + d[k][j]
            if d[i][j] > dk:
                d[i][j] = dk
                p[i][j] = p[i][k][:-1] + p[k][j]

return d, p

```

```

[15]: def createLoopG(M, T, timing=False):

    def makeLoop(L):
        loop = []
        for i in range(len(L)-1):
            A = L[i]
            B = L[i+1]
            a = V.index(A)
            b = V.index(B)
            sub = P[a][b]
            loop += sub if len(loop)==0 else sub[1:]
        return loop

    if timing:
        start_time = time.time()
        last_time = time.time()

    V, E = M
    D, P = FW(M)    # note these are the distances between all vertices in  $M$ 
    ↪ (and T)

    W = T[0]
    customers = T[1:]
    if len(T)==1:
        L = T
    elif len(T)<=3:

```

```

    L = T + [T[0]]
else:
    L = T[:3]+[T[0]]
    T = T[3:]
    while len(T)>0:
        minExt = math.inf
        minInd = None
        selInd = None
        for k in range(len(T)):
            C = T[k]
            c = V.index(C)
            for i in range(0, len(L)-1):
                A = L[i]
                B = L[i+1]
                a = V.index(A)
                b = V.index(B)
                ext = D[a][c] + D[c][b] - D[a][b]
                if ext<minExt:
                    minExt, minInd, selInd = ext, i+1, k
            L = L[:minInd]+[T[selInd]]+L[minInd:]
            T = T[:selInd]+T[selInd+1:]

if timing:
    print(f"createLoopH:    {time.time()-start_time:6.2f}s")

return makeLoop(L)

```

5 Finding Optimal Delivery Route

5.1 Iterative Integer Programming

```

[16]: def createTables(M, T):

    def reverse(P):
        return [ P[-i] for i in range(1,len(P)+1) ]

    def index(x, L):
        for i in range(len(L)):
            if x==L[i]:
                return i
        return None

    n = len(T)
    d = [ [ math.inf for t in T ] for t in T ]
    p = [ [ None for t in T ] for t in T ]
    for i in range(n):
        d[i][i] = 0

```

```

    p[i][i] = [ T[i] ]
    for i in range(n):
        for j in range(n):
            if p[i][j] is None:
                s = shortestPath(M, T[i], T[j])
                d[i][j] = d[j][i] = pathLength(s)
                p[i][j] = s
                p[j][i] = reverse(s)
                for m in range(len(s)-1):
                    smi = index(s[m], T)
                    if smi is None:
                        continue
                    for l in range(m+1, len(s)):
                        sli = index(s[l], T)
                        if sli is None:
                            continue
                        sub = s[m:l+1]
                        if p[smi][sli] is None:
                            p[smi][sli] = sub
                            p[sli][smi] = reverse(sub)
                            d[smi][sli] = d[sli][smi] = pathLength(sub)

    return d,p

```

```

[17]: def roundtrips(x, n):

    def isElem(x, l):
        for i in range(len(l)):
            if l[i]==x:
                return True
        return False

    def startpoint(trips):
        for i in range(n):
            for t in trips:
                if isElem(i, t):
                    break
            else:
                return i

    def totalLength(trips):
        s=0
        for i in range(0, len(trips)):
            s += len(trips[i])-1
        return s

    trips = []
    while totalLength(trips)<n:

```



```

start = startpoint(trips)
trip = [ start ]
i = start
while len(trip) < n-totalLength(trips):
    for j in range(0, n):
        if pulp.value(x[i][j])==1:
            trip.append(j)
            i=j
            break
    if pulp.value(x[trip[-1]][start])==1:
        trip.append(start)
        break
    trips.append(trip)
return sorted(trips, key=lambda t: len(t), reverse=True)

```

```

[18]: import time

def createLoop(M, T, timing=False):

    if timing:
        start_time = last_time = time.time()

    D, P = createTables(M, T)    # These are the distances between customers and
    ↪ warehouse only

    if timing:
        print(f"createTables:    {time.time()-start_time:6.2f}s")
        last_time = time.time()

    n = len(T)
    # create variables
    x = pulp.LpVariable.dicts("x", ( range(n), range(n) ),
                               lowBound=0, upBound=1, cat=pulp.LpInteger)

    # create problem
    prob = pulp.LpProblem("Loop",pulp.LpMinimize)
    # add objective function
    prob += pulp.lpSum([ D[i][j]*x[i][j]
                        for i in range(n) for j in range(n) ])

    # add constraints
    constraints=0
    for j in range(n):
        prob += pulp.lpSum([ x[i][j] for i in range(n) if i!=j ]) ==1
        constraints += n
    for i in range(n):
        prob += pulp.lpSum([ x[i][j] for j in range(n) if i!=j ]) ==1
        constraints += n
    for i in range(n):

```

```

    for j in range(n):
        if i!=j:
            prob += x[i][j]+x[j][i] <= 1
            constraints += 1

def cycles(k, n):
    if k==1:
        return [ [i] for i in range(0,n) ]
    else:
        sc=cycles(k-1, n)
        all=[]
        for c in sc:
            for i in range(0,n):
                if c.count(i)==0:
                    all.append(c+[i])
        return all

for k in range(3, 4):
    cycs=cycles(k,n)
    for c in cycs:
        c.append(c[0])
        prob+=pulp.lpSum([ x[c[i]][c[i+1]] for i in range(0,k)]) <= k-1
        constraints += 1

# initialise solver
solvers = pulp.listSolvers(onlyAvailable=True)
solver = pulp.getSolver(solvers[0], msg=0, timeLimit=2)
res = prob.solve(solver)

if timing:
    print(f"Solver: {time.time()-last_time:6.2f}s {constraints:6,d}␣
↳Constraints")
    last_time = time.time()

trips = roundtrips(x, n)
while len(trips)>1:
    longest = max([ len(t) for t in trips ])
    for t in trips:
        if len(t)<longest:
            prob += pulp.lpSum([ x[t[i]][t[i+1]] + x[t[i+1]][t[i]]
                                for i in range(0,len(t)-1) ]) <=␣
↳len(t)-2
            constraints += 1
        else:
            longest = math.inf

res = prob.solve(solver)

```

```

        if timing:
            print(f"Solver:           {time.time()-last_time:6.2f}s {constraints:
↪6,d} Constraints")
            last_time = time.time()

        trips = roundtrips(x, n)
        trip = trips[0]
        # print(trip)
        loop = []
        for k in range(len(trip)-1):
            sub = P[trip[k]][trip[k+1]]
            loop += sub if len(loop)==0 else sub[1:]

        if timing:
            print(f"createLoop:       {time.time()-start_time:6.2f}s")

    return loop

```

6 Class Recorder

We will use a class Recorder as a reference point for capturing data during the simulation. There will be only one recorder. It will be created at the beginning of every simulation run. Every entity will carry a reference to the Recorder.

```

[19]: import time

class Recorder:

    def __init__(self, env, M, W, C, days,
                  log=False, plot=False, timing=False):
        self.env = env
        self.M = M
        self.W = W
        self.C = C
        self.days = days
        self.log = log
        self.plot = plot

    def trace(self, event):
        if self.log:
            print(timestamp(self.env.now), event)

    def finish(self):
        # simulation is finished for good
        # by removing the simulation environment we can
        # pickle recorder

```

```
self.env = None
```

7 Class Customer

```
[20]: class Customer:

    def __init__(self, rec, id, location):
        self.rec = rec
        self.id = id
        self.location = location
        self.atHome = True
        self.answersDoor = False
        self.parcelsReceived = []
        rec.env.process(self.process())

    def __str__(self):
        return f"Customer {self.id:d} at {str(self.location):s}"

    def leaveHouse(self):
        assert(self.atHome and not self.answersDoor)
        # self.rec.trace(str(self)+" leaves house")
        self.atHome = False

    def returnHome(self):
        assert(not self.atHome)
        # self.rec.trace(str(self)+" returns home")
        self.atHome = True

    def answerDoor(self):
        if self.atHome:
            answerTime = random.expovariate(1/AVERAGE_TIME_ANSWER_DOOR)
            if answerTime < WAIT_TIME_IF_CUSTOMER_DOESNT_ANSWER_DOOR:
                yield self.rec.env.timeout(answerTime)
                self.rec.trace(str(self)+" answers door")
                self.answersDoor = True
            else:
                yield self.rec.env.
↪timeout(WAIT_TIME_IF_CUSTOMER_DOESNT_ANSWER_DOOR)
                self.rec.trace(str(self)+" to slow to answer the door")
                self.answersDoor = False
        else:
            yield self.rec.env.timeout(WAIT_TIME_IF_CUSTOMER_DOESNT_ANSWER_DOOR)
            self.rec.trace(str(self)+" not at home")
            self.answersDoot = False

    def acceptParcel(self, parcel):
```

```

    assert(self.answersDoor)
    self.parcelsReceived += [parcel]
    self.rec.trace(str(self)+" accepts "+str(parcel))

def signOff(self):
    assert(self.answersDoor)
    self.rec.trace(str(self)+" signs off")
    self.answersDoor = False

def process(self):
    yield self.rec.env.timeout(nextHour(self.rec.env, 8))
    while day(self.rec.env.now)<self.rec.days:
        # in a refinement we may use random times
        self.leaveHouse()
        returnTime = 22 if random.random()<CUSTOMER_NOT_AT_HOME else 18
        yield self.rec.env.timeout(nextHour(self.rec.env, returnTime))
        self.returnHome()
        yield self.rec.env.timeout(nextHour(self.rec.env, 8))

```

8 Class Parcel

Parcels follow through a sequence of states: - processing - in transit (from manufacture to distribution centre) - arrived in distribution centre - ready for delivery - out for delivery - customer not present - returned to distribution centre - delivered

```

[21]: class Parcel:

    def __init__(self, rec, i, day, cust):
        self.rec = rec
        self.i = i
        self.arrival = day
        self.cust = cust
        self.status = [ ] # status record and
        self.timing = [ ] # timing

    def __str__(self):
        return f"Parcel {self.i:d} for cust {self.cust.id:d}"

    def index(self):
        return self.i

    def destination(self):
        return self.cust.location

    def __reg(self, state):
        self.status += [ state ]
        self.timing += [ self.rec.env.now ]

```

```

        self.rec.trace(str(self)+" "+state)

def arrivedAtDeliveryCentre(self):
    self.__reg('arr at delivery centre')

def outForDelivery(self):
    self.__reg('out for delivery')

def returnFromDelivery(self):
    self.__reg('return from delivery')

```

9 Class Driver

```

[22]: class Driver:

    def __init__(self, rec, DC):
        self.rec = rec
        self.DC = DC
        self.location = None
        self.parcels = None
        self.tour = None
        self.rec.env.process(self.process())

    # activity
    def __drive(self, target):
        assert(self.tour[0] == self.location)
        while self.location!=target:
            d = dist(self.location, self.tour[1])
            yield self.rec.env.timeout(d / AVERAGE_SPEED)
            self.location = self.tour[1]
            self.tour = self.tour[1:]
        assert(self.tour[0] == self.location == target)

    def arriveForWork(self):
        self.location = self.DC.W
        self.parcels = []
        self.returns = []
        self.tour = [ self.DC.W ]
        self.rec.trace("Driver arrives for work")

    def goesHome(self):
        self.location = None
        self.parcels = None
        self.returns = None
        self.tour = None

```

```

self.rec.trace("Driver goes home")

def leaveForDelivery(self, tour, parcels, addresses):
    self.tour, self.parcels = tour, parcels
    self.rec.trace(f"Driver leaves for delivery "
                  f"of {len(parcels):d} parcels "
                  f"to {len(addresses):d} customers")
    self.rec.trace(f"Length of delivery tour: {pathLength(tour):,d}m")
    if self.rec.plot:
        plotMap(self.rec.M, T=addresses, P=tour, w=tour[0],
               text=f"Day {day(self.rec.env.now):d}:", {pathLength(tour):
               ↵,d}m")

def process(self):
    yield self.rec.env.timeout(nextHour(self.rec.env, 18))
    while day(self.rec.env.now)<self.rec.days:
        self.arriveForWork()
        tour, parcels, addresses = self.DC.sendForDelivery()
        if len(parcels)==0:
            self.rec.trace("Nothing to do today")
        else:
            yield self.rec.env.timeout(PREP_TIME_PER_PARCEL*len(parcels))
            self.leaveForDelivery(tour, parcels, addresses)
            while len(self.parcels)>0:
                # drive to customer
                custLocation = self.parcels[0].destination()
                cust = self.parcels[0].cust
                self.rec.trace("Driver drives to "+str(cust))
                yield from self.__drive(custLocation)
                self.rec.trace("Driver arrived at "+str(cust))
                # call at customer
                yield from cust.answerDoor()

            if cust.answersDoor:
                while len(self.parcels)>0 and \
                    custLocation == self.parcels[0].destination():
                    cust.acceptParcel(self.parcels[0])
                    yield self.rec.env.timeout(random.expovariate(1/10))
                    self.parcels = self.parcels[1:]
                cust.signOff()
                yield self.rec.env.timeout(random.expovariate(1/10))
            else:
                while len(self.parcels)>0 and \
                    custLocation == self.parcels[0].destination():
                    self.returns += [self.parcels[0]]
                    self.parcels = self.parcels[1:]

```

```

        # return to delivery centre
        self.rec.trace("Driver returns to delivery centre")
        yield from self.__drive(self.DC.W)
        self.rec.trace("Driver arrived at delivery centre")

        for parcel in self.returns:
            self.DC.returnFromDelivery(parcel)
            yield self.rec.env.timeout(RETURN_TIME_PER_PARCEL)

        leftOver = len(self.DC.parcels)+len(self.DC.leftOver)
        self.rec.trace(f"{leftOver:d} parcels left for next day")

    yield self.rec.env.timeout(600)

    self.goesHome()

    yield self.rec.env.timeout(nextHour(self.rec.env, 18))

```

10 Class Delivery Centre

```

[23]: class DeliveryCentre:

    def __init__(self, rec, M, W):
        self.rec = rec
        self.M = M
        self.W = W
        self.limit = BIKE_RANGE

        self.leftOver = []    # list of parcels
        self.parcels = []    # list of parcels scheduled for delivery
        self.dest = []       # list of unique customer destinations
        self.tour = [self.W] # tour planned for delivery

    def __accept(self, parcel):
        custLoc = parcel.destination()
        if custLoc not in self.dest:
            MT = addTargets(self.M, self.dest + [custLoc])
            SH = createLoopG(MT, [self.W] + self.dest + [custLoc])
            if pathLength(SH)<self.limit:
                self.parcels.append(parcel)
                self.dest += [custLoc]
                self.tour = SH
            else:
                self.leftOver.append(parcel)
        else:
            self.parcels.append(parcel)

```



```

def acceptParcel(self, parcel):
    parcel.arrivedAtDeliveryCentre()
    self.__accept(parcel)

def sendForDelivery(self):
    parcels = []
    tour = self.tour
    addresses = []

    # pick parcels in sequence to be delivered
    for i in range(1, len(tour)-1):
        dest = tour[i]
        for p in self.parcels:
            if p.destination() == dest and p not in parcels:
                parcels += [p]
                p.outForDelivery()
            if dest not in addresses:
                addresses += [dest]

    # arrange the left overs for next day
    L = self.leftOver
    self.tour = [self.W]
    self.parcels = []
    self.leftOver = []
    self.dest = []
    for p in L:
        self.__accept(p)

    return tour, parcels, addresses

def returnFromDelivery(self, parcel):
    parcel.returnFromDelivery()
    self.__accept(parcel)

def getInventory(self):
    return len(self.parcels)+len(self.leftOver)

```

11 Simulation

11.1 Parameters from Specification

The proportion of customers that for whatever are not at home or return home late

```
[24]: CUSTOMER_NOT_AT_HOME = 0.9 # 10%
```

The maximum bike range. This is passed as parameter to the Delivery Centre and taken into account for the daily tour planning

[25]: BIKE_RANGE = 40000

The time required for driving is based on the distance between way points at an average speed of 15km/h.

[26]: AVERAGE_SPEED = 15/3.6

The **cumulative preparation time** (route planning and sorting of the parcels in the delivery order and packing the cargo-bike) is assumed to be 50 sec per parcel to be delivered.

[27]: PREP_TIME_PER_PARCEL = 50

Additional assumption: The time to **process returned parcels** in the delivery centre is 30 sec per parce.

[28]: RETURN_TIME_PER_PARCEL = 30

The average time to answer the door.

[29]: AVERAGE_TIME_ANSWER_DOOR = 40

[30]: WAIT_TIME_IF_CUSTOMER_DOESNT_ANSWER_DOOR = 60

11.2 Generate Input Data

```
[31]: def generateDeliveries(p, C, days, seed=0):  
    ## p is the average number of parcels per day per customer  
    ## C is the number of customers to be served  
    ## days is the number of days for which data are to be generated.  
    random.seed(seed)  
    deliveries = [ [ ] for _ in range(days) ]  
    for c in range(C):  
        arr = 0  
        while True:  
            arr += random.expovariate(p)  
            day = int(arr)  
            if day>=days:  
                break  
            deliveries[day].append(c)  
    return deliveries
```

11.3 Simulation Routine

```
[32]: def simulation(M, W, C, p=0.2, days=10, seed=0,  
                    log=False, plot=False, timing=False):  
  
    random.seed(seed)  
    D = generateDeliveries(p, len(C), days, seed)
```

```

env = simpy.Environment()
rec = Recorder(env, M, W, C, days,
               log=log, plot=plot, timing=timing)

print(f"Simulating delivery of {sum([len(d) for d in D]):d} parcels "
      f"over {len(D):d} days to {len(C):d} customers")

CUSTOMERS = []
for i in range(len(C)):
    CUSTOMERS.append(Customer(rec, i, C[i]))

DC = DeliveryCentre(rec, M, W)
Z = Driver(rec, DC)
PARCELS = []

def parcelGeneratorProcess(env, rec, D, C):
    for day in range(len(D)):
        yield env.timeout(nextHour(env, 17.00))
        for c in D[day]:
            cust = CUSTOMERS[c]
            parcel = Parcel(rec, len(PARCELS), day, cust)
            PARCELS.append(parcel)
            DC.acceptParcel(parcel)

env.process(parcelGeneratorProcess(env, rec, D, C))
env.run()

rec.finish()

if DC.getInventory()>0:
    print(f"Delivery Centre Inventory: {DC.getInventory():d} parcels")

return rec

```

11.4 Model Verification

```

[33]: import pickle
      with open('simpleData.pickled', 'rb') as f:
          M, C = pickle.load(f)

```

```

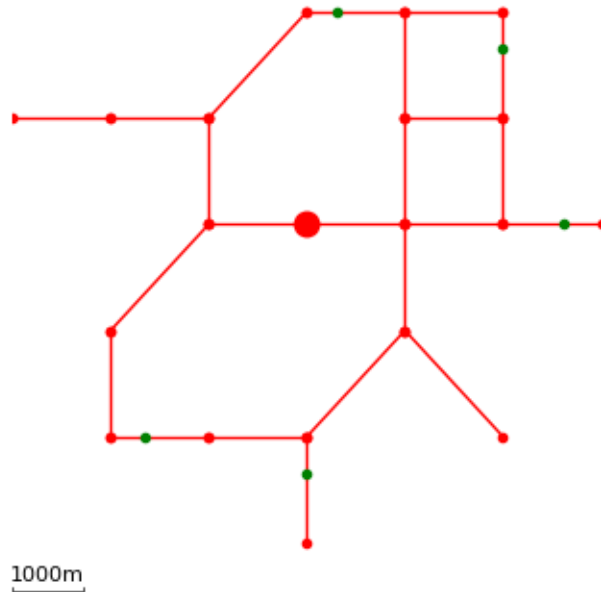
[34]: W = generateWarehouseLocation(M)

```

```

[35]: plotMap(M, T=C, w=W, scale=True)

```



```
[36]: rec1 = simulation(M, W, C, p=0.15, days=4, log=True)
```

Simulating delivery of 2 parcels over 4 days to 5 customers

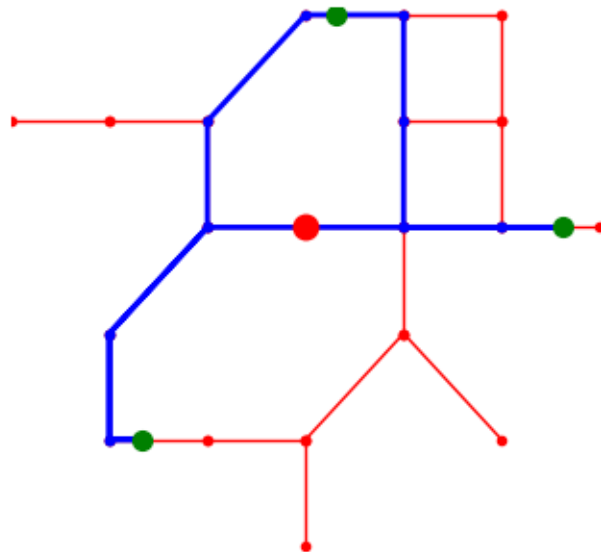
```
[ 0] 18:00:00.0 Driver arrives for work
[ 0] 18:00:00.0 Nothing to do today
[ 0] 18:10:00.0 Driver goes home
[ 1] 18:00:00.0 Driver arrives for work
[ 1] 18:00:00.0 Nothing to do today
[ 1] 18:10:00.0 Driver goes home
[ 2] 18:00:00.0 Driver arrives for work
[ 2] 18:00:00.0 Nothing to do today
[ 2] 18:10:00.0 Driver goes home
[ 3] 17:00:00.0 Parcel 0 for cust 2 arr at delivery centre
[ 3] 17:00:00.0 Parcel 1 for cust 4 arr at delivery centre
[ 3] 18:00:00.0 Driver arrives for work
[ 3] 18:00:00.0 Parcel 0 for cust 2 out for delivery
[ 3] 18:00:00.0 Parcel 1 for cust 4 out for delivery
[ 3] 18:01:40.0 Driver leaves for delivery of 2 parcels to 2 customers
[ 3] 18:01:40.0 Length of delivery tour: 14,876m
[ 3] 18:01:40.0 Driver drives to Customer 2 at (4929, 7300)
[ 3] 18:22:21.0 Driver arrived at Customer 2 at (4929, 7300)
[ 3] 18:23:21.0 Customer 2 at (4929, 7300) not at home
[ 3] 18:23:21.0 Driver drives to Customer 4 at (8167, 4500)
[ 3] 18:47:30.2 Driver arrived at Customer 4 at (8167, 4500)
[ 3] 18:48:30.2 Customer 4 at (8167, 4500) not at home
[ 3] 18:48:30.2 Driver returns to delivery centre
[ 3] 19:03:10.2 Driver arrived at delivery centre
```

```
[ 3] 19:03:10.2 Parcel 0 for cust 2 return from delivery
[ 3] 19:03:40.2 Parcel 1 for cust 4 return from delivery
[ 3] 19:04:10.2 2 parcels left for next day
[ 3] 19:14:10.2 Driver goes home
Delivery Centre Inventory: 2 parcels
```

```
[43]: rec2 = simulation(M, W, C, p=0.3, days=4, seed=1, log=True, plot=True)
```

Simulating delivery of 6 parcels over 4 days to 5 customers

```
[ 0] 17:00:00.0 Parcel 0 for cust 0 arr at delivery centre
[ 0] 17:00:00.0 Parcel 1 for cust 2 arr at delivery centre
[ 0] 17:00:00.0 Parcel 2 for cust 4 arr at delivery centre
[ 0] 17:00:00.0 Parcel 3 for cust 4 arr at delivery centre
[ 0] 18:00:00.0 Driver arrives for work
[ 0] 18:00:00.0 Parcel 0 for cust 0 out for delivery
[ 0] 18:00:00.0 Parcel 1 for cust 2 out for delivery
[ 0] 18:00:00.0 Parcel 2 for cust 4 out for delivery
[ 0] 18:00:00.0 Parcel 3 for cust 4 out for delivery
[ 0] 18:03:20.0 Driver leaves for delivery of 4 parcels to 3 customers
[ 0] 18:03:20.0 Length of delivery tour: 22,623m
```



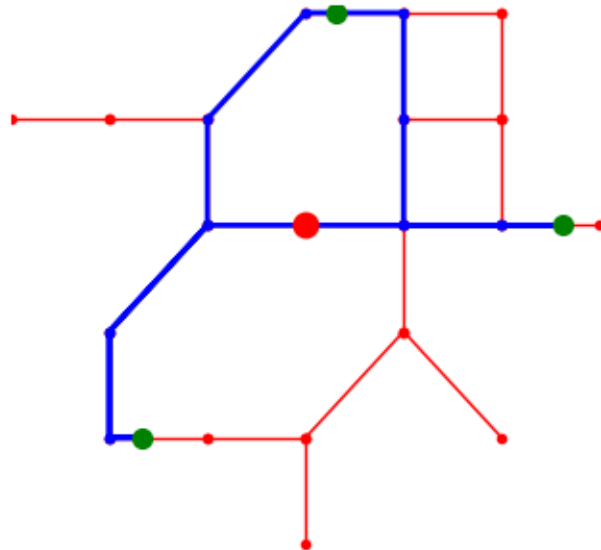
Day 0: 22,623m

```
[ 0] 18:03:20.0 Driver drives to Customer 0 at (2176, 1700)
[ 0] 18:24:21.2 Driver arrived at Customer 0 at (2176, 1700)
[ 0] 18:25:21.2 Customer 0 at (2176, 1700) not at home
[ 0] 18:25:21.2 Driver drives to Customer 2 at (4929, 7300)
[ 0] 18:56:00.3 Driver arrived at Customer 2 at (4929, 7300)
[ 0] 18:57:00.3 Customer 2 at (4929, 7300) not at home
[ 0] 18:57:00.3 Driver drives to Customer 4 at (8167, 4500)
```

```

[ 0] 19:21:09.4 Driver arrived at Customer 4 at (8167, 4500)
[ 0] 19:22:09.4 Customer 4 at (8167, 4500) not at home
[ 0] 19:22:09.4 Driver returns to delivery centre
[ 0] 19:36:49.5 Driver arrived at delivery centre
[ 0] 19:36:49.5 Parcel 0 for cust 0 return from delivery
[ 0] 19:37:19.5 Parcel 1 for cust 2 return from delivery
[ 0] 19:37:49.5 Parcel 2 for cust 4 return from delivery
[ 0] 19:38:19.5 Parcel 3 for cust 4 return from delivery
[ 0] 19:38:49.5 4 parcels left for next day
[ 0] 19:48:49.5 Driver goes home
[ 1] 18:00:00.0 Driver arrives for work
[ 1] 18:00:00.0 Parcel 0 for cust 0 out for delivery
[ 1] 18:00:00.0 Parcel 1 for cust 2 out for delivery
[ 1] 18:00:00.0 Parcel 2 for cust 4 out for delivery
[ 1] 18:00:00.0 Parcel 3 for cust 4 out for delivery
[ 1] 18:03:20.0 Driver leaves for delivery of 4 parcels to 3 customers
[ 1] 18:03:20.0 Length of delivery tour: 22,623m

```



```

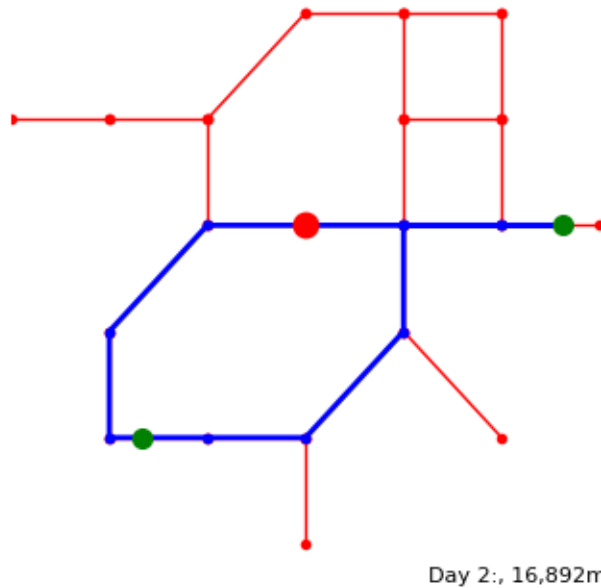
[ 1] 18:03:20.0 Driver drives to Customer 0 at (2176, 1700)
[ 1] 18:24:21.2 Driver arrived at Customer 0 at (2176, 1700)
[ 1] 18:25:21.2 Customer 0 at (2176, 1700) not at home
[ 1] 18:25:21.2 Driver drives to Customer 2 at (4929, 7300)
[ 1] 18:56:00.3 Driver arrived at Customer 2 at (4929, 7300)
[ 1] 18:56:31.5 Customer 2 at (4929, 7300) answers door
[ 1] 18:56:31.5 Customer 2 at (4929, 7300) accepts Parcel 1 for cust 2
[ 1] 18:56:59.5 Customer 2 at (4929, 7300) signs off
[ 1] 18:57:04.3 Driver drives to Customer 4 at (8167, 4500)

```

```

[ 1] 19:21:13.4 Driver arrived at Customer 4 at (8167, 4500)
[ 1] 19:22:13.4 Customer 4 at (8167, 4500) not at home
[ 1] 19:22:13.4 Driver returns to delivery centre
[ 1] 19:36:53.5 Driver arrived at delivery centre
[ 1] 19:36:53.5 Parcel 0 for cust 0 return from delivery
[ 1] 19:37:23.5 Parcel 2 for cust 4 return from delivery
[ 1] 19:37:53.5 Parcel 3 for cust 4 return from delivery
[ 1] 19:38:23.5 3 parcels left for next day
[ 1] 19:48:23.5 Driver goes home
[ 2] 18:00:00.0 Driver arrives for work
[ 2] 18:00:00.0 Parcel 0 for cust 0 out for delivery
[ 2] 18:00:00.0 Parcel 2 for cust 4 out for delivery
[ 2] 18:00:00.0 Parcel 3 for cust 4 out for delivery
[ 2] 18:02:30.0 Driver leaves for delivery of 3 parcels to 2 customers
[ 2] 18:02:30.0 Length of delivery tour: 16,892m

```

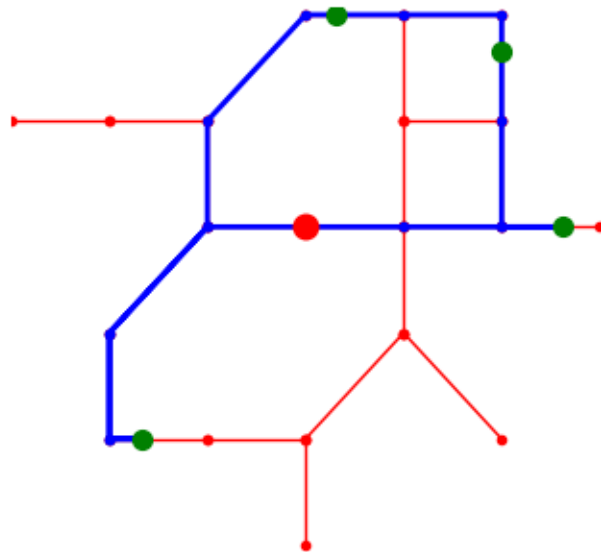


```

[ 2] 18:02:30.0 Driver drives to Customer 0 at (2176, 1700)
[ 2] 18:23:31.2 Driver arrived at Customer 0 at (2176, 1700)
[ 2] 18:24:31.2 Customer 0 at (2176, 1700) not at home
[ 2] 18:24:31.2 Driver drives to Customer 4 at (8167, 4500)
[ 2] 18:56:24.0 Driver arrived at Customer 4 at (8167, 4500)
[ 2] 18:57:24.0 Customer 4 at (8167, 4500) not at home
[ 2] 18:57:24.0 Driver returns to delivery centre
[ 2] 19:12:04.1 Driver arrived at delivery centre
[ 2] 19:12:04.1 Parcel 0 for cust 0 return from delivery
[ 2] 19:12:34.1 Parcel 2 for cust 4 return from delivery
[ 2] 19:13:04.1 Parcel 3 for cust 4 return from delivery

```

[2] 19:13:34.1 3 parcels left for next day
 [2] 19:23:34.1 Driver goes home
 [3] 17:00:00.0 Parcel 4 for cust 2 arr at delivery centre
 [3] 17:00:00.0 Parcel 5 for cust 3 arr at delivery centre
 [3] 18:00:00.0 Driver arrives for work
 [3] 18:00:00.0 Parcel 0 for cust 0 out for delivery
 [3] 18:00:00.0 Parcel 4 for cust 2 out for delivery
 [3] 18:00:00.0 Parcel 5 for cust 3 out for delivery
 [3] 18:00:00.0 Parcel 2 for cust 4 out for delivery
 [3] 18:00:00.0 Parcel 3 for cust 4 out for delivery
 [3] 18:04:10.0 Driver leaves for delivery of 5 parcels to 4 customers
 [3] 18:04:10.0 Length of delivery tour: 22,623m



Day 3:, 22,623m

[3] 18:04:10.0 Driver drives to Customer 0 at (2176, 1700)
 [3] 18:25:11.2 Driver arrived at Customer 0 at (2176, 1700)
 [3] 18:26:11.2 Customer 0 at (2176, 1700) not at home
 [3] 18:26:11.2 Driver drives to Customer 2 at (4929, 7300)
 [3] 18:56:50.3 Driver arrived at Customer 2 at (4929, 7300)
 [3] 18:57:50.3 Customer 2 at (4929, 7300) not at home
 [3] 18:57:50.3 Driver drives to Customer 3 at (7300, 6825)
 [3] 19:09:13.4 Driver arrived at Customer 3 at (7300, 6825)
 [3] 19:10:13.4 Customer 3 at (7300, 6825) not at home
 [3] 19:10:13.4 Driver drives to Customer 4 at (8167, 4500)
 [3] 19:22:59.4 Driver arrived at Customer 4 at (8167, 4500)
 [3] 19:23:59.4 Customer 4 at (8167, 4500) not at home
 [3] 19:23:59.4 Driver returns to delivery centre
 [3] 19:38:39.5 Driver arrived at delivery centre


```

[ 3] 19:38:39.5 Parcel 0 for cust 0 return from delivery
[ 3] 19:39:09.5 Parcel 4 for cust 2 return from delivery
[ 3] 19:39:39.5 Parcel 5 for cust 3 return from delivery
[ 3] 19:40:09.5 Parcel 2 for cust 4 return from delivery
[ 3] 19:40:39.5 Parcel 3 for cust 4 return from delivery
[ 3] 19:41:09.5 5 parcels left for next day
[ 3] 19:51:09.5 Driver goes home
Delivery Centre Inventory: 5 parcels

```

```
[38]: rec3 = simulation(M, W, C, p=0.6, days=4, log=True)
```

```

Simulating delivery of 12 parcels over 4 days to 5 customers
[ 0] 17:00:00.0 Parcel 0 for cust 1 arr at delivery centre
[ 0] 17:00:00.0 Parcel 1 for cust 2 arr at delivery centre
[ 0] 18:00:00.0 Driver arrives for work
[ 0] 18:00:00.0 Parcel 0 for cust 1 out for delivery
[ 0] 18:00:00.0 Parcel 1 for cust 2 out for delivery
[ 0] 18:01:40.0 Driver leaves for delivery of 2 parcels to 2 customers
[ 0] 18:01:40.0 Length of delivery tour: 18,052m
[ 0] 18:01:40.0 Driver drives to Customer 1 at (4500, 1224)
[ 0] 18:22:41.2 Driver arrived at Customer 1 at (4500, 1224)
[ 0] 18:23:41.2 Customer 1 at (4500, 1224) not at home
[ 0] 18:23:41.2 Driver drives to Customer 2 at (4929, 7300)
[ 0] 18:54:11.4 Driver arrived at Customer 2 at (4929, 7300)
[ 0] 18:55:11.4 Customer 2 at (4929, 7300) to slow to answer the door
[ 0] 18:55:11.4 Driver returns to delivery centre
[ 0] 19:15:52.5 Driver arrived at delivery centre
[ 0] 19:15:52.5 Parcel 0 for cust 1 return from delivery
[ 0] 19:16:22.5 Parcel 1 for cust 2 return from delivery
[ 0] 19:16:52.5 2 parcels left for next day
[ 0] 19:26:52.5 Driver goes home
[ 1] 17:00:00.0 Parcel 2 for cust 1 arr at delivery centre
[ 1] 17:00:00.0 Parcel 3 for cust 2 arr at delivery centre
[ 1] 17:00:00.0 Parcel 4 for cust 3 arr at delivery centre
[ 1] 17:00:00.0 Parcel 5 for cust 3 arr at delivery centre
[ 1] 17:00:00.0 Parcel 6 for cust 4 arr at delivery centre
[ 1] 18:00:00.0 Driver arrives for work
[ 1] 18:00:00.0 Parcel 0 for cust 1 out for delivery
[ 1] 18:00:00.0 Parcel 2 for cust 1 out for delivery
[ 1] 18:00:00.0 Parcel 6 for cust 4 out for delivery
[ 1] 18:00:00.0 Parcel 4 for cust 3 out for delivery
[ 1] 18:00:00.0 Parcel 5 for cust 3 out for delivery
[ 1] 18:00:00.0 Parcel 1 for cust 2 out for delivery
[ 1] 18:00:00.0 Parcel 3 for cust 2 out for delivery
[ 1] 18:05:50.0 Driver leaves for delivery of 7 parcels to 4 customers
[ 1] 18:05:50.0 Length of delivery tour: 22,586m
[ 1] 18:05:50.0 Driver drives to Customer 1 at (4500, 1224)
[ 1] 18:26:51.2 Driver arrived at Customer 1 at (4500, 1224)

```

[1] 18:27:51.2 Customer 1 at (4500, 1224) not at home
 [1] 18:27:51.2 Driver drives to Customer 4 at (8167, 4500)
 [1] 18:52:20.5 Driver arrived at Customer 4 at (8167, 4500)
 [1] 18:53:20.5 Customer 4 at (8167, 4500) not at home
 [1] 18:53:20.5 Driver drives to Customer 3 at (7300, 6825)
 [1] 19:06:06.6 Driver arrived at Customer 3 at (7300, 6825)
 [1] 19:07:06.6 Customer 3 at (7300, 6825) not at home
 [1] 19:07:06.6 Driver drives to Customer 2 at (4929, 7300)
 [1] 19:18:29.6 Driver arrived at Customer 2 at (4929, 7300)
 [1] 19:19:29.6 Customer 2 at (4929, 7300) not at home
 [1] 19:19:29.6 Driver returns to delivery centre
 [1] 19:40:10.6 Driver arrived at delivery centre
 [1] 19:40:10.6 Parcel 0 for cust 1 return from delivery
 [1] 19:40:40.6 Parcel 2 for cust 1 return from delivery
 [1] 19:41:10.6 Parcel 6 for cust 4 return from delivery
 [1] 19:41:40.6 Parcel 4 for cust 3 return from delivery
 [1] 19:42:10.6 Parcel 5 for cust 3 return from delivery
 [1] 19:42:40.6 Parcel 1 for cust 2 return from delivery
 [1] 19:43:10.6 Parcel 3 for cust 2 return from delivery
 [1] 19:43:40.6 7 parcels left for next day
 [1] 19:53:40.6 Driver goes home
 [2] 17:00:00.0 Parcel 7 for cust 1 arr at delivery centre
 [2] 17:00:00.0 Parcel 8 for cust 4 arr at delivery centre
 [2] 18:00:00.0 Driver arrives for work
 [2] 18:00:00.0 Parcel 0 for cust 1 out for delivery
 [2] 18:00:00.0 Parcel 2 for cust 1 out for delivery
 [2] 18:00:00.0 Parcel 7 for cust 1 out for delivery
 [2] 18:00:00.0 Parcel 1 for cust 2 out for delivery
 [2] 18:00:00.0 Parcel 3 for cust 2 out for delivery
 [2] 18:00:00.0 Parcel 4 for cust 3 out for delivery
 [2] 18:00:00.0 Parcel 5 for cust 3 out for delivery
 [2] 18:00:00.0 Parcel 6 for cust 4 out for delivery
 [2] 18:00:00.0 Parcel 8 for cust 4 out for delivery
 [2] 18:07:30.0 Driver leaves for delivery of 9 parcels to 4 customers
 [2] 18:07:30.0 Length of delivery tour: 22,586m
 [2] 18:07:30.0 Driver drives to Customer 1 at (4500, 1224)
 [2] 18:28:31.2 Driver arrived at Customer 1 at (4500, 1224)
 [2] 18:29:31.2 Customer 1 at (4500, 1224) not at home
 [2] 18:29:31.2 Driver drives to Customer 2 at (4929, 7300)
 [2] 19:00:01.4 Driver arrived at Customer 2 at (4929, 7300)
 [2] 19:01:01.4 Customer 2 at (4929, 7300) to slow to answer the door
 [2] 19:01:01.4 Driver drives to Customer 3 at (7300, 6825)
 [2] 19:12:24.5 Driver arrived at Customer 3 at (7300, 6825)
 [2] 19:13:24.5 Customer 3 at (7300, 6825) not at home
 [2] 19:13:24.5 Driver drives to Customer 4 at (8167, 4500)
 [2] 19:26:10.6 Driver arrived at Customer 4 at (8167, 4500)
 [2] 19:27:10.6 Customer 4 at (8167, 4500) not at home
 [2] 19:27:10.6 Driver returns to delivery centre

[2] 19:41:50.6 Driver arrived at delivery centre
 [2] 19:41:50.6 Parcel 0 for cust 1 return from delivery
 [2] 19:42:20.6 Parcel 2 for cust 1 return from delivery
 [2] 19:42:50.6 Parcel 7 for cust 1 return from delivery
 [2] 19:43:20.6 Parcel 1 for cust 2 return from delivery
 [2] 19:43:50.6 Parcel 3 for cust 2 return from delivery
 [2] 19:44:20.6 Parcel 4 for cust 3 return from delivery
 [2] 19:44:50.6 Parcel 5 for cust 3 return from delivery
 [2] 19:45:20.6 Parcel 6 for cust 4 return from delivery
 [2] 19:45:50.6 Parcel 8 for cust 4 return from delivery
 [2] 19:46:20.6 9 parcels left for next day
 [2] 19:56:20.6 Driver goes home
 [3] 17:00:00.0 Parcel 9 for cust 0 arr at delivery centre
 [3] 17:00:00.0 Parcel 10 for cust 1 arr at delivery centre
 [3] 17:00:00.0 Parcel 11 for cust 2 arr at delivery centre
 [3] 18:00:00.0 Driver arrives for work
 [3] 18:00:00.0 Parcel 9 for cust 0 out for delivery
 [3] 18:00:00.0 Parcel 0 for cust 1 out for delivery
 [3] 18:00:00.0 Parcel 2 for cust 1 out for delivery
 [3] 18:00:00.0 Parcel 7 for cust 1 out for delivery
 [3] 18:00:00.0 Parcel 10 for cust 1 out for delivery
 [3] 18:00:00.0 Parcel 6 for cust 4 out for delivery
 [3] 18:00:00.0 Parcel 8 for cust 4 out for delivery
 [3] 18:00:00.0 Parcel 4 for cust 3 out for delivery
 [3] 18:00:00.0 Parcel 5 for cust 3 out for delivery
 [3] 18:00:00.0 Parcel 1 for cust 2 out for delivery
 [3] 18:00:00.0 Parcel 3 for cust 2 out for delivery
 [3] 18:00:00.0 Parcel 11 for cust 2 out for delivery
 [3] 18:10:00.0 Driver leaves for delivery of 12 parcels to 5 customers
 [3] 18:10:00.0 Length of delivery tour: 25,386m
 [3] 18:10:00.0 Driver drives to Customer 0 at (2176, 1700)
 [3] 18:31:01.2 Driver arrived at Customer 0 at (2176, 1700)
 [3] 18:32:01.2 Customer 0 at (2176, 1700) not at home
 [3] 18:32:01.2 Driver drives to Customer 1 at (4500, 1224)
 [3] 18:43:13.2 Driver arrived at Customer 1 at (4500, 1224)
 [3] 18:44:13.2 Customer 1 at (4500, 1224) not at home
 [3] 18:44:13.2 Driver drives to Customer 4 at (8167, 4500)
 [3] 19:08:42.5 Driver arrived at Customer 4 at (8167, 4500)
 [3] 19:09:42.5 Customer 4 at (8167, 4500) not at home
 [3] 19:09:42.5 Driver drives to Customer 3 at (7300, 6825)
 [3] 19:22:28.6 Driver arrived at Customer 3 at (7300, 6825)
 [3] 19:23:28.6 Customer 3 at (7300, 6825) not at home
 [3] 19:23:28.6 Driver drives to Customer 2 at (4929, 7300)
 [3] 19:34:51.6 Driver arrived at Customer 2 at (4929, 7300)
 [3] 19:35:51.6 Customer 2 at (4929, 7300) not at home
 [3] 19:35:51.6 Driver returns to delivery centre
 [3] 19:56:32.6 Driver arrived at delivery centre
 [3] 19:56:32.6 Parcel 9 for cust 0 return from delivery

```

[ 3] 19:57:02.6 Parcel 0 for cust 1 return from delivery
[ 3] 19:57:32.6 Parcel 2 for cust 1 return from delivery
[ 3] 19:58:02.6 Parcel 7 for cust 1 return from delivery
[ 3] 19:58:32.6 Parcel 10 for cust 1 return from delivery
[ 3] 19:59:02.6 Parcel 6 for cust 4 return from delivery
[ 3] 19:59:32.6 Parcel 8 for cust 4 return from delivery
[ 3] 20:00:02.6 Parcel 4 for cust 3 return from delivery
[ 3] 20:00:32.6 Parcel 5 for cust 3 return from delivery
[ 3] 20:01:02.6 Parcel 1 for cust 2 return from delivery
[ 3] 20:01:32.6 Parcel 3 for cust 2 return from delivery
[ 3] 20:02:02.6 Parcel 11 for cust 2 return from delivery
[ 3] 20:02:32.6 12 parcels left for next day
[ 3] 20:12:32.6 Driver goes home
Delivery Centre Inventory: 12 parcels

```

```

[39]: import pickle
      with open('testData.pickled', 'rb') as f:
          MX, CX = pickle.load(f)

```

```

[40]: WX = generateWarehouseLocation(MX)

```

```

[41]: rec4 = simulation(MX, WX, CX, p=0.15, days=7, log=True)

```

```

Simulating delivery of 14 parcels over 7 days to 20 customers
[ 0] 18:00:00.0 Driver arrives for work
[ 0] 18:00:00.0 Nothing to do today
[ 0] 18:10:00.0 Driver goes home
[ 1] 18:00:00.0 Driver arrives for work
[ 1] 18:00:00.0 Nothing to do today
[ 1] 18:10:00.0 Driver goes home
[ 2] 17:00:00.0 Parcel 0 for cust 4 arr at delivery centre
[ 2] 17:00:00.0 Parcel 1 for cust 12 arr at delivery centre
[ 2] 17:00:00.0 Parcel 2 for cust 19 arr at delivery centre
[ 2] 18:00:00.0 Driver arrives for work
[ 2] 18:00:00.0 Parcel 0 for cust 4 out for delivery
[ 2] 18:00:00.0 Parcel 2 for cust 19 out for delivery
[ 2] 18:00:00.0 Parcel 1 for cust 12 out for delivery
[ 2] 18:02:30.0 Driver leaves for delivery of 3 parcels to 3 customers
[ 2] 18:02:30.0 Length of delivery tour: 18,677m
[ 2] 18:02:30.0 Driver drives to Customer 4 at (2821, 1578)
[ 2] 18:19:48.7 Driver arrived at Customer 4 at (2821, 1578)
[ 2] 18:20:48.7 Customer 4 at (2821, 1578) not at home
[ 2] 18:20:48.7 Driver drives to Customer 19 at (7950, 4122)
[ 2] 18:51:47.5 Driver arrived at Customer 19 at (7950, 4122)
[ 2] 18:52:47.5 Customer 19 at (7950, 4122) not at home
[ 2] 18:52:47.5 Driver drives to Customer 12 at (6061, 4500)
[ 2] 19:01:51.6 Driver arrived at Customer 12 at (6061, 4500)
[ 2] 19:02:51.6 Customer 12 at (6061, 4500) not at home

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[2] 19:02:51.6 Driver returns to delivery centre
 [2] 19:20:12.5 Driver arrived at delivery centre
 [2] 19:20:12.5 Parcel 0 for cust 4 return from delivery
 [2] 19:20:42.5 Parcel 2 for cust 19 return from delivery
 [2] 19:21:12.5 Parcel 1 for cust 12 return from delivery
 [2] 19:21:42.5 3 parcels left for next day
 [2] 19:31:42.5 Driver goes home
 [3] 17:00:00.0 Parcel 3 for cust 2 arr at delivery centre
 [3] 17:00:00.0 Parcel 4 for cust 3 arr at delivery centre
 [3] 18:00:00.0 Driver arrives for work
 [3] 18:00:00.0 Parcel 3 for cust 2 out for delivery
 [3] 18:00:00.0 Parcel 4 for cust 3 out for delivery
 [3] 18:00:00.0 Parcel 0 for cust 4 out for delivery
 [3] 18:00:00.0 Parcel 2 for cust 19 out for delivery
 [3] 18:00:00.0 Parcel 1 for cust 12 out for delivery
 [3] 18:04:10.0 Driver leaves for delivery of 5 parcels to 5 customers
 [3] 18:04:10.0 Length of delivery tour: 19,841m
 [3] 18:04:10.0 Driver drives to Customer 2 at (1618, 4500)
 [3] 18:11:05.7 Driver arrived at Customer 2 at (1618, 4500)
 [3] 18:12:05.7 Customer 2 at (1618, 4500) to slow to answer the door
 [3] 18:12:05.7 Driver drives to Customer 3 at (2200, 3898)
 [3] 18:16:49.8 Driver arrived at Customer 3 at (2200, 3898)
 [3] 18:17:49.8 Customer 3 at (2200, 3898) not at home
 [3] 18:17:49.8 Driver drives to Customer 4 at (2821, 1578)
 [3] 18:28:08.1 Driver arrived at Customer 4 at (2821, 1578)
 [3] 18:29:08.1 Customer 4 at (2821, 1578) not at home
 [3] 18:29:08.1 Driver drives to Customer 19 at (7950, 4122)
 [3] 19:00:06.9 Driver arrived at Customer 19 at (7950, 4122)
 [3] 19:01:06.9 Customer 19 at (7950, 4122) not at home
 [3] 19:01:06.9 Driver drives to Customer 12 at (6061, 4500)
 [3] 19:10:11.0 Driver arrived at Customer 12 at (6061, 4500)
 [3] 19:11:11.0 Customer 12 at (6061, 4500) not at home
 [3] 19:11:11.0 Driver returns to delivery centre
 [3] 19:28:31.8 Driver arrived at delivery centre
 [3] 19:28:31.8 Parcel 3 for cust 2 return from delivery
 [3] 19:29:01.8 Parcel 4 for cust 3 return from delivery
 [3] 19:29:31.8 Parcel 0 for cust 4 return from delivery
 [3] 19:30:01.8 Parcel 2 for cust 19 return from delivery
 [3] 19:30:31.8 Parcel 1 for cust 12 return from delivery
 [3] 19:31:01.8 5 parcels left for next day
 [3] 19:41:01.8 Driver goes home
 [4] 17:00:00.0 Parcel 5 for cust 6 arr at delivery centre
 [4] 17:00:00.0 Parcel 6 for cust 15 arr at delivery centre
 [4] 17:00:00.0 Parcel 7 for cust 15 arr at delivery centre
 [4] 17:00:00.0 Parcel 8 for cust 18 arr at delivery centre
 [4] 18:00:00.0 Driver arrives for work
 [4] 18:00:00.0 Parcel 3 for cust 2 out for delivery
 [4] 18:00:00.0 Parcel 1 for cust 12 out for delivery

[4] 18:00:00.0 Parcel 8 for cust 18 out for delivery
 [4] 18:00:00.0 Parcel 2 for cust 19 out for delivery
 [4] 18:00:00.0 Parcel 6 for cust 15 out for delivery
 [4] 18:00:00.0 Parcel 7 for cust 15 out for delivery
 [4] 18:00:00.0 Parcel 5 for cust 6 out for delivery
 [4] 18:00:00.0 Parcel 0 for cust 4 out for delivery
 [4] 18:00:00.0 Parcel 4 for cust 3 out for delivery
 [4] 18:07:30.0 Driver leaves for delivery of 9 parcels to 8 customers
 [4] 18:07:30.0 Length of delivery tour: 22,141m
 [4] 18:07:30.0 Driver drives to Customer 2 at (1618, 4500)
 [4] 18:14:25.7 Driver arrived at Customer 2 at (1618, 4500)
 [4] 18:15:25.7 Customer 2 at (1618, 4500) not at home
 [4] 18:15:25.7 Driver drives to Customer 12 at (6061, 4500)
 [4] 18:39:42.2 Driver arrived at Customer 12 at (6061, 4500)
 [4] 18:40:42.2 Customer 12 at (6061, 4500) not at home
 [4] 18:40:42.2 Driver drives to Customer 18 at (7816, 4500)
 [4] 18:47:43.4 Driver arrived at Customer 18 at (7816, 4500)
 [4] 18:48:43.4 Customer 18 at (7816, 4500) not at home
 [4] 18:48:43.4 Driver drives to Customer 19 at (7950, 4122)
 [4] 18:50:46.3 Driver arrived at Customer 19 at (7950, 4122)
 [4] 18:51:46.3 Customer 19 at (7950, 4122) not at home
 [4] 18:51:46.3 Driver drives to Customer 15 at (7302, 3350)
 [4] 18:57:27.1 Driver arrived at Customer 15 at (7302, 3350)
 [4] 18:58:27.1 Customer 15 at (7302, 3350) not at home
 [4] 18:58:27.1 Driver drives to Customer 6 at (4142, 1050)
 [4] 19:17:35.8 Driver arrived at Customer 6 at (4142, 1050)
 [4] 19:18:35.8 Customer 6 at (4142, 1050) not at home
 [4] 19:18:35.8 Driver drives to Customer 4 at (2821, 1578)
 [4] 19:24:45.1 Driver arrived at Customer 4 at (2821, 1578)
 [4] 19:24:57.2 Customer 4 at (2821, 1578) answers door
 [4] 19:24:57.2 Customer 4 at (2821, 1578) accepts Parcel 0 for cust 4
 [4] 19:24:59.7 Customer 4 at (2821, 1578) signs off
 [4] 19:25:10.1 Driver drives to Customer 3 at (2200, 3898)
 [4] 19:35:28.3 Driver arrived at Customer 3 at (2200, 3898)
 [4] 19:36:28.3 Customer 3 at (2200, 3898) not at home
 [4] 19:36:28.3 Driver returns to delivery centre
 [4] 19:43:28.8 Driver arrived at delivery centre
 [4] 19:43:28.8 Parcel 3 for cust 2 return from delivery
 [4] 19:43:58.8 Parcel 1 for cust 12 return from delivery
 [4] 19:44:28.8 Parcel 8 for cust 18 return from delivery
 [4] 19:44:58.8 Parcel 2 for cust 19 return from delivery
 [4] 19:45:28.8 Parcel 6 for cust 15 return from delivery
 [4] 19:45:58.8 Parcel 7 for cust 15 return from delivery
 [4] 19:46:28.8 Parcel 5 for cust 6 return from delivery
 [4] 19:46:58.8 Parcel 4 for cust 3 return from delivery
 [4] 19:47:28.8 8 parcels left for next day
 [4] 19:57:28.8 Driver goes home
 [5] 17:00:00.0 Parcel 9 for cust 2 arr at delivery centre

[5] 18:00:00.0 Driver arrives for work
 [5] 18:00:00.0 Parcel 4 for cust 3 out for delivery
 [5] 18:00:00.0 Parcel 3 for cust 2 out for delivery
 [5] 18:00:00.0 Parcel 9 for cust 2 out for delivery
 [5] 18:00:00.0 Parcel 5 for cust 6 out for delivery
 [5] 18:00:00.0 Parcel 6 for cust 15 out for delivery
 [5] 18:00:00.0 Parcel 7 for cust 15 out for delivery
 [5] 18:00:00.0 Parcel 2 for cust 19 out for delivery
 [5] 18:00:00.0 Parcel 8 for cust 18 out for delivery
 [5] 18:00:00.0 Parcel 1 for cust 12 out for delivery
 [5] 18:07:30.0 Driver leaves for delivery of 9 parcels to 7 customers
 [5] 18:07:30.0 Length of delivery tour: 21,046m
 [5] 18:07:30.0 Driver drives to Customer 3 at (2200, 3898)
 [5] 18:14:30.5 Driver arrived at Customer 3 at (2200, 3898)
 [5] 18:14:53.8 Customer 3 at (2200, 3898) answers door
 [5] 18:14:53.8 Customer 3 at (2200, 3898) accepts Parcel 4 for cust 3
 [5] 18:14:55.8 Customer 3 at (2200, 3898) signs off
 [5] 18:15:02.1 Driver drives to Customer 2 at (1618, 4500)
 [5] 18:19:46.3 Driver arrived at Customer 2 at (1618, 4500)
 [5] 18:20:46.3 Customer 2 at (1618, 4500) not at home
 [5] 18:20:46.3 Driver drives to Customer 6 at (4142, 1050)
 [5] 18:41:58.3 Driver arrived at Customer 6 at (4142, 1050)
 [5] 18:42:58.3 Customer 6 at (4142, 1050) not at home
 [5] 18:42:58.3 Driver drives to Customer 15 at (7302, 3350)
 [5] 19:02:06.9 Driver arrived at Customer 15 at (7302, 3350)
 [5] 19:03:06.9 Customer 15 at (7302, 3350) not at home
 [5] 19:03:06.9 Driver drives to Customer 19 at (7950, 4122)
 [5] 19:08:47.7 Driver arrived at Customer 19 at (7950, 4122)
 [5] 19:09:47.7 Customer 19 at (7950, 4122) not at home
 [5] 19:09:47.7 Driver drives to Customer 18 at (7816, 4500)
 [5] 19:11:50.6 Driver arrived at Customer 18 at (7816, 4500)
 [5] 19:12:50.6 Customer 18 at (7816, 4500) not at home
 [5] 19:12:50.6 Driver drives to Customer 12 at (6061, 4500)
 [5] 19:19:51.8 Driver arrived at Customer 12 at (6061, 4500)
 [5] 19:20:51.8 Customer 12 at (6061, 4500) not at home
 [5] 19:20:51.8 Driver returns to delivery centre
 [5] 19:38:12.7 Driver arrived at delivery centre
 [5] 19:38:12.7 Parcel 3 for cust 2 return from delivery
 [5] 19:38:42.7 Parcel 9 for cust 2 return from delivery
 [5] 19:39:12.7 Parcel 5 for cust 6 return from delivery
 [5] 19:39:42.7 Parcel 6 for cust 15 return from delivery
 [5] 19:40:12.7 Parcel 7 for cust 15 return from delivery
 [5] 19:40:42.7 Parcel 2 for cust 19 return from delivery
 [5] 19:41:12.7 Parcel 8 for cust 18 return from delivery
 [5] 19:41:42.7 Parcel 1 for cust 12 return from delivery
 [5] 19:42:12.7 8 parcels left for next day
 [5] 19:52:12.7 Driver goes home
 [6] 17:00:00.0 Parcel 10 for cust 4 arr at delivery centre

[6] 17:00:00.0 Parcel 11 for cust 6 arr at delivery centre
 [6] 17:00:00.0 Parcel 12 for cust 7 arr at delivery centre
 [6] 17:00:00.0 Parcel 13 for cust 16 arr at delivery centre
 [6] 18:00:00.0 Driver arrives for work
 [6] 18:00:00.0 Parcel 3 for cust 2 out for delivery
 [6] 18:00:00.0 Parcel 9 for cust 2 out for delivery
 [6] 18:00:00.0 Parcel 10 for cust 4 out for delivery
 [6] 18:00:00.0 Parcel 5 for cust 6 out for delivery
 [6] 18:00:00.0 Parcel 11 for cust 6 out for delivery
 [6] 18:00:00.0 Parcel 6 for cust 15 out for delivery
 [6] 18:00:00.0 Parcel 7 for cust 15 out for delivery
 [6] 18:00:00.0 Parcel 2 for cust 19 out for delivery
 [6] 18:00:00.0 Parcel 8 for cust 18 out for delivery
 [6] 18:00:00.0 Parcel 13 for cust 16 out for delivery
 [6] 18:00:00.0 Parcel 1 for cust 12 out for delivery
 [6] 18:00:00.0 Parcel 12 for cust 7 out for delivery
 [6] 18:10:00.0 Driver leaves for delivery of 12 parcels to 9 customers
 [6] 18:10:00.0 Length of delivery tour: 22,409m
 [6] 18:10:00.0 Driver drives to Customer 2 at (1618, 4500)
 [6] 18:16:55.7 Driver arrived at Customer 2 at (1618, 4500)
 [6] 18:17:55.7 Customer 2 at (1618, 4500) not at home
 [6] 18:17:55.7 Driver drives to Customer 4 at (2821, 1578)
 [6] 18:32:58.1 Driver arrived at Customer 4 at (2821, 1578)
 [6] 18:33:58.1 Customer 4 at (2821, 1578) not at home
 [6] 18:33:58.1 Driver drives to Customer 6 at (4142, 1050)
 [6] 18:40:07.4 Driver arrived at Customer 6 at (4142, 1050)
 [6] 18:41:07.4 Customer 6 at (4142, 1050) not at home
 [6] 18:41:07.4 Driver drives to Customer 15 at (7302, 3350)
 [6] 19:00:16.1 Driver arrived at Customer 15 at (7302, 3350)
 [6] 19:01:16.1 Customer 15 at (7302, 3350) not at home
 [6] 19:01:16.1 Driver drives to Customer 19 at (7950, 4122)
 [6] 19:06:56.9 Driver arrived at Customer 19 at (7950, 4122)
 [6] 19:07:56.9 Customer 19 at (7950, 4122) not at home
 [6] 19:07:56.9 Driver drives to Customer 18 at (7816, 4500)
 [6] 19:09:59.8 Driver arrived at Customer 18 at (7816, 4500)
 [6] 19:10:38.6 Customer 18 at (7816, 4500) answers door
 [6] 19:10:38.6 Customer 18 at (7816, 4500) accepts Parcel 8 for cust 18
 [6] 19:10:51.2 Customer 18 at (7816, 4500) signs off
 [6] 19:10:56.1 Driver drives to Customer 16 at (7477, 5650)
 [6] 19:17:57.7 Driver arrived at Customer 16 at (7477, 5650)
 [6] 19:18:57.7 Customer 16 at (7477, 5650) not at home
 [6] 19:18:57.7 Driver drives to Customer 12 at (6061, 4500)
 [6] 19:29:13.6 Driver arrived at Customer 12 at (6061, 4500)
 [6] 19:30:13.6 Customer 12 at (6061, 4500) not at home
 [6] 19:30:13.6 Driver drives to Customer 7 at (5182, 5650)
 [6] 19:38:20.5 Driver arrived at Customer 7 at (5182, 5650)
 [6] 19:39:20.5 Customer 7 at (5182, 5650) not at home
 [6] 19:39:20.5 Driver returns to delivery centre


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[ 6] 19:48:34.5 Driver arrived at delivery centre
[ 6] 19:48:34.5 Parcel 3 for cust 2 return from delivery
[ 6] 19:49:04.5 Parcel 9 for cust 2 return from delivery
[ 6] 19:49:34.5 Parcel 10 for cust 4 return from delivery
[ 6] 19:50:04.5 Parcel 5 for cust 6 return from delivery
[ 6] 19:50:34.5 Parcel 11 for cust 6 return from delivery
[ 6] 19:51:04.5 Parcel 6 for cust 15 return from delivery
[ 6] 19:51:34.5 Parcel 7 for cust 15 return from delivery
[ 6] 19:52:04.5 Parcel 2 for cust 19 return from delivery
[ 6] 19:52:34.5 Parcel 13 for cust 16 return from delivery
[ 6] 19:53:04.5 Parcel 1 for cust 12 return from delivery
[ 6] 19:53:34.5 Parcel 12 for cust 7 return from delivery
[ 6] 19:54:04.5 11 parcels left for next day
[ 6] 20:04:04.5 Driver goes home
Delivery Centre Inventory: 11 parcels

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```
[42]: rec5 = simulation(MX, WX, CX, p=1.2, days=7, log=True)
```

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Simulating delivery of 151 parcels over 7 days to 20 customers
[ 0] 17:00:00.0 Parcel 0 for cust 5 arr at delivery centre
[ 0] 17:00:00.0 Parcel 1 for cust 6 arr at delivery centre
[ 0] 17:00:00.0 Parcel 2 for cust 6 arr at delivery centre
[ 0] 17:00:00.0 Parcel 3 for cust 7 arr at delivery centre
[ 0] 17:00:00.0 Parcel 4 for cust 7 arr at delivery centre
[ 0] 17:00:00.0 Parcel 5 for cust 8 arr at delivery centre
[ 0] 17:00:00.0 Parcel 6 for cust 13 arr at delivery centre
[ 0] 17:00:00.0 Parcel 7 for cust 13 arr at delivery centre
[ 0] 17:00:00.0 Parcel 8 for cust 15 arr at delivery centre
[ 0] 17:00:00.0 Parcel 9 for cust 16 arr at delivery centre
[ 0] 17:00:00.0 Parcel 10 for cust 16 arr at delivery centre
[ 0] 17:00:00.0 Parcel 11 for cust 16 arr at delivery centre
[ 0] 17:00:00.0 Parcel 12 for cust 17 arr at delivery centre
[ 0] 17:00:00.0 Parcel 13 for cust 17 arr at delivery centre
[ 0] 17:00:00.0 Parcel 14 for cust 18 arr at delivery centre
[ 0] 17:00:00.0 Parcel 15 for cust 19 arr at delivery centre
[ 0] 18:00:00.0 Driver arrives for work
[ 0] 18:00:00.0 Parcel 0 for cust 5 out for delivery
[ 0] 18:00:00.0 Parcel 3 for cust 7 out for delivery
[ 0] 18:00:00.0 Parcel 4 for cust 7 out for delivery
[ 0] 18:00:00.0 Parcel 9 for cust 16 out for delivery
[ 0] 18:00:00.0 Parcel 10 for cust 16 out for delivery
[ 0] 18:00:00.0 Parcel 11 for cust 16 out for delivery
[ 0] 18:00:00.0 Parcel 6 for cust 13 out for delivery
[ 0] 18:00:00.0 Parcel 7 for cust 13 out for delivery
[ 0] 18:00:00.0 Parcel 12 for cust 17 out for delivery
[ 0] 18:00:00.0 Parcel 13 for cust 17 out for delivery
[ 0] 18:00:00.0 Parcel 14 for cust 18 out for delivery
[ 0] 18:00:00.0 Parcel 15 for cust 19 out for delivery

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[0] 18:00:00.0 Parcel 8 for cust 15 out for delivery
 [0] 18:00:00.0 Parcel 5 for cust 8 out for delivery
 [0] 18:00:00.0 Parcel 1 for cust 6 out for delivery
 [0] 18:00:00.0 Parcel 2 for cust 6 out for delivery
 [0] 18:13:20.0 Driver leaves for delivery of 16 parcels to 10 customers
 [0] 18:13:20.0 Length of delivery tour: 26,192m
 [0] 18:13:20.0 Driver drives to Customer 5 at (3350, 7580)
 [0] 18:32:09.4 Driver arrived at Customer 5 at (3350, 7580)
 [0] 18:33:09.4 Customer 5 at (3350, 7580) not at home
 [0] 18:33:09.4 Driver drives to Customer 7 at (5182, 5650)
 [0] 18:48:12.3 Driver arrived at Customer 7 at (5182, 5650)
 [0] 18:49:12.3 Customer 7 at (5182, 5650) not at home
 [0] 18:49:12.3 Driver drives to Customer 16 at (7477, 5650)
 [0] 18:58:23.1 Driver arrived at Customer 16 at (7477, 5650)
 [0] 18:59:23.1 Customer 16 at (7477, 5650) not at home
 [0] 18:59:23.1 Driver drives to Customer 13 at (6800, 4901)
 [0] 19:05:05.4 Driver arrived at Customer 13 at (6800, 4901)
 [0] 19:06:05.4 Customer 13 at (6800, 4901) not at home
 [0] 19:06:05.4 Driver drives to Customer 17 at (7575, 4500)
 [0] 19:10:47.6 Driver arrived at Customer 17 at (7575, 4500)
 [0] 19:11:47.6 Customer 17 at (7575, 4500) not at home
 [0] 19:11:47.6 Driver drives to Customer 18 at (7816, 4500)
 [0] 19:12:45.4 Driver arrived at Customer 18 at (7816, 4500)
 [0] 19:13:45.4 Customer 18 at (7816, 4500) not at home
 [0] 19:13:45.4 Driver drives to Customer 19 at (7950, 4122)
 [0] 19:15:48.3 Driver arrived at Customer 19 at (7950, 4122)
 [0] 19:16:48.3 Customer 19 at (7950, 4122) not at home
 [0] 19:16:48.3 Driver drives to Customer 15 at (7302, 3350)
 [0] 19:22:29.1 Driver arrived at Customer 15 at (7302, 3350)
 [0] 19:23:29.1 Customer 15 at (7302, 3350) not at home
 [0] 19:23:29.1 Driver drives to Customer 8 at (5650, 2783)
 [0] 19:32:21.7 Driver arrived at Customer 8 at (5650, 2783)
 [0] 19:32:40.7 Customer 8 at (5650, 2783) answers door
 [0] 19:32:40.7 Customer 8 at (5650, 2783) accepts Parcel 5 for cust 8
 [0] 19:33:01.5 Customer 8 at (5650, 2783) signs off
 [0] 19:33:09.9 Driver drives to Customer 6 at (4142, 1050)
 [0] 19:43:26.0 Driver arrived at Customer 6 at (4142, 1050)
 [0] 19:44:26.0 Customer 6 at (4142, 1050) not at home
 [0] 19:44:26.0 Driver returns to delivery centre
 [0] 20:07:54.3 Driver arrived at delivery centre
 [0] 20:07:54.3 Parcel 0 for cust 5 return from delivery
 [0] 20:08:24.3 Parcel 3 for cust 7 return from delivery
 [0] 20:08:54.3 Parcel 4 for cust 7 return from delivery
 [0] 20:09:24.3 Parcel 9 for cust 16 return from delivery
 [0] 20:09:54.3 Parcel 10 for cust 16 return from delivery
 [0] 20:10:24.3 Parcel 11 for cust 16 return from delivery
 [0] 20:10:54.3 Parcel 6 for cust 13 return from delivery
 [0] 20:11:24.3 Parcel 7 for cust 13 return from delivery

[0] 20:11:54.3 Parcel 12 for cust 17 return from delivery
[0] 20:12:24.3 Parcel 13 for cust 17 return from delivery
[0] 20:12:54.3 Parcel 14 for cust 18 return from delivery
[0] 20:13:24.3 Parcel 15 for cust 19 return from delivery
[0] 20:13:54.3 Parcel 8 for cust 15 return from delivery
[0] 20:14:24.3 Parcel 1 for cust 6 return from delivery
[0] 20:14:54.3 Parcel 2 for cust 6 return from delivery
[0] 20:15:24.3 15 parcels left for next day
[0] 20:25:24.3 Driver goes home
[1] 17:00:00.0 Parcel 16 for cust 0 arr at delivery centre
[1] 17:00:00.0 Parcel 17 for cust 1 arr at delivery centre
[1] 17:00:00.0 Parcel 18 for cust 3 arr at delivery centre
[1] 17:00:00.0 Parcel 19 for cust 5 arr at delivery centre
[1] 17:00:00.0 Parcel 20 for cust 5 arr at delivery centre
[1] 17:00:00.0 Parcel 21 for cust 6 arr at delivery centre
[1] 17:00:00.0 Parcel 22 for cust 7 arr at delivery centre
[1] 17:00:00.0 Parcel 23 for cust 8 arr at delivery centre
[1] 17:00:00.0 Parcel 24 for cust 8 arr at delivery centre
[1] 17:00:00.0 Parcel 25 for cust 9 arr at delivery centre
[1] 17:00:00.0 Parcel 26 for cust 11 arr at delivery centre
[1] 17:00:00.0 Parcel 27 for cust 13 arr at delivery centre
[1] 17:00:00.0 Parcel 28 for cust 14 arr at delivery centre
[1] 17:00:00.0 Parcel 29 for cust 14 arr at delivery centre
[1] 17:00:00.0 Parcel 30 for cust 14 arr at delivery centre
[1] 17:00:00.0 Parcel 31 for cust 15 arr at delivery centre
[1] 17:00:00.0 Parcel 32 for cust 15 arr at delivery centre
[1] 17:00:00.0 Parcel 33 for cust 16 arr at delivery centre
[1] 17:00:00.0 Parcel 34 for cust 18 arr at delivery centre
[1] 17:00:00.0 Parcel 35 for cust 19 arr at delivery centre
[1] 17:00:00.0 Parcel 36 for cust 19 arr at delivery centre
[1] 17:00:00.0 Parcel 37 for cust 19 arr at delivery centre
[1] 18:00:00.0 Driver arrives for work
[1] 18:00:00.0 Parcel 18 for cust 3 out for delivery
[1] 18:00:00.0 Parcel 16 for cust 0 out for delivery
[1] 18:00:00.0 Parcel 17 for cust 1 out for delivery
[1] 18:00:00.0 Parcel 0 for cust 5 out for delivery
[1] 18:00:00.0 Parcel 19 for cust 5 out for delivery
[1] 18:00:00.0 Parcel 20 for cust 5 out for delivery
[1] 18:00:00.0 Parcel 26 for cust 11 out for delivery
[1] 18:00:00.0 Parcel 25 for cust 9 out for delivery
[1] 18:00:00.0 Parcel 23 for cust 8 out for delivery
[1] 18:00:00.0 Parcel 24 for cust 8 out for delivery
[1] 18:00:00.0 Parcel 1 for cust 6 out for delivery
[1] 18:00:00.0 Parcel 2 for cust 6 out for delivery
[1] 18:00:00.0 Parcel 21 for cust 6 out for delivery
[1] 18:00:00.0 Parcel 8 for cust 15 out for delivery
[1] 18:00:00.0 Parcel 31 for cust 15 out for delivery
[1] 18:00:00.0 Parcel 32 for cust 15 out for delivery

[1] 18:00:00.0 Parcel 15 for cust 19 out for delivery
 [1] 18:00:00.0 Parcel 35 for cust 19 out for delivery
 [1] 18:00:00.0 Parcel 36 for cust 19 out for delivery
 [1] 18:00:00.0 Parcel 37 for cust 19 out for delivery
 [1] 18:00:00.0 Parcel 14 for cust 18 out for delivery
 [1] 18:00:00.0 Parcel 34 for cust 18 out for delivery
 [1] 18:00:00.0 Parcel 12 for cust 17 out for delivery
 [1] 18:00:00.0 Parcel 13 for cust 17 out for delivery
 [1] 18:00:00.0 Parcel 28 for cust 14 out for delivery
 [1] 18:00:00.0 Parcel 29 for cust 14 out for delivery
 [1] 18:00:00.0 Parcel 30 for cust 14 out for delivery
 [1] 18:00:00.0 Parcel 6 for cust 13 out for delivery
 [1] 18:00:00.0 Parcel 7 for cust 13 out for delivery
 [1] 18:00:00.0 Parcel 27 for cust 13 out for delivery
 [1] 18:00:00.0 Parcel 9 for cust 16 out for delivery
 [1] 18:00:00.0 Parcel 10 for cust 16 out for delivery
 [1] 18:00:00.0 Parcel 11 for cust 16 out for delivery
 [1] 18:00:00.0 Parcel 33 for cust 16 out for delivery
 [1] 18:00:00.0 Parcel 3 for cust 7 out for delivery
 [1] 18:00:00.0 Parcel 4 for cust 7 out for delivery
 [1] 18:00:00.0 Parcel 22 for cust 7 out for delivery
 [1] 18:30:50.0 Driver leaves for delivery of 37 parcels to 16 customers
 [1] 18:30:50.0 Length of delivery tour: 32,778m
 [1] 18:30:50.0 Driver drives to Customer 3 at (2200, 3898)
 [1] 18:37:50.5 Driver arrived at Customer 3 at (2200, 3898)
 [1] 18:38:50.5 Customer 3 at (2200, 3898) not at home
 [1] 18:38:50.5 Driver drives to Customer 0 at (1050, 4722)
 [1] 18:46:44.2 Driver arrived at Customer 0 at (1050, 4722)
 [1] 18:47:44.2 Customer 0 at (1050, 4722) not at home
 [1] 18:47:44.2 Driver drives to Customer 1 at (1050, 5180)
 [1] 18:49:34.2 Driver arrived at Customer 1 at (1050, 5180)
 [1] 18:50:34.2 Customer 1 at (1050, 5180) not at home
 [1] 18:50:34.2 Driver drives to Customer 5 at (3350, 7580)
 [1] 19:06:40.4 Driver arrived at Customer 5 at (3350, 7580)
 [1] 19:07:40.4 Customer 5 at (3350, 7580) not at home
 [1] 19:07:40.4 Driver drives to Customer 11 at (5650, 7250)
 [1] 19:21:09.2 Driver arrived at Customer 11 at (5650, 7250)
 [1] 19:22:09.2 Customer 11 at (5650, 7250) not at home
 [1] 19:22:09.2 Driver drives to Customer 9 at (5650, 3175)
 [1] 19:38:27.2 Driver arrived at Customer 9 at (5650, 3175)
 [1] 19:39:27.2 Customer 9 at (5650, 3175) not at home
 [1] 19:39:27.2 Driver drives to Customer 8 at (5650, 2783)
 [1] 19:41:01.3 Driver arrived at Customer 8 at (5650, 2783)
 [1] 19:42:01.3 Customer 8 at (5650, 2783) not at home
 [1] 19:42:01.3 Driver drives to Customer 6 at (4142, 1050)
 [1] 19:52:17.4 Driver arrived at Customer 6 at (4142, 1050)
 [1] 19:53:17.4 Customer 6 at (4142, 1050) not at home
 [1] 19:53:17.4 Driver drives to Customer 15 at (7302, 3350)

[1] 20:12:26.0 Driver arrived at Customer 15 at (7302, 3350)
[1] 20:13:26.0 Customer 15 at (7302, 3350) not at home
[1] 20:13:26.0 Driver drives to Customer 19 at (7950, 4122)
[1] 20:19:06.8 Driver arrived at Customer 19 at (7950, 4122)
[1] 20:20:06.8 Customer 19 at (7950, 4122) not at home
[1] 20:20:06.8 Driver drives to Customer 18 at (7816, 4500)
[1] 20:22:09.7 Driver arrived at Customer 18 at (7816, 4500)
[1] 20:23:09.7 Customer 18 at (7816, 4500) not at home
[1] 20:23:09.7 Driver drives to Customer 17 at (7575, 4500)
[1] 20:24:07.5 Driver arrived at Customer 17 at (7575, 4500)
[1] 20:25:07.5 Customer 17 at (7575, 4500) not at home
[1] 20:25:07.5 Driver drives to Customer 14 at (7188, 4500)
[1] 20:26:40.4 Driver arrived at Customer 14 at (7188, 4500)
[1] 20:27:40.4 Customer 14 at (7188, 4500) not at home
[1] 20:27:40.4 Driver drives to Customer 13 at (6800, 4901)
[1] 20:30:49.8 Driver arrived at Customer 13 at (6800, 4901)
[1] 20:31:49.8 Customer 13 at (6800, 4901) not at home
[1] 20:31:49.8 Driver drives to Customer 16 at (7477, 5650)
[1] 20:37:32.0 Driver arrived at Customer 16 at (7477, 5650)
[1] 20:38:32.0 Customer 16 at (7477, 5650) not at home
[1] 20:38:32.0 Driver drives to Customer 7 at (5182, 5650)
[1] 20:47:42.8 Driver arrived at Customer 7 at (5182, 5650)
[1] 20:48:42.8 Customer 7 at (5182, 5650) not at home
[1] 20:48:42.8 Driver returns to delivery centre
[1] 20:57:56.7 Driver arrived at delivery centre
[1] 20:57:56.7 Parcel 18 for cust 3 return from delivery
[1] 20:58:26.7 Parcel 16 for cust 0 return from delivery
[1] 20:58:56.7 Parcel 17 for cust 1 return from delivery
[1] 20:59:26.7 Parcel 0 for cust 5 return from delivery
[1] 20:59:56.7 Parcel 19 for cust 5 return from delivery
[1] 21:00:26.7 Parcel 20 for cust 5 return from delivery
[1] 21:00:56.7 Parcel 26 for cust 11 return from delivery
[1] 21:01:26.7 Parcel 25 for cust 9 return from delivery
[1] 21:01:56.7 Parcel 23 for cust 8 return from delivery
[1] 21:02:26.7 Parcel 24 for cust 8 return from delivery
[1] 21:02:56.7 Parcel 1 for cust 6 return from delivery
[1] 21:03:26.7 Parcel 2 for cust 6 return from delivery
[1] 21:03:56.7 Parcel 21 for cust 6 return from delivery
[1] 21:04:26.7 Parcel 8 for cust 15 return from delivery
[1] 21:04:56.7 Parcel 31 for cust 15 return from delivery
[1] 21:05:26.7 Parcel 32 for cust 15 return from delivery
[1] 21:05:56.7 Parcel 15 for cust 19 return from delivery
[1] 21:06:26.7 Parcel 35 for cust 19 return from delivery
[1] 21:06:56.7 Parcel 36 for cust 19 return from delivery
[1] 21:07:26.7 Parcel 37 for cust 19 return from delivery
[1] 21:07:56.7 Parcel 14 for cust 18 return from delivery
[1] 21:08:26.7 Parcel 34 for cust 18 return from delivery
[1] 21:08:56.7 Parcel 12 for cust 17 return from delivery

[1] 21:09:26.7 Parcel 13 for cust 17 return from delivery
 [1] 21:09:56.7 Parcel 28 for cust 14 return from delivery
 [1] 21:10:26.7 Parcel 29 for cust 14 return from delivery
 [1] 21:10:56.7 Parcel 30 for cust 14 return from delivery
 [1] 21:11:26.7 Parcel 6 for cust 13 return from delivery
 [1] 21:11:56.7 Parcel 7 for cust 13 return from delivery
 [1] 21:12:26.7 Parcel 27 for cust 13 return from delivery
 [1] 21:12:56.7 Parcel 9 for cust 16 return from delivery
 [1] 21:13:26.7 Parcel 10 for cust 16 return from delivery
 [1] 21:13:56.7 Parcel 11 for cust 16 return from delivery
 [1] 21:14:26.7 Parcel 33 for cust 16 return from delivery
 [1] 21:14:56.7 Parcel 3 for cust 7 return from delivery
 [1] 21:15:26.7 Parcel 4 for cust 7 return from delivery
 [1] 21:15:56.7 Parcel 22 for cust 7 return from delivery
 [1] 21:16:26.7 37 parcels left for next day
 [1] 21:26:26.7 Driver goes home
 [2] 17:00:00.0 Parcel 38 for cust 0 arr at delivery centre
 [2] 17:00:00.0 Parcel 39 for cust 1 arr at delivery centre
 [2] 17:00:00.0 Parcel 40 for cust 1 arr at delivery centre
 [2] 17:00:00.0 Parcel 41 for cust 3 arr at delivery centre
 [2] 17:00:00.0 Parcel 42 for cust 4 arr at delivery centre
 [2] 17:00:00.0 Parcel 43 for cust 5 arr at delivery centre
 [2] 17:00:00.0 Parcel 44 for cust 7 arr at delivery centre
 [2] 17:00:00.0 Parcel 45 for cust 8 arr at delivery centre
 [2] 17:00:00.0 Parcel 46 for cust 10 arr at delivery centre
 [2] 17:00:00.0 Parcel 47 for cust 10 arr at delivery centre
 [2] 17:00:00.0 Parcel 48 for cust 11 arr at delivery centre
 [2] 17:00:00.0 Parcel 49 for cust 13 arr at delivery centre
 [2] 17:00:00.0 Parcel 50 for cust 14 arr at delivery centre
 [2] 17:00:00.0 Parcel 51 for cust 14 arr at delivery centre
 [2] 17:00:00.0 Parcel 52 for cust 15 arr at delivery centre
 [2] 17:00:00.0 Parcel 53 for cust 19 arr at delivery centre
 [2] 18:00:00.0 Driver arrives for work
 [2] 18:00:00.0 Parcel 42 for cust 4 out for delivery
 [2] 18:00:00.0 Parcel 1 for cust 6 out for delivery
 [2] 18:00:00.0 Parcel 2 for cust 6 out for delivery
 [2] 18:00:00.0 Parcel 21 for cust 6 out for delivery
 [2] 18:00:00.0 Parcel 23 for cust 8 out for delivery
 [2] 18:00:00.0 Parcel 24 for cust 8 out for delivery
 [2] 18:00:00.0 Parcel 45 for cust 8 out for delivery
 [2] 18:00:00.0 Parcel 25 for cust 9 out for delivery
 [2] 18:00:00.0 Parcel 8 for cust 15 out for delivery
 [2] 18:00:00.0 Parcel 31 for cust 15 out for delivery
 [2] 18:00:00.0 Parcel 32 for cust 15 out for delivery
 [2] 18:00:00.0 Parcel 52 for cust 15 out for delivery
 [2] 18:00:00.0 Parcel 15 for cust 19 out for delivery
 [2] 18:00:00.0 Parcel 35 for cust 19 out for delivery
 [2] 18:00:00.0 Parcel 36 for cust 19 out for delivery

[2] 18:00:00.0 Parcel 37 for cust 19 out for delivery
 [2] 18:00:00.0 Parcel 53 for cust 19 out for delivery
 [2] 18:00:00.0 Parcel 14 for cust 18 out for delivery
 [2] 18:00:00.0 Parcel 34 for cust 18 out for delivery
 [2] 18:00:00.0 Parcel 12 for cust 17 out for delivery
 [2] 18:00:00.0 Parcel 13 for cust 17 out for delivery
 [2] 18:00:00.0 Parcel 28 for cust 14 out for delivery
 [2] 18:00:00.0 Parcel 29 for cust 14 out for delivery
 [2] 18:00:00.0 Parcel 30 for cust 14 out for delivery
 [2] 18:00:00.0 Parcel 50 for cust 14 out for delivery
 [2] 18:00:00.0 Parcel 51 for cust 14 out for delivery
 [2] 18:00:00.0 Parcel 6 for cust 13 out for delivery
 [2] 18:00:00.0 Parcel 7 for cust 13 out for delivery
 [2] 18:00:00.0 Parcel 27 for cust 13 out for delivery
 [2] 18:00:00.0 Parcel 49 for cust 13 out for delivery
 [2] 18:00:00.0 Parcel 9 for cust 16 out for delivery
 [2] 18:00:00.0 Parcel 10 for cust 16 out for delivery
 [2] 18:00:00.0 Parcel 11 for cust 16 out for delivery
 [2] 18:00:00.0 Parcel 33 for cust 16 out for delivery
 [2] 18:00:00.0 Parcel 0 for cust 5 out for delivery
 [2] 18:00:00.0 Parcel 19 for cust 5 out for delivery
 [2] 18:00:00.0 Parcel 20 for cust 5 out for delivery
 [2] 18:00:00.0 Parcel 43 for cust 5 out for delivery
 [2] 18:00:00.0 Parcel 26 for cust 11 out for delivery
 [2] 18:00:00.0 Parcel 48 for cust 11 out for delivery
 [2] 18:00:00.0 Parcel 46 for cust 10 out for delivery
 [2] 18:00:00.0 Parcel 47 for cust 10 out for delivery
 [2] 18:00:00.0 Parcel 3 for cust 7 out for delivery
 [2] 18:00:00.0 Parcel 4 for cust 7 out for delivery
 [2] 18:00:00.0 Parcel 22 for cust 7 out for delivery
 [2] 18:00:00.0 Parcel 44 for cust 7 out for delivery
 [2] 18:00:00.0 Parcel 18 for cust 3 out for delivery
 [2] 18:00:00.0 Parcel 41 for cust 3 out for delivery
 [2] 18:00:00.0 Parcel 16 for cust 0 out for delivery
 [2] 18:00:00.0 Parcel 38 for cust 0 out for delivery
 [2] 18:00:00.0 Parcel 17 for cust 1 out for delivery
 [2] 18:00:00.0 Parcel 39 for cust 1 out for delivery
 [2] 18:00:00.0 Parcel 40 for cust 1 out for delivery
 [2] 18:44:10.0 Driver leaves for delivery of 53 parcels to 18 customers
 [2] 18:44:10.0 Length of delivery tour: 36,395m
 [2] 18:44:10.0 Driver drives to Customer 4 at (2821, 1578)
 [2] 19:01:28.7 Driver arrived at Customer 4 at (2821, 1578)
 [2] 19:02:28.7 Customer 4 at (2821, 1578) not at home
 [2] 19:02:28.7 Driver drives to Customer 6 at (4142, 1050)
 [2] 19:08:38.1 Driver arrived at Customer 6 at (4142, 1050)
 [2] 19:09:38.1 Customer 6 at (4142, 1050) not at home
 [2] 19:09:38.1 Driver drives to Customer 8 at (5650, 2783)
 [2] 19:19:54.2 Driver arrived at Customer 8 at (5650, 2783)

[2] 19:19:58.4 Customer 8 at (5650, 2783) answers door
 [2] 19:19:58.4 Customer 8 at (5650, 2783) accepts Parcel 23 for cust 8
 [2] 19:20:17.6 Customer 8 at (5650, 2783) accepts Parcel 24 for cust 8
 [2] 19:20:22.7 Customer 8 at (5650, 2783) accepts Parcel 45 for cust 8
 [2] 19:20:23.5 Customer 8 at (5650, 2783) signs off
 [2] 19:20:26.7 Driver drives to Customer 9 at (5650, 3175)
 [2] 19:22:00.8 Driver arrived at Customer 9 at (5650, 3175)
 [2] 19:23:00.8 Customer 9 at (5650, 3175) not at home
 [2] 19:23:00.8 Driver drives to Customer 15 at (7302, 3350)
 [2] 19:30:19.3 Driver arrived at Customer 15 at (7302, 3350)
 [2] 19:31:19.3 Customer 15 at (7302, 3350) not at home
 [2] 19:31:19.3 Driver drives to Customer 19 at (7950, 4122)
 [2] 19:37:00.1 Driver arrived at Customer 19 at (7950, 4122)
 [2] 19:37:24.2 Customer 19 at (7950, 4122) answers door
 [2] 19:37:24.2 Customer 19 at (7950, 4122) accepts Parcel 15 for cust 19
 [2] 19:37:39.9 Customer 19 at (7950, 4122) accepts Parcel 35 for cust 19
 [2] 19:37:59.7 Customer 19 at (7950, 4122) accepts Parcel 36 for cust 19
 [2] 19:38:01.1 Customer 19 at (7950, 4122) accepts Parcel 37 for cust 19
 [2] 19:38:08.5 Customer 19 at (7950, 4122) accepts Parcel 53 for cust 19
 [2] 19:38:19.0 Customer 19 at (7950, 4122) signs off
 [2] 19:38:23.3 Driver drives to Customer 18 at (7816, 4500)
 [2] 19:40:26.2 Driver arrived at Customer 18 at (7816, 4500)
 [2] 19:41:26.2 Customer 18 at (7816, 4500) not at home
 [2] 19:41:26.2 Driver drives to Customer 17 at (7575, 4500)
 [2] 19:42:24.0 Driver arrived at Customer 17 at (7575, 4500)
 [2] 19:43:24.0 Customer 17 at (7575, 4500) not at home
 [2] 19:43:24.0 Driver drives to Customer 14 at (7188, 4500)
 [2] 19:44:56.9 Driver arrived at Customer 14 at (7188, 4500)
 [2] 19:45:56.9 Customer 14 at (7188, 4500) not at home
 [2] 19:45:56.9 Driver drives to Customer 13 at (6800, 4901)
 [2] 19:49:06.2 Driver arrived at Customer 13 at (6800, 4901)
 [2] 19:50:06.2 Customer 13 at (6800, 4901) not at home
 [2] 19:50:06.2 Driver drives to Customer 16 at (7477, 5650)
 [2] 19:55:48.5 Driver arrived at Customer 16 at (7477, 5650)
 [2] 19:56:48.5 Customer 16 at (7477, 5650) not at home
 [2] 19:56:48.5 Driver drives to Customer 5 at (3350, 7580)
 [2] 20:21:02.2 Driver arrived at Customer 5 at (3350, 7580)
 [2] 20:22:02.2 Customer 5 at (3350, 7580) not at home
 [2] 20:22:02.2 Driver drives to Customer 11 at (5650, 7250)
 [2] 20:35:31.0 Driver arrived at Customer 11 at (5650, 7250)
 [2] 20:36:31.0 Customer 11 at (5650, 7250) not at home
 [2] 20:36:31.0 Driver drives to Customer 10 at (5650, 6203)
 [2] 20:40:42.2 Driver arrived at Customer 10 at (5650, 6203)
 [2] 20:41:42.2 Customer 10 at (5650, 6203) not at home
 [2] 20:41:42.2 Driver drives to Customer 7 at (5182, 5650)
 [2] 20:45:47.3 Driver arrived at Customer 7 at (5182, 5650)
 [2] 20:46:47.3 Customer 7 at (5182, 5650) not at home
 [2] 20:46:47.3 Driver drives to Customer 3 at (2200, 3898)

[2] 21:03:01.7 Driver arrived at Customer 3 at (2200, 3898)
[2] 21:04:01.7 Customer 3 at (2200, 3898) to slow to answer the door
[2] 21:04:01.7 Driver drives to Customer 0 at (1050, 4722)
[2] 21:11:55.4 Driver arrived at Customer 0 at (1050, 4722)
[2] 21:12:55.4 Customer 0 at (1050, 4722) not at home
[2] 21:12:55.4 Driver drives to Customer 1 at (1050, 5180)
[2] 21:14:45.4 Driver arrived at Customer 1 at (1050, 5180)
[2] 21:15:45.4 Customer 1 at (1050, 5180) not at home
[2] 21:15:45.4 Driver returns to delivery centre
[2] 21:27:40.6 Driver arrived at delivery centre
[2] 21:27:40.6 Parcel 42 for cust 4 return from delivery
[2] 21:28:10.6 Parcel 1 for cust 6 return from delivery
[2] 21:28:40.6 Parcel 2 for cust 6 return from delivery
[2] 21:29:10.6 Parcel 21 for cust 6 return from delivery
[2] 21:29:40.6 Parcel 25 for cust 9 return from delivery
[2] 21:30:10.6 Parcel 8 for cust 15 return from delivery
[2] 21:30:40.6 Parcel 31 for cust 15 return from delivery
[2] 21:31:10.6 Parcel 32 for cust 15 return from delivery
[2] 21:31:40.6 Parcel 52 for cust 15 return from delivery
[2] 21:32:10.6 Parcel 14 for cust 18 return from delivery
[2] 21:32:40.6 Parcel 34 for cust 18 return from delivery
[2] 21:33:10.6 Parcel 12 for cust 17 return from delivery
[2] 21:33:40.6 Parcel 13 for cust 17 return from delivery
[2] 21:34:10.6 Parcel 28 for cust 14 return from delivery
[2] 21:34:40.6 Parcel 29 for cust 14 return from delivery
[2] 21:35:10.6 Parcel 30 for cust 14 return from delivery
[2] 21:35:40.6 Parcel 50 for cust 14 return from delivery
[2] 21:36:10.6 Parcel 51 for cust 14 return from delivery
[2] 21:36:40.6 Parcel 6 for cust 13 return from delivery
[2] 21:37:10.6 Parcel 7 for cust 13 return from delivery
[2] 21:37:40.6 Parcel 27 for cust 13 return from delivery
[2] 21:38:10.6 Parcel 49 for cust 13 return from delivery
[2] 21:38:40.6 Parcel 9 for cust 16 return from delivery
[2] 21:39:10.6 Parcel 10 for cust 16 return from delivery
[2] 21:39:40.6 Parcel 11 for cust 16 return from delivery
[2] 21:40:10.6 Parcel 33 for cust 16 return from delivery
[2] 21:40:40.6 Parcel 0 for cust 5 return from delivery
[2] 21:41:10.6 Parcel 19 for cust 5 return from delivery
[2] 21:41:40.6 Parcel 20 for cust 5 return from delivery
[2] 21:42:10.6 Parcel 43 for cust 5 return from delivery
[2] 21:42:40.6 Parcel 26 for cust 11 return from delivery
[2] 21:43:10.6 Parcel 48 for cust 11 return from delivery
[2] 21:43:40.6 Parcel 46 for cust 10 return from delivery
[2] 21:44:10.6 Parcel 47 for cust 10 return from delivery
[2] 21:44:40.6 Parcel 3 for cust 7 return from delivery
[2] 21:45:10.6 Parcel 4 for cust 7 return from delivery
[2] 21:45:40.6 Parcel 22 for cust 7 return from delivery
[2] 21:46:10.6 Parcel 44 for cust 7 return from delivery

[2] 21:46:40.6 Parcel 18 for cust 3 return from delivery
 [2] 21:47:10.6 Parcel 41 for cust 3 return from delivery
 [2] 21:47:40.6 Parcel 16 for cust 0 return from delivery
 [2] 21:48:10.6 Parcel 38 for cust 0 return from delivery
 [2] 21:48:40.6 Parcel 17 for cust 1 return from delivery
 [2] 21:49:10.6 Parcel 39 for cust 1 return from delivery
 [2] 21:49:40.6 Parcel 40 for cust 1 return from delivery
 [2] 21:50:10.6 45 parcels left for next day
 [2] 22:00:10.6 Driver goes home
 [3] 17:00:00.0 Parcel 54 for cust 0 arr at delivery centre
 [3] 17:00:00.0 Parcel 55 for cust 0 arr at delivery centre
 [3] 17:00:00.0 Parcel 56 for cust 2 arr at delivery centre
 [3] 17:00:00.0 Parcel 57 for cust 3 arr at delivery centre
 [3] 17:00:00.0 Parcel 58 for cust 4 arr at delivery centre
 [3] 17:00:00.0 Parcel 59 for cust 5 arr at delivery centre
 [3] 17:00:00.0 Parcel 60 for cust 5 arr at delivery centre
 [3] 17:00:00.0 Parcel 61 for cust 6 arr at delivery centre
 [3] 17:00:00.0 Parcel 62 for cust 7 arr at delivery centre
 [3] 17:00:00.0 Parcel 63 for cust 8 arr at delivery centre
 [3] 17:00:00.0 Parcel 64 for cust 8 arr at delivery centre
 [3] 17:00:00.0 Parcel 65 for cust 9 arr at delivery centre
 [3] 17:00:00.0 Parcel 66 for cust 10 arr at delivery centre
 [3] 17:00:00.0 Parcel 67 for cust 13 arr at delivery centre
 [3] 17:00:00.0 Parcel 68 for cust 14 arr at delivery centre
 [3] 17:00:00.0 Parcel 69 for cust 17 arr at delivery centre
 [3] 17:00:00.0 Parcel 70 for cust 18 arr at delivery centre
 [3] 17:00:00.0 Parcel 71 for cust 18 arr at delivery centre
 [3] 17:00:00.0 Parcel 72 for cust 19 arr at delivery centre
 [3] 17:00:00.0 Parcel 73 for cust 19 arr at delivery centre
 [3] 17:00:00.0 Parcel 74 for cust 19 arr at delivery centre
 [3] 18:00:00.0 Driver arrives for work
 [3] 18:00:00.0 Parcel 0 for cust 5 out for delivery
 [3] 18:00:00.0 Parcel 19 for cust 5 out for delivery
 [3] 18:00:00.0 Parcel 20 for cust 5 out for delivery
 [3] 18:00:00.0 Parcel 43 for cust 5 out for delivery
 [3] 18:00:00.0 Parcel 59 for cust 5 out for delivery
 [3] 18:00:00.0 Parcel 60 for cust 5 out for delivery
 [3] 18:00:00.0 Parcel 17 for cust 1 out for delivery
 [3] 18:00:00.0 Parcel 39 for cust 1 out for delivery
 [3] 18:00:00.0 Parcel 40 for cust 1 out for delivery
 [3] 18:00:00.0 Parcel 16 for cust 0 out for delivery
 [3] 18:00:00.0 Parcel 38 for cust 0 out for delivery
 [3] 18:00:00.0 Parcel 54 for cust 0 out for delivery
 [3] 18:00:00.0 Parcel 55 for cust 0 out for delivery
 [3] 18:00:00.0 Parcel 56 for cust 2 out for delivery
 [3] 18:00:00.0 Parcel 18 for cust 3 out for delivery
 [3] 18:00:00.0 Parcel 41 for cust 3 out for delivery
 [3] 18:00:00.0 Parcel 57 for cust 3 out for delivery

[illegible]

[3] 18:00:00.0 Parcel 62 for cust 7 out for delivery
 [3] 18:55:00.0 Driver leaves for delivery of 66 parcels to 19 customers
 [3] 18:55:00.0 Length of delivery tour: 32,643m
 [3] 18:55:00.0 Driver drives to Customer 5 at (3350, 7580)
 [3] 19:13:49.4 Driver arrived at Customer 5 at (3350, 7580)
 [3] 19:13:56.0 Customer 5 at (3350, 7580) answers door
 [3] 19:13:56.0 Customer 5 at (3350, 7580) accepts Parcel 0 for cust 5
 [3] 19:14:00.0 Customer 5 at (3350, 7580) accepts Parcel 19 for cust 5
 [3] 19:14:15.6 Customer 5 at (3350, 7580) accepts Parcel 20 for cust 5
 [3] 19:14:28.3 Customer 5 at (3350, 7580) accepts Parcel 43 for cust 5
 [3] 19:14:32.4 Customer 5 at (3350, 7580) accepts Parcel 59 for cust 5
 [3] 19:14:42.1 Customer 5 at (3350, 7580) accepts Parcel 60 for cust 5
 [3] 19:14:42.5 Customer 5 at (3350, 7580) signs off
 [3] 19:14:44.3 Driver drives to Customer 1 at (1050, 5180)
 [3] 19:30:50.6 Driver arrived at Customer 1 at (1050, 5180)
 [3] 19:31:50.6 Customer 1 at (1050, 5180) to slow to answer the door
 [3] 19:31:50.6 Driver drives to Customer 0 at (1050, 4722)
 [3] 19:33:40.5 Driver arrived at Customer 0 at (1050, 4722)
 [3] 19:34:40.5 Customer 0 at (1050, 4722) not at home
 [3] 19:34:40.5 Driver drives to Customer 2 at (1618, 4500)
 [3] 19:37:50.1 Driver arrived at Customer 2 at (1618, 4500)
 [3] 19:38:03.8 Customer 2 at (1618, 4500) answers door
 [3] 19:38:03.8 Customer 2 at (1618, 4500) accepts Parcel 56 for cust 2
 [3] 19:38:08.8 Customer 2 at (1618, 4500) signs off
 [3] 19:38:16.7 Driver drives to Customer 3 at (2200, 3898)
 [3] 19:43:00.9 Driver arrived at Customer 3 at (2200, 3898)
 [3] 19:44:00.9 Customer 3 at (2200, 3898) not at home
 [3] 19:44:00.9 Driver drives to Customer 4 at (2821, 1578)
 [3] 19:54:19.1 Driver arrived at Customer 4 at (2821, 1578)
 [3] 19:55:19.1 Customer 4 at (2821, 1578) not at home
 [3] 19:55:19.1 Driver drives to Customer 6 at (4142, 1050)
 [3] 20:01:28.5 Driver arrived at Customer 6 at (4142, 1050)
 [3] 20:02:28.5 Customer 6 at (4142, 1050) not at home
 [3] 20:02:28.5 Driver drives to Customer 8 at (5650, 2783)
 [3] 20:12:44.6 Driver arrived at Customer 8 at (5650, 2783)
 [3] 20:13:44.6 Customer 8 at (5650, 2783) not at home
 [3] 20:13:44.6 Driver drives to Customer 9 at (5650, 3175)
 [3] 20:15:18.7 Driver arrived at Customer 9 at (5650, 3175)
 [3] 20:16:18.7 Customer 9 at (5650, 3175) not at home
 [3] 20:16:18.7 Driver drives to Customer 15 at (7302, 3350)
 [3] 20:23:37.1 Driver arrived at Customer 15 at (7302, 3350)
 [3] 20:24:37.1 Customer 15 at (7302, 3350) not at home
 [3] 20:24:37.1 Driver drives to Customer 19 at (7950, 4122)
 [3] 20:30:17.9 Driver arrived at Customer 19 at (7950, 4122)
 [3] 20:31:17.9 Customer 19 at (7950, 4122) not at home
 [3] 20:31:17.9 Driver drives to Customer 18 at (7816, 4500)
 [3] 20:33:20.8 Driver arrived at Customer 18 at (7816, 4500)
 [3] 20:34:20.8 Customer 18 at (7816, 4500) not at home

[3] 20:34:20.8 Driver drives to Customer 17 at (7575, 4500)
[3] 20:35:18.7 Driver arrived at Customer 17 at (7575, 4500)
[3] 20:36:18.7 Customer 17 at (7575, 4500) not at home
[3] 20:36:18.7 Driver drives to Customer 14 at (7188, 4500)
[3] 20:37:51.5 Driver arrived at Customer 14 at (7188, 4500)
[3] 20:38:51.5 Customer 14 at (7188, 4500) not at home
[3] 20:38:51.5 Driver drives to Customer 13 at (6800, 4901)
[3] 20:42:00.9 Driver arrived at Customer 13 at (6800, 4901)
[3] 20:43:00.9 Customer 13 at (6800, 4901) not at home
[3] 20:43:00.9 Driver drives to Customer 16 at (7477, 5650)
[3] 20:48:43.1 Driver arrived at Customer 16 at (7477, 5650)
[3] 20:49:43.1 Customer 16 at (7477, 5650) not at home
[3] 20:49:43.1 Driver drives to Customer 11 at (5650, 7250)
[3] 21:03:25.6 Driver arrived at Customer 11 at (5650, 7250)
[3] 21:04:25.6 Customer 11 at (5650, 7250) not at home
[3] 21:04:25.6 Driver drives to Customer 10 at (5650, 6203)
[3] 21:08:36.9 Driver arrived at Customer 10 at (5650, 6203)
[3] 21:09:36.9 Customer 10 at (5650, 6203) not at home
[3] 21:09:36.9 Driver drives to Customer 7 at (5182, 5650)
[3] 21:13:41.9 Driver arrived at Customer 7 at (5182, 5650)
[3] 21:14:41.9 Customer 7 at (5182, 5650) not at home
[3] 21:14:41.9 Driver returns to delivery centre
[3] 21:23:55.9 Driver arrived at delivery centre
[3] 21:23:55.9 Parcel 17 for cust 1 return from delivery
[3] 21:24:25.9 Parcel 39 for cust 1 return from delivery
[3] 21:24:55.9 Parcel 40 for cust 1 return from delivery
[3] 21:25:25.9 Parcel 16 for cust 0 return from delivery
[3] 21:25:55.9 Parcel 38 for cust 0 return from delivery
[3] 21:26:25.9 Parcel 54 for cust 0 return from delivery
[3] 21:26:55.9 Parcel 55 for cust 0 return from delivery
[3] 21:27:25.9 Parcel 18 for cust 3 return from delivery
[3] 21:27:55.9 Parcel 41 for cust 3 return from delivery
[3] 21:28:25.9 Parcel 57 for cust 3 return from delivery
[3] 21:28:55.9 Parcel 42 for cust 4 return from delivery
[3] 21:29:25.9 Parcel 58 for cust 4 return from delivery
[3] 21:29:55.9 Parcel 1 for cust 6 return from delivery
[3] 21:30:25.9 Parcel 2 for cust 6 return from delivery
[3] 21:30:55.9 Parcel 21 for cust 6 return from delivery
[3] 21:31:25.9 Parcel 61 for cust 6 return from delivery
[3] 21:31:55.9 Parcel 63 for cust 8 return from delivery
[3] 21:32:25.9 Parcel 64 for cust 8 return from delivery
[3] 21:32:55.9 Parcel 25 for cust 9 return from delivery
[3] 21:33:25.9 Parcel 65 for cust 9 return from delivery
[3] 21:33:55.9 Parcel 8 for cust 15 return from delivery
[3] 21:34:25.9 Parcel 31 for cust 15 return from delivery
[3] 21:34:55.9 Parcel 32 for cust 15 return from delivery
[3] 21:35:25.9 Parcel 52 for cust 15 return from delivery
[3] 21:35:55.9 Parcel 72 for cust 19 return from delivery

[3] 21:36:25.9 Parcel 73 for cust 19 return from delivery
[3] 21:36:55.9 Parcel 74 for cust 19 return from delivery
[3] 21:37:25.9 Parcel 14 for cust 18 return from delivery
[3] 21:37:55.9 Parcel 34 for cust 18 return from delivery
[3] 21:38:25.9 Parcel 70 for cust 18 return from delivery
[3] 21:38:55.9 Parcel 71 for cust 18 return from delivery
[3] 21:39:25.9 Parcel 12 for cust 17 return from delivery
[3] 21:39:55.9 Parcel 13 for cust 17 return from delivery
[3] 21:40:25.9 Parcel 69 for cust 17 return from delivery
[3] 21:40:55.9 Parcel 28 for cust 14 return from delivery
[3] 21:41:25.9 Parcel 29 for cust 14 return from delivery
[3] 21:41:55.9 Parcel 30 for cust 14 return from delivery
[3] 21:42:25.9 Parcel 50 for cust 14 return from delivery
[3] 21:42:55.9 Parcel 51 for cust 14 return from delivery
[3] 21:43:25.9 Parcel 68 for cust 14 return from delivery
[3] 21:43:55.9 Parcel 6 for cust 13 return from delivery
[3] 21:44:25.9 Parcel 7 for cust 13 return from delivery
[3] 21:44:55.9 Parcel 27 for cust 13 return from delivery
[3] 21:45:25.9 Parcel 49 for cust 13 return from delivery
[3] 21:45:55.9 Parcel 67 for cust 13 return from delivery
[3] 21:46:25.9 Parcel 9 for cust 16 return from delivery
[3] 21:46:55.9 Parcel 10 for cust 16 return from delivery
[3] 21:47:25.9 Parcel 11 for cust 16 return from delivery
[3] 21:47:55.9 Parcel 33 for cust 16 return from delivery
[3] 21:48:25.9 Parcel 26 for cust 11 return from delivery
[3] 21:48:55.9 Parcel 48 for cust 11 return from delivery
[3] 21:49:25.9 Parcel 46 for cust 10 return from delivery
[3] 21:49:55.9 Parcel 47 for cust 10 return from delivery
[3] 21:50:25.9 Parcel 66 for cust 10 return from delivery
[3] 21:50:55.9 Parcel 3 for cust 7 return from delivery
[3] 21:51:25.9 Parcel 4 for cust 7 return from delivery
[3] 21:51:55.9 Parcel 22 for cust 7 return from delivery
[3] 21:52:25.9 Parcel 44 for cust 7 return from delivery
[3] 21:52:55.9 Parcel 62 for cust 7 return from delivery
[3] 21:53:25.9 59 parcels left for next day
[3] 22:03:25.9 Driver goes home
[4] 17:00:00.0 Parcel 75 for cust 0 arr at delivery centre
[4] 17:00:00.0 Parcel 76 for cust 0 arr at delivery centre
[4] 17:00:00.0 Parcel 77 for cust 1 arr at delivery centre
[4] 17:00:00.0 Parcel 78 for cust 1 arr at delivery centre
[4] 17:00:00.0 Parcel 79 for cust 2 arr at delivery centre
[4] 17:00:00.0 Parcel 80 for cust 3 arr at delivery centre
[4] 17:00:00.0 Parcel 81 for cust 3 arr at delivery centre
[4] 17:00:00.0 Parcel 82 for cust 5 arr at delivery centre
[4] 17:00:00.0 Parcel 83 for cust 7 arr at delivery centre
[4] 17:00:00.0 Parcel 84 for cust 8 arr at delivery centre
[4] 17:00:00.0 Parcel 85 for cust 8 arr at delivery centre
[4] 17:00:00.0 Parcel 86 for cust 8 arr at delivery centre

[4] 17:00:00.0 Parcel 87 for cust 10 arr at delivery centre
[4] 17:00:00.0 Parcel 88 for cust 10 arr at delivery centre
[4] 17:00:00.0 Parcel 89 for cust 12 arr at delivery centre
[4] 17:00:00.0 Parcel 90 for cust 13 arr at delivery centre
[4] 17:00:00.0 Parcel 91 for cust 16 arr at delivery centre
[4] 17:00:00.0 Parcel 92 for cust 16 arr at delivery centre
[4] 17:00:00.0 Parcel 93 for cust 16 arr at delivery centre
[4] 17:00:00.0 Parcel 94 for cust 16 arr at delivery centre
[4] 17:00:00.0 Parcel 95 for cust 16 arr at delivery centre
[4] 17:00:00.0 Parcel 96 for cust 17 arr at delivery centre
[4] 17:00:00.0 Parcel 97 for cust 17 arr at delivery centre
[4] 17:00:00.0 Parcel 98 for cust 18 arr at delivery centre
[4] 17:00:00.0 Parcel 99 for cust 19 arr at delivery centre
[4] 18:00:00.0 Driver arrives for work
[4] 18:00:00.0 Parcel 42 for cust 4 out for delivery
[4] 18:00:00.0 Parcel 58 for cust 4 out for delivery
[4] 18:00:00.0 Parcel 1 for cust 6 out for delivery
[4] 18:00:00.0 Parcel 2 for cust 6 out for delivery
[4] 18:00:00.0 Parcel 21 for cust 6 out for delivery
[4] 18:00:00.0 Parcel 61 for cust 6 out for delivery
[4] 18:00:00.0 Parcel 63 for cust 8 out for delivery
[4] 18:00:00.0 Parcel 64 for cust 8 out for delivery
[4] 18:00:00.0 Parcel 84 for cust 8 out for delivery
[4] 18:00:00.0 Parcel 85 for cust 8 out for delivery
[4] 18:00:00.0 Parcel 86 for cust 8 out for delivery
[4] 18:00:00.0 Parcel 25 for cust 9 out for delivery
[4] 18:00:00.0 Parcel 65 for cust 9 out for delivery
[4] 18:00:00.0 Parcel 8 for cust 15 out for delivery
[4] 18:00:00.0 Parcel 31 for cust 15 out for delivery
[4] 18:00:00.0 Parcel 32 for cust 15 out for delivery
[4] 18:00:00.0 Parcel 52 for cust 15 out for delivery
[4] 18:00:00.0 Parcel 72 for cust 19 out for delivery
[4] 18:00:00.0 Parcel 73 for cust 19 out for delivery
[4] 18:00:00.0 Parcel 74 for cust 19 out for delivery
[4] 18:00:00.0 Parcel 99 for cust 19 out for delivery
[4] 18:00:00.0 Parcel 14 for cust 18 out for delivery
[4] 18:00:00.0 Parcel 34 for cust 18 out for delivery
[4] 18:00:00.0 Parcel 70 for cust 18 out for delivery
[4] 18:00:00.0 Parcel 71 for cust 18 out for delivery
[4] 18:00:00.0 Parcel 98 for cust 18 out for delivery
[4] 18:00:00.0 Parcel 12 for cust 17 out for delivery
[4] 18:00:00.0 Parcel 13 for cust 17 out for delivery
[4] 18:00:00.0 Parcel 69 for cust 17 out for delivery
[4] 18:00:00.0 Parcel 96 for cust 17 out for delivery
[4] 18:00:00.0 Parcel 97 for cust 17 out for delivery
[4] 18:00:00.0 Parcel 28 for cust 14 out for delivery
[4] 18:00:00.0 Parcel 29 for cust 14 out for delivery
[4] 18:00:00.0 Parcel 30 for cust 14 out for delivery

[illegible]

[4] 18:00:00.0 Parcel 78 for cust 1 out for delivery
[4] 19:09:10.0 Driver leaves for delivery of 83 parcels to 19 customers
[4] 19:09:10.0 Length of delivery tour: 36,395m
[4] 19:09:10.0 Driver drives to Customer 4 at (2821, 1578)
[4] 19:26:28.7 Driver arrived at Customer 4 at (2821, 1578)
[4] 19:27:28.7 Customer 4 at (2821, 1578) not at home
[4] 19:27:28.7 Driver drives to Customer 6 at (4142, 1050)
[4] 19:33:38.1 Driver arrived at Customer 6 at (4142, 1050)
[4] 19:34:38.1 Customer 6 at (4142, 1050) not at home
[4] 19:34:38.1 Driver drives to Customer 8 at (5650, 2783)
[4] 19:44:54.2 Driver arrived at Customer 8 at (5650, 2783)
[4] 19:45:54.2 Customer 8 at (5650, 2783) not at home
[4] 19:45:54.2 Driver drives to Customer 9 at (5650, 3175)
[4] 19:47:28.2 Driver arrived at Customer 9 at (5650, 3175)
[4] 19:48:21.3 Customer 9 at (5650, 3175) answers door
[4] 19:48:21.3 Customer 9 at (5650, 3175) accepts Parcel 25 for cust 9
[4] 19:48:43.8 Customer 9 at (5650, 3175) accepts Parcel 65 for cust 9
[4] 19:49:09.0 Customer 9 at (5650, 3175) signs off
[4] 19:49:18.9 Driver drives to Customer 15 at (7302, 3350)
[4] 19:56:37.4 Driver arrived at Customer 15 at (7302, 3350)
[4] 19:57:37.4 Customer 15 at (7302, 3350) not at home
[4] 19:57:37.4 Driver drives to Customer 19 at (7950, 4122)
[4] 20:03:18.2 Driver arrived at Customer 19 at (7950, 4122)
[4] 20:04:18.2 Customer 19 at (7950, 4122) not at home
[4] 20:04:18.2 Driver drives to Customer 18 at (7816, 4500)
[4] 20:06:21.0 Driver arrived at Customer 18 at (7816, 4500)
[4] 20:07:21.0 Customer 18 at (7816, 4500) not at home
[4] 20:07:21.0 Driver drives to Customer 17 at (7575, 4500)
[4] 20:08:18.9 Driver arrived at Customer 17 at (7575, 4500)
[4] 20:09:18.9 Customer 17 at (7575, 4500) not at home
[4] 20:09:18.9 Driver drives to Customer 14 at (7188, 4500)
[4] 20:10:51.8 Driver arrived at Customer 14 at (7188, 4500)
[4] 20:11:51.8 Customer 14 at (7188, 4500) not at home
[4] 20:11:51.8 Driver drives to Customer 13 at (6800, 4901)
[4] 20:15:01.1 Driver arrived at Customer 13 at (6800, 4901)
[4] 20:15:20.0 Customer 13 at (6800, 4901) answers door
[4] 20:15:20.0 Customer 13 at (6800, 4901) accepts Parcel 6 for cust 13
[4] 20:15:56.7 Customer 13 at (6800, 4901) accepts Parcel 7 for cust 13
[4] 20:16:06.9 Customer 13 at (6800, 4901) accepts Parcel 27 for cust 13
[4] 20:16:07.5 Customer 13 at (6800, 4901) accepts Parcel 49 for cust 13
[4] 20:16:08.4 Customer 13 at (6800, 4901) accepts Parcel 67 for cust 13
[4] 20:16:22.3 Customer 13 at (6800, 4901) accepts Parcel 90 for cust 13
[4] 20:16:22.9 Customer 13 at (6800, 4901) signs off
[4] 20:16:23.0 Driver drives to Customer 16 at (7477, 5650)
[4] 20:22:05.2 Driver arrived at Customer 16 at (7477, 5650)
[4] 20:23:05.2 Customer 16 at (7477, 5650) not at home
[4] 20:23:05.2 Driver drives to Customer 5 at (3350, 7580)
[4] 20:47:18.9 Driver arrived at Customer 5 at (3350, 7580)

[4] 20:48:18.9 Customer 5 at (3350, 7580) not at home
[4] 20:48:18.9 Driver drives to Customer 11 at (5650, 7250)
[4] 21:01:47.7 Driver arrived at Customer 11 at (5650, 7250)
[4] 21:02:47.7 Customer 11 at (5650, 7250) not at home
[4] 21:02:47.7 Driver drives to Customer 10 at (5650, 6203)
[4] 21:06:59.0 Driver arrived at Customer 10 at (5650, 6203)
[4] 21:07:59.0 Customer 10 at (5650, 6203) not at home
[4] 21:07:59.0 Driver drives to Customer 7 at (5182, 5650)
[4] 21:12:04.0 Driver arrived at Customer 7 at (5182, 5650)
[4] 21:13:04.0 Customer 7 at (5182, 5650) not at home
[4] 21:13:04.0 Driver drives to Customer 3 at (2200, 3898)
[4] 21:29:18.4 Driver arrived at Customer 3 at (2200, 3898)
[4] 21:30:18.4 Customer 3 at (2200, 3898) not at home
[4] 21:30:18.4 Driver drives to Customer 2 at (1618, 4500)
[4] 21:35:02.6 Driver arrived at Customer 2 at (1618, 4500)
[4] 21:36:02.6 Customer 2 at (1618, 4500) not at home
[4] 21:36:02.6 Driver drives to Customer 0 at (1050, 4722)
[4] 21:39:12.2 Driver arrived at Customer 0 at (1050, 4722)
[4] 21:40:12.2 Customer 0 at (1050, 4722) not at home
[4] 21:40:12.2 Driver drives to Customer 1 at (1050, 5180)
[4] 21:42:02.1 Driver arrived at Customer 1 at (1050, 5180)
[4] 21:43:02.1 Customer 1 at (1050, 5180) not at home
[4] 21:43:02.1 Driver returns to delivery centre
[4] 21:54:57.3 Driver arrived at delivery centre
[4] 21:54:57.3 Parcel 42 for cust 4 return from delivery
[4] 21:55:27.3 Parcel 58 for cust 4 return from delivery
[4] 21:55:57.3 Parcel 1 for cust 6 return from delivery
[4] 21:56:27.3 Parcel 2 for cust 6 return from delivery
[4] 21:56:57.3 Parcel 21 for cust 6 return from delivery
[4] 21:57:27.3 Parcel 61 for cust 6 return from delivery
[4] 21:57:57.3 Parcel 63 for cust 8 return from delivery
[4] 21:58:27.3 Parcel 64 for cust 8 return from delivery
[4] 21:58:57.3 Parcel 84 for cust 8 return from delivery
[4] 21:59:27.3 Parcel 85 for cust 8 return from delivery
[4] 21:59:57.3 Parcel 86 for cust 8 return from delivery
[4] 22:00:27.3 Parcel 8 for cust 15 return from delivery
[4] 22:00:57.3 Parcel 31 for cust 15 return from delivery
[4] 22:01:27.3 Parcel 32 for cust 15 return from delivery
[4] 22:01:57.3 Parcel 52 for cust 15 return from delivery
[4] 22:02:27.3 Parcel 72 for cust 19 return from delivery
[4] 22:02:57.3 Parcel 73 for cust 19 return from delivery
[4] 22:03:27.3 Parcel 74 for cust 19 return from delivery
[4] 22:03:57.3 Parcel 99 for cust 19 return from delivery
[4] 22:04:27.3 Parcel 14 for cust 18 return from delivery
[4] 22:04:57.3 Parcel 34 for cust 18 return from delivery
[4] 22:05:27.3 Parcel 70 for cust 18 return from delivery
[4] 22:05:57.3 Parcel 71 for cust 18 return from delivery
[4] 22:06:27.3 Parcel 98 for cust 18 return from delivery

[4] 22:06:57.3 Parcel 12 for cust 17 return from delivery
[4] 22:07:27.3 Parcel 13 for cust 17 return from delivery
[4] 22:07:57.3 Parcel 69 for cust 17 return from delivery
[4] 22:08:27.3 Parcel 96 for cust 17 return from delivery
[4] 22:08:57.3 Parcel 97 for cust 17 return from delivery
[4] 22:09:27.3 Parcel 28 for cust 14 return from delivery
[4] 22:09:57.3 Parcel 29 for cust 14 return from delivery
[4] 22:10:27.3 Parcel 30 for cust 14 return from delivery
[4] 22:10:57.3 Parcel 50 for cust 14 return from delivery
[4] 22:11:27.3 Parcel 51 for cust 14 return from delivery
[4] 22:11:57.3 Parcel 68 for cust 14 return from delivery
[4] 22:12:27.3 Parcel 9 for cust 16 return from delivery
[4] 22:12:57.3 Parcel 10 for cust 16 return from delivery
[4] 22:13:27.3 Parcel 11 for cust 16 return from delivery
[4] 22:13:57.3 Parcel 33 for cust 16 return from delivery
[4] 22:14:27.3 Parcel 91 for cust 16 return from delivery
[4] 22:14:57.3 Parcel 92 for cust 16 return from delivery
[4] 22:15:27.3 Parcel 93 for cust 16 return from delivery
[4] 22:15:57.3 Parcel 94 for cust 16 return from delivery
[4] 22:16:27.3 Parcel 95 for cust 16 return from delivery
[4] 22:16:57.3 Parcel 82 for cust 5 return from delivery
[4] 22:17:27.3 Parcel 26 for cust 11 return from delivery
[4] 22:17:57.3 Parcel 48 for cust 11 return from delivery
[4] 22:18:27.3 Parcel 46 for cust 10 return from delivery
[4] 22:18:57.3 Parcel 47 for cust 10 return from delivery
[4] 22:19:27.3 Parcel 66 for cust 10 return from delivery
[4] 22:19:57.3 Parcel 87 for cust 10 return from delivery
[4] 22:20:27.3 Parcel 88 for cust 10 return from delivery
[4] 22:20:57.3 Parcel 3 for cust 7 return from delivery
[4] 22:21:27.3 Parcel 4 for cust 7 return from delivery
[4] 22:21:57.3 Parcel 22 for cust 7 return from delivery
[4] 22:22:27.3 Parcel 44 for cust 7 return from delivery
[4] 22:22:57.3 Parcel 62 for cust 7 return from delivery
[4] 22:23:27.3 Parcel 83 for cust 7 return from delivery
[4] 22:23:57.3 Parcel 18 for cust 3 return from delivery
[4] 22:24:27.3 Parcel 41 for cust 3 return from delivery
[4] 22:24:57.3 Parcel 57 for cust 3 return from delivery
[4] 22:25:27.3 Parcel 80 for cust 3 return from delivery
[4] 22:25:57.3 Parcel 81 for cust 3 return from delivery
[4] 22:26:27.3 Parcel 79 for cust 2 return from delivery
[4] 22:26:57.3 Parcel 16 for cust 0 return from delivery
[4] 22:27:27.3 Parcel 38 for cust 0 return from delivery
[4] 22:27:57.3 Parcel 54 for cust 0 return from delivery
[4] 22:28:27.3 Parcel 55 for cust 0 return from delivery
[4] 22:28:57.3 Parcel 75 for cust 0 return from delivery
[4] 22:29:27.3 Parcel 76 for cust 0 return from delivery
[4] 22:29:57.3 Parcel 17 for cust 1 return from delivery
[4] 22:30:27.3 Parcel 39 for cust 1 return from delivery

[4] 22:30:57.3 Parcel 40 for cust 1 return from delivery
[4] 22:31:27.3 Parcel 77 for cust 1 return from delivery
[4] 22:31:57.3 Parcel 78 for cust 1 return from delivery
[4] 22:32:27.3 76 parcels left for next day
[4] 22:42:27.3 Driver goes home
[5] 17:00:00.0 Parcel 100 for cust 0 arr at delivery centre
[5] 17:00:00.0 Parcel 101 for cust 1 arr at delivery centre
[5] 17:00:00.0 Parcel 102 for cust 3 arr at delivery centre
[5] 17:00:00.0 Parcel 103 for cust 3 arr at delivery centre
[5] 17:00:00.0 Parcel 104 for cust 4 arr at delivery centre
[5] 17:00:00.0 Parcel 105 for cust 4 arr at delivery centre
[5] 17:00:00.0 Parcel 106 for cust 6 arr at delivery centre
[5] 17:00:00.0 Parcel 107 for cust 6 arr at delivery centre
[5] 17:00:00.0 Parcel 108 for cust 6 arr at delivery centre
[5] 17:00:00.0 Parcel 109 for cust 8 arr at delivery centre
[5] 17:00:00.0 Parcel 110 for cust 9 arr at delivery centre
[5] 17:00:00.0 Parcel 111 for cust 10 arr at delivery centre
[5] 17:00:00.0 Parcel 112 for cust 11 arr at delivery centre
[5] 17:00:00.0 Parcel 113 for cust 11 arr at delivery centre
[5] 17:00:00.0 Parcel 114 for cust 13 arr at delivery centre
[5] 17:00:00.0 Parcel 115 for cust 13 arr at delivery centre
[5] 17:00:00.0 Parcel 116 for cust 13 arr at delivery centre
[5] 17:00:00.0 Parcel 117 for cust 14 arr at delivery centre
[5] 17:00:00.0 Parcel 118 for cust 15 arr at delivery centre
[5] 17:00:00.0 Parcel 119 for cust 15 arr at delivery centre
[5] 17:00:00.0 Parcel 120 for cust 15 arr at delivery centre
[5] 17:00:00.0 Parcel 121 for cust 16 arr at delivery centre
[5] 17:00:00.0 Parcel 122 for cust 17 arr at delivery centre
[5] 17:00:00.0 Parcel 123 for cust 19 arr at delivery centre
[5] 18:00:00.0 Driver arrives for work
[5] 18:00:00.0 Parcel 3 for cust 7 out for delivery
[5] 18:00:00.0 Parcel 4 for cust 7 out for delivery
[5] 18:00:00.0 Parcel 22 for cust 7 out for delivery
[5] 18:00:00.0 Parcel 44 for cust 7 out for delivery
[5] 18:00:00.0 Parcel 62 for cust 7 out for delivery
[5] 18:00:00.0 Parcel 83 for cust 7 out for delivery
[5] 18:00:00.0 Parcel 82 for cust 5 out for delivery
[5] 18:00:00.0 Parcel 26 for cust 11 out for delivery
[5] 18:00:00.0 Parcel 48 for cust 11 out for delivery
[5] 18:00:00.0 Parcel 112 for cust 11 out for delivery
[5] 18:00:00.0 Parcel 113 for cust 11 out for delivery
[5] 18:00:00.0 Parcel 46 for cust 10 out for delivery
[5] 18:00:00.0 Parcel 47 for cust 10 out for delivery
[5] 18:00:00.0 Parcel 66 for cust 10 out for delivery
[5] 18:00:00.0 Parcel 87 for cust 10 out for delivery
[5] 18:00:00.0 Parcel 88 for cust 10 out for delivery
[5] 18:00:00.0 Parcel 111 for cust 10 out for delivery
[5] 18:00:00.0 Parcel 9 for cust 16 out for delivery

[5] 18:00:00.0 Parcel 86 for cust 8 out for delivery
 [5] 18:00:00.0 Parcel 109 for cust 8 out for delivery
 [5] 18:00:00.0 Parcel 1 for cust 6 out for delivery
 [5] 18:00:00.0 Parcel 2 for cust 6 out for delivery
 [5] 18:00:00.0 Parcel 21 for cust 6 out for delivery
 [5] 18:00:00.0 Parcel 61 for cust 6 out for delivery
 [5] 18:00:00.0 Parcel 106 for cust 6 out for delivery
 [5] 18:00:00.0 Parcel 107 for cust 6 out for delivery
 [5] 18:00:00.0 Parcel 108 for cust 6 out for delivery
 [5] 18:00:00.0 Parcel 42 for cust 4 out for delivery
 [5] 18:00:00.0 Parcel 58 for cust 4 out for delivery
 [5] 18:00:00.0 Parcel 104 for cust 4 out for delivery
 [5] 18:00:00.0 Parcel 105 for cust 4 out for delivery
 [5] 18:00:00.0 Parcel 18 for cust 3 out for delivery
 [5] 18:00:00.0 Parcel 41 for cust 3 out for delivery
 [5] 18:00:00.0 Parcel 57 for cust 3 out for delivery
 [5] 18:00:00.0 Parcel 80 for cust 3 out for delivery
 [5] 18:00:00.0 Parcel 81 for cust 3 out for delivery
 [5] 18:00:00.0 Parcel 102 for cust 3 out for delivery
 [5] 18:00:00.0 Parcel 103 for cust 3 out for delivery
 [5] 18:00:00.0 Parcel 79 for cust 2 out for delivery
 [5] 18:00:00.0 Parcel 16 for cust 0 out for delivery
 [5] 18:00:00.0 Parcel 38 for cust 0 out for delivery
 [5] 18:00:00.0 Parcel 54 for cust 0 out for delivery
 [5] 18:00:00.0 Parcel 55 for cust 0 out for delivery
 [5] 18:00:00.0 Parcel 75 for cust 0 out for delivery
 [5] 18:00:00.0 Parcel 76 for cust 0 out for delivery
 [5] 18:00:00.0 Parcel 100 for cust 0 out for delivery
 [5] 18:00:00.0 Parcel 17 for cust 1 out for delivery
 [5] 18:00:00.0 Parcel 39 for cust 1 out for delivery
 [5] 18:00:00.0 Parcel 40 for cust 1 out for delivery
 [5] 18:00:00.0 Parcel 77 for cust 1 out for delivery
 [5] 18:00:00.0 Parcel 78 for cust 1 out for delivery
 [5] 18:00:00.0 Parcel 101 for cust 1 out for delivery
 [5] 19:23:20.0 Driver leaves for delivery of 100 parcels to 20 customers
 [5] 19:23:20.0 Length of delivery tour: 34,255m
 [5] 19:23:20.0 Driver drives to Customer 7 at (5182, 5650)
 [5] 19:32:33.9 Driver arrived at Customer 7 at (5182, 5650)
 [5] 19:33:33.9 Customer 7 at (5182, 5650) not at home
 [5] 19:33:33.9 Driver drives to Customer 5 at (3350, 7580)
 [5] 19:48:36.8 Driver arrived at Customer 5 at (3350, 7580)
 [5] 19:49:36.8 Customer 5 at (3350, 7580) not at home
 [5] 19:49:36.8 Driver drives to Customer 11 at (5650, 7250)
 [5] 20:03:05.6 Driver arrived at Customer 11 at (5650, 7250)
 [5] 20:04:05.6 Customer 11 at (5650, 7250) not at home
 [5] 20:04:05.6 Driver drives to Customer 10 at (5650, 6203)
 [5] 20:08:16.9 Driver arrived at Customer 10 at (5650, 6203)
 [5] 20:09:16.9 Customer 10 at (5650, 6203) not at home

[5] 20:09:16.9 Driver drives to Customer 16 at (7477, 5650)
[5] 20:18:48.1 Driver arrived at Customer 16 at (7477, 5650)
[5] 20:19:48.1 Customer 16 at (7477, 5650) not at home
[5] 20:19:48.1 Driver drives to Customer 13 at (6800, 4901)
[5] 20:25:30.3 Driver arrived at Customer 13 at (6800, 4901)
[5] 20:26:30.3 Customer 13 at (6800, 4901) not at home
[5] 20:26:30.3 Driver drives to Customer 15 at (7302, 3350)
[5] 20:34:43.0 Driver arrived at Customer 15 at (7302, 3350)
[5] 20:35:03.3 Customer 15 at (7302, 3350) answers door
[5] 20:35:03.3 Customer 15 at (7302, 3350) accepts Parcel 8 for cust 15
[5] 20:35:05.7 Customer 15 at (7302, 3350) accepts Parcel 31 for cust 15
[5] 20:35:06.1 Customer 15 at (7302, 3350) accepts Parcel 32 for cust 15
[5] 20:35:35.6 Customer 15 at (7302, 3350) accepts Parcel 52 for cust 15
[5] 20:35:38.1 Customer 15 at (7302, 3350) accepts Parcel 118 for cust 15
[5] 20:35:39.7 Customer 15 at (7302, 3350) accepts Parcel 119 for cust 15
[5] 20:35:41.9 Customer 15 at (7302, 3350) accepts Parcel 120 for cust 15
[5] 20:35:46.6 Customer 15 at (7302, 3350) signs off
[5] 20:35:54.5 Driver drives to Customer 19 at (7950, 4122)
[5] 20:41:35.3 Driver arrived at Customer 19 at (7950, 4122)
[5] 20:41:41.9 Customer 19 at (7950, 4122) answers door
[5] 20:41:41.9 Customer 19 at (7950, 4122) accepts Parcel 72 for cust 19
[5] 20:42:26.7 Customer 19 at (7950, 4122) accepts Parcel 73 for cust 19
[5] 20:43:07.4 Customer 19 at (7950, 4122) accepts Parcel 74 for cust 19
[5] 20:43:09.1 Customer 19 at (7950, 4122) accepts Parcel 99 for cust 19
[5] 20:43:14.3 Customer 19 at (7950, 4122) accepts Parcel 123 for cust 19
[5] 20:43:25.7 Customer 19 at (7950, 4122) signs off
[5] 20:43:46.7 Driver drives to Customer 18 at (7816, 4500)
[5] 20:45:49.5 Driver arrived at Customer 18 at (7816, 4500)
[5] 20:46:49.5 Customer 18 at (7816, 4500) not at home
[5] 20:46:49.5 Driver drives to Customer 17 at (7575, 4500)
[5] 20:47:47.4 Driver arrived at Customer 17 at (7575, 4500)
[5] 20:48:47.4 Customer 17 at (7575, 4500) not at home
[5] 20:48:47.4 Driver drives to Customer 14 at (7188, 4500)
[5] 20:50:20.3 Driver arrived at Customer 14 at (7188, 4500)
[5] 20:51:20.3 Customer 14 at (7188, 4500) not at home
[5] 20:51:20.3 Driver drives to Customer 12 at (6061, 4500)
[5] 20:55:50.7 Driver arrived at Customer 12 at (6061, 4500)
[5] 20:56:50.7 Customer 12 at (6061, 4500) not at home
[5] 20:56:50.7 Driver drives to Customer 9 at (5650, 3175)
[5] 21:03:47.4 Driver arrived at Customer 9 at (5650, 3175)
[5] 21:04:47.4 Customer 9 at (5650, 3175) not at home
[5] 21:04:47.4 Driver drives to Customer 8 at (5650, 2783)
[5] 21:06:21.5 Driver arrived at Customer 8 at (5650, 2783)
[5] 21:07:21.5 Customer 8 at (5650, 2783) not at home
[5] 21:07:21.5 Driver drives to Customer 6 at (4142, 1050)
[5] 21:17:37.5 Driver arrived at Customer 6 at (4142, 1050)
[5] 21:18:37.5 Customer 6 at (4142, 1050) not at home
[5] 21:18:37.5 Driver drives to Customer 4 at (2821, 1578)

[5] 21:24:46.9 Driver arrived at Customer 4 at (2821, 1578)
[5] 21:25:46.9 Customer 4 at (2821, 1578) not at home
[5] 21:25:46.9 Driver drives to Customer 3 at (2200, 3898)
[5] 21:36:05.1 Driver arrived at Customer 3 at (2200, 3898)
[5] 21:37:05.1 Customer 3 at (2200, 3898) not at home
[5] 21:37:05.1 Driver drives to Customer 2 at (1618, 4500)
[5] 21:41:49.3 Driver arrived at Customer 2 at (1618, 4500)
[5] 21:42:49.3 Customer 2 at (1618, 4500) not at home
[5] 21:42:49.3 Driver drives to Customer 0 at (1050, 4722)
[5] 21:45:58.9 Driver arrived at Customer 0 at (1050, 4722)
[5] 21:46:58.9 Customer 0 at (1050, 4722) not at home
[5] 21:46:58.9 Driver drives to Customer 1 at (1050, 5180)
[5] 21:48:48.8 Driver arrived at Customer 1 at (1050, 5180)
[5] 21:49:48.8 Customer 1 at (1050, 5180) not at home
[5] 21:49:48.8 Driver returns to delivery centre
[5] 22:01:44.0 Driver arrived at delivery centre
[5] 22:01:44.0 Parcel 3 for cust 7 return from delivery
[5] 22:02:14.0 Parcel 4 for cust 7 return from delivery
[5] 22:02:44.0 Parcel 22 for cust 7 return from delivery
[5] 22:03:14.0 Parcel 44 for cust 7 return from delivery
[5] 22:03:44.0 Parcel 62 for cust 7 return from delivery
[5] 22:04:14.0 Parcel 83 for cust 7 return from delivery
[5] 22:04:44.0 Parcel 82 for cust 5 return from delivery
[5] 22:05:14.0 Parcel 26 for cust 11 return from delivery
[5] 22:05:44.0 Parcel 48 for cust 11 return from delivery
[5] 22:06:14.0 Parcel 112 for cust 11 return from delivery
[5] 22:06:44.0 Parcel 113 for cust 11 return from delivery
[5] 22:07:14.0 Parcel 46 for cust 10 return from delivery
[5] 22:07:44.0 Parcel 47 for cust 10 return from delivery
[5] 22:08:14.0 Parcel 66 for cust 10 return from delivery
[5] 22:08:44.0 Parcel 87 for cust 10 return from delivery
[5] 22:09:14.0 Parcel 88 for cust 10 return from delivery
[5] 22:09:44.0 Parcel 111 for cust 10 return from delivery
[5] 22:10:14.0 Parcel 9 for cust 16 return from delivery
[5] 22:10:44.0 Parcel 10 for cust 16 return from delivery
[5] 22:11:14.0 Parcel 11 for cust 16 return from delivery
[5] 22:11:44.0 Parcel 33 for cust 16 return from delivery
[5] 22:12:14.0 Parcel 91 for cust 16 return from delivery
[5] 22:12:44.0 Parcel 92 for cust 16 return from delivery
[5] 22:13:14.0 Parcel 93 for cust 16 return from delivery
[5] 22:13:44.0 Parcel 94 for cust 16 return from delivery
[5] 22:14:14.0 Parcel 95 for cust 16 return from delivery
[5] 22:14:44.0 Parcel 121 for cust 16 return from delivery
[5] 22:15:14.0 Parcel 114 for cust 13 return from delivery
[5] 22:15:44.0 Parcel 115 for cust 13 return from delivery
[5] 22:16:14.0 Parcel 116 for cust 13 return from delivery
[5] 22:16:44.0 Parcel 14 for cust 18 return from delivery
[5] 22:17:14.0 Parcel 34 for cust 18 return from delivery

[5] 22:17:44.0 Parcel 70 for cust 18 return from delivery
[5] 22:18:14.0 Parcel 71 for cust 18 return from delivery
[5] 22:18:44.0 Parcel 98 for cust 18 return from delivery
[5] 22:19:14.0 Parcel 12 for cust 17 return from delivery
[5] 22:19:44.0 Parcel 13 for cust 17 return from delivery
[5] 22:20:14.0 Parcel 69 for cust 17 return from delivery
[5] 22:20:44.0 Parcel 96 for cust 17 return from delivery
[5] 22:21:14.0 Parcel 97 for cust 17 return from delivery
[5] 22:21:44.0 Parcel 122 for cust 17 return from delivery
[5] 22:22:14.0 Parcel 28 for cust 14 return from delivery
[5] 22:22:44.0 Parcel 29 for cust 14 return from delivery
[5] 22:23:14.0 Parcel 30 for cust 14 return from delivery
[5] 22:23:44.0 Parcel 50 for cust 14 return from delivery
[5] 22:24:14.0 Parcel 51 for cust 14 return from delivery
[5] 22:24:44.0 Parcel 68 for cust 14 return from delivery
[5] 22:25:14.0 Parcel 117 for cust 14 return from delivery
[5] 22:25:44.0 Parcel 89 for cust 12 return from delivery
[5] 22:26:14.0 Parcel 110 for cust 9 return from delivery
[5] 22:26:44.0 Parcel 63 for cust 8 return from delivery
[5] 22:27:14.0 Parcel 64 for cust 8 return from delivery
[5] 22:27:44.0 Parcel 84 for cust 8 return from delivery
[5] 22:28:14.0 Parcel 85 for cust 8 return from delivery
[5] 22:28:44.0 Parcel 86 for cust 8 return from delivery
[5] 22:29:14.0 Parcel 109 for cust 8 return from delivery
[5] 22:29:44.0 Parcel 1 for cust 6 return from delivery
[5] 22:30:14.0 Parcel 2 for cust 6 return from delivery
[5] 22:30:44.0 Parcel 21 for cust 6 return from delivery
[5] 22:31:14.0 Parcel 61 for cust 6 return from delivery
[5] 22:31:44.0 Parcel 106 for cust 6 return from delivery
[5] 22:32:14.0 Parcel 107 for cust 6 return from delivery
[5] 22:32:44.0 Parcel 108 for cust 6 return from delivery
[5] 22:33:14.0 Parcel 42 for cust 4 return from delivery
[5] 22:33:44.0 Parcel 58 for cust 4 return from delivery
[5] 22:34:14.0 Parcel 104 for cust 4 return from delivery
[5] 22:34:44.0 Parcel 105 for cust 4 return from delivery
[5] 22:35:14.0 Parcel 18 for cust 3 return from delivery
[5] 22:35:44.0 Parcel 41 for cust 3 return from delivery
[5] 22:36:14.0 Parcel 57 for cust 3 return from delivery
[5] 22:36:44.0 Parcel 80 for cust 3 return from delivery
[5] 22:37:14.0 Parcel 81 for cust 3 return from delivery
[5] 22:37:44.0 Parcel 102 for cust 3 return from delivery
[5] 22:38:14.0 Parcel 103 for cust 3 return from delivery
[5] 22:38:44.0 Parcel 79 for cust 2 return from delivery
[5] 22:39:14.0 Parcel 16 for cust 0 return from delivery
[5] 22:39:44.0 Parcel 38 for cust 0 return from delivery
[5] 22:40:14.0 Parcel 54 for cust 0 return from delivery
[5] 22:40:44.0 Parcel 55 for cust 0 return from delivery
[5] 22:41:14.0 Parcel 75 for cust 0 return from delivery

[5] 22:41:44.0 Parcel 76 for cust 0 return from delivery
[5] 22:42:14.0 Parcel 100 for cust 0 return from delivery
[5] 22:42:44.0 Parcel 17 for cust 1 return from delivery
[5] 22:43:14.0 Parcel 39 for cust 1 return from delivery
[5] 22:43:44.0 Parcel 40 for cust 1 return from delivery
[5] 22:44:14.0 Parcel 77 for cust 1 return from delivery
[5] 22:44:44.0 Parcel 78 for cust 1 return from delivery
[5] 22:45:14.0 Parcel 101 for cust 1 return from delivery
[5] 22:45:44.0 88 parcels left for next day
[5] 22:55:44.0 Driver goes home
[6] 17:00:00.0 Parcel 124 for cust 0 arr at delivery centre
[6] 17:00:00.0 Parcel 125 for cust 0 arr at delivery centre
[6] 17:00:00.0 Parcel 126 for cust 2 arr at delivery centre
[6] 17:00:00.0 Parcel 127 for cust 4 arr at delivery centre
[6] 17:00:00.0 Parcel 128 for cust 5 arr at delivery centre
[6] 17:00:00.0 Parcel 129 for cust 5 arr at delivery centre
[6] 17:00:00.0 Parcel 130 for cust 5 arr at delivery centre
[6] 17:00:00.0 Parcel 131 for cust 6 arr at delivery centre
[6] 17:00:00.0 Parcel 132 for cust 6 arr at delivery centre
[6] 17:00:00.0 Parcel 133 for cust 8 arr at delivery centre
[6] 17:00:00.0 Parcel 134 for cust 8 arr at delivery centre
[6] 17:00:00.0 Parcel 135 for cust 8 arr at delivery centre
[6] 17:00:00.0 Parcel 136 for cust 11 arr at delivery centre
[6] 17:00:00.0 Parcel 137 for cust 12 arr at delivery centre
[6] 17:00:00.0 Parcel 138 for cust 13 arr at delivery centre
[6] 17:00:00.0 Parcel 139 for cust 14 arr at delivery centre
[6] 17:00:00.0 Parcel 140 for cust 14 arr at delivery centre
[6] 17:00:00.0 Parcel 141 for cust 14 arr at delivery centre
[6] 17:00:00.0 Parcel 142 for cust 16 arr at delivery centre
[6] 17:00:00.0 Parcel 143 for cust 16 arr at delivery centre
[6] 17:00:00.0 Parcel 144 for cust 16 arr at delivery centre
[6] 17:00:00.0 Parcel 145 for cust 17 arr at delivery centre
[6] 17:00:00.0 Parcel 146 for cust 18 arr at delivery centre
[6] 17:00:00.0 Parcel 147 for cust 18 arr at delivery centre
[6] 17:00:00.0 Parcel 148 for cust 19 arr at delivery centre
[6] 17:00:00.0 Parcel 149 for cust 19 arr at delivery centre
[6] 17:00:00.0 Parcel 150 for cust 19 arr at delivery centre
[6] 18:00:00.0 Driver arrives for work
[6] 18:00:00.0 Parcel 3 for cust 7 out for delivery
[6] 18:00:00.0 Parcel 4 for cust 7 out for delivery
[6] 18:00:00.0 Parcel 22 for cust 7 out for delivery
[6] 18:00:00.0 Parcel 44 for cust 7 out for delivery
[6] 18:00:00.0 Parcel 62 for cust 7 out for delivery
[6] 18:00:00.0 Parcel 83 for cust 7 out for delivery
[6] 18:00:00.0 Parcel 9 for cust 16 out for delivery
[6] 18:00:00.0 Parcel 10 for cust 16 out for delivery
[6] 18:00:00.0 Parcel 11 for cust 16 out for delivery
[6] 18:00:00.0 Parcel 33 for cust 16 out for delivery

[6] 18:00:00.0 Parcel 109 for cust 8 out for delivery
[6] 18:00:00.0 Parcel 133 for cust 8 out for delivery
[6] 18:00:00.0 Parcel 134 for cust 8 out for delivery
[6] 18:00:00.0 Parcel 135 for cust 8 out for delivery
[6] 18:00:00.0 Parcel 1 for cust 6 out for delivery
[6] 18:00:00.0 Parcel 2 for cust 6 out for delivery
[6] 18:00:00.0 Parcel 21 for cust 6 out for delivery
[6] 18:00:00.0 Parcel 61 for cust 6 out for delivery
[6] 18:00:00.0 Parcel 106 for cust 6 out for delivery
[6] 18:00:00.0 Parcel 107 for cust 6 out for delivery
[6] 18:00:00.0 Parcel 108 for cust 6 out for delivery
[6] 18:00:00.0 Parcel 131 for cust 6 out for delivery
[6] 18:00:00.0 Parcel 132 for cust 6 out for delivery
[6] 18:00:00.0 Parcel 42 for cust 4 out for delivery
[6] 18:00:00.0 Parcel 58 for cust 4 out for delivery
[6] 18:00:00.0 Parcel 104 for cust 4 out for delivery
[6] 18:00:00.0 Parcel 105 for cust 4 out for delivery
[6] 18:00:00.0 Parcel 127 for cust 4 out for delivery
[6] 18:00:00.0 Parcel 46 for cust 10 out for delivery
[6] 18:00:00.0 Parcel 47 for cust 10 out for delivery
[6] 18:00:00.0 Parcel 66 for cust 10 out for delivery
[6] 18:00:00.0 Parcel 87 for cust 10 out for delivery
[6] 18:00:00.0 Parcel 88 for cust 10 out for delivery
[6] 18:00:00.0 Parcel 111 for cust 10 out for delivery
[6] 18:00:00.0 Parcel 26 for cust 11 out for delivery
[6] 18:00:00.0 Parcel 48 for cust 11 out for delivery
[6] 18:00:00.0 Parcel 112 for cust 11 out for delivery
[6] 18:00:00.0 Parcel 113 for cust 11 out for delivery
[6] 18:00:00.0 Parcel 136 for cust 11 out for delivery
[6] 18:00:00.0 Parcel 82 for cust 5 out for delivery
[6] 18:00:00.0 Parcel 128 for cust 5 out for delivery
[6] 18:00:00.0 Parcel 129 for cust 5 out for delivery
[6] 18:00:00.0 Parcel 130 for cust 5 out for delivery
[6] 18:00:00.0 Parcel 17 for cust 1 out for delivery
[6] 18:00:00.0 Parcel 39 for cust 1 out for delivery
[6] 18:00:00.0 Parcel 40 for cust 1 out for delivery
[6] 18:00:00.0 Parcel 77 for cust 1 out for delivery
[6] 18:00:00.0 Parcel 78 for cust 1 out for delivery
[6] 18:00:00.0 Parcel 101 for cust 1 out for delivery
[6] 18:00:00.0 Parcel 16 for cust 0 out for delivery
[6] 18:00:00.0 Parcel 38 for cust 0 out for delivery
[6] 18:00:00.0 Parcel 54 for cust 0 out for delivery
[6] 18:00:00.0 Parcel 55 for cust 0 out for delivery
[6] 18:00:00.0 Parcel 75 for cust 0 out for delivery
[6] 18:00:00.0 Parcel 76 for cust 0 out for delivery
[6] 18:00:00.0 Parcel 100 for cust 0 out for delivery
[6] 18:00:00.0 Parcel 124 for cust 0 out for delivery
[6] 18:00:00.0 Parcel 125 for cust 0 out for delivery

[6] 18:00:00.0 Parcel 79 for cust 2 out for delivery
 [6] 18:00:00.0 Parcel 126 for cust 2 out for delivery
 [6] 18:00:00.0 Parcel 18 for cust 3 out for delivery
 [6] 18:00:00.0 Parcel 41 for cust 3 out for delivery
 [6] 18:00:00.0 Parcel 57 for cust 3 out for delivery
 [6] 18:00:00.0 Parcel 80 for cust 3 out for delivery
 [6] 18:00:00.0 Parcel 81 for cust 3 out for delivery
 [6] 18:00:00.0 Parcel 102 for cust 3 out for delivery
 [6] 18:00:00.0 Parcel 103 for cust 3 out for delivery
 [6] 19:35:50.0 Driver leaves for delivery of 115 parcels to 19 customers
 [6] 19:35:50.0 Length of delivery tour: 36,612m
 [6] 19:35:50.0 Driver drives to Customer 7 at (5182, 5650)
 [6] 19:45:03.9 Driver arrived at Customer 7 at (5182, 5650)
 [6] 19:46:03.9 Customer 7 at (5182, 5650) not at home
 [6] 19:46:03.9 Driver drives to Customer 16 at (7477, 5650)
 [6] 19:55:14.7 Driver arrived at Customer 16 at (7477, 5650)
 [6] 19:56:14.7 Customer 16 at (7477, 5650) not at home
 [6] 19:56:14.7 Driver drives to Customer 13 at (6800, 4901)
 [6] 20:01:57.0 Driver arrived at Customer 13 at (6800, 4901)
 [6] 20:02:57.0 Customer 13 at (6800, 4901) not at home
 [6] 20:02:57.0 Driver drives to Customer 14 at (7188, 4500)
 [6] 20:06:06.3 Driver arrived at Customer 14 at (7188, 4500)
 [6] 20:07:06.3 Customer 14 at (7188, 4500) not at home
 [6] 20:07:06.3 Driver drives to Customer 17 at (7575, 4500)
 [6] 20:08:39.2 Driver arrived at Customer 17 at (7575, 4500)
 [6] 20:09:39.2 Customer 17 at (7575, 4500) not at home
 [6] 20:09:39.2 Driver drives to Customer 18 at (7816, 4500)
 [6] 20:10:37.0 Driver arrived at Customer 18 at (7816, 4500)
 [6] 20:11:37.0 Customer 18 at (7816, 4500) not at home
 [6] 20:11:37.0 Driver drives to Customer 19 at (7950, 4122)
 [6] 20:13:39.9 Driver arrived at Customer 19 at (7950, 4122)
 [6] 20:14:39.9 Customer 19 at (7950, 4122) not at home
 [6] 20:14:39.9 Driver drives to Customer 12 at (6061, 4500)
 [6] 20:23:44.0 Driver arrived at Customer 12 at (6061, 4500)
 [6] 20:24:44.0 Customer 12 at (6061, 4500) not at home
 [6] 20:24:44.0 Driver drives to Customer 9 at (5650, 3175)
 [6] 20:31:40.6 Driver arrived at Customer 9 at (5650, 3175)
 [6] 20:32:40.6 Customer 9 at (5650, 3175) not at home
 [6] 20:32:40.6 Driver drives to Customer 8 at (5650, 2783)
 [6] 20:34:14.7 Driver arrived at Customer 8 at (5650, 2783)
 [6] 20:35:14.7 Customer 8 at (5650, 2783) not at home
 [6] 20:35:14.7 Driver drives to Customer 6 at (4142, 1050)
 [6] 20:45:30.8 Driver arrived at Customer 6 at (4142, 1050)
 [6] 20:46:30.8 Customer 6 at (4142, 1050) not at home
 [6] 20:46:30.8 Driver drives to Customer 4 at (2821, 1578)
 [6] 20:52:40.2 Driver arrived at Customer 4 at (2821, 1578)
 [6] 20:53:40.2 Customer 4 at (2821, 1578) to slow to answer the door
 [6] 20:53:40.2 Driver drives to Customer 10 at (5650, 6203)

[6] 21:23:46.4 Driver arrived at Customer 10 at (5650, 6203)
 [6] 21:24:46.4 Customer 10 at (5650, 6203) not at home
 [6] 21:24:46.4 Driver drives to Customer 11 at (5650, 7250)
 [6] 21:28:57.7 Driver arrived at Customer 11 at (5650, 7250)
 [6] 21:29:57.7 Customer 11 at (5650, 7250) not at home
 [6] 21:29:57.7 Driver drives to Customer 5 at (3350, 7580)
 [6] 21:43:26.5 Driver arrived at Customer 5 at (3350, 7580)
 [6] 21:44:26.5 Customer 5 at (3350, 7580) not at home
 [6] 21:44:26.5 Driver drives to Customer 1 at (1050, 5180)
 [6] 22:00:32.7 Driver arrived at Customer 1 at (1050, 5180)
 [6] 22:00:35.5 Customer 1 at (1050, 5180) answers door
 [6] 22:00:35.5 Customer 1 at (1050, 5180) accepts Parcel 17 for cust 1
 [6] 22:00:36.4 Customer 1 at (1050, 5180) accepts Parcel 39 for cust 1
 [6] 22:00:56.7 Customer 1 at (1050, 5180) accepts Parcel 40 for cust 1
 [6] 22:00:57.1 Customer 1 at (1050, 5180) accepts Parcel 77 for cust 1
 [6] 22:00:59.6 Customer 1 at (1050, 5180) accepts Parcel 78 for cust 1
 [6] 22:01:00.0 Customer 1 at (1050, 5180) accepts Parcel 101 for cust 1
 [6] 22:01:00.2 Customer 1 at (1050, 5180) signs off
 [6] 22:01:18.8 Driver drives to Customer 0 at (1050, 4722)
 [6] 22:03:08.7 Driver arrived at Customer 0 at (1050, 4722)
 [6] 22:03:24.7 Customer 0 at (1050, 4722) answers door
 [6] 22:03:24.7 Customer 0 at (1050, 4722) accepts Parcel 16 for cust 0
 [6] 22:03:26.5 Customer 0 at (1050, 4722) accepts Parcel 38 for cust 0
 [6] 22:03:28.1 Customer 0 at (1050, 4722) accepts Parcel 54 for cust 0
 [6] 22:03:38.8 Customer 0 at (1050, 4722) accepts Parcel 55 for cust 0
 [6] 22:04:13.4 Customer 0 at (1050, 4722) accepts Parcel 75 for cust 0
 [6] 22:04:20.4 Customer 0 at (1050, 4722) accepts Parcel 76 for cust 0
 [6] 22:04:43.6 Customer 0 at (1050, 4722) accepts Parcel 100 for cust 0
 [6] 22:04:50.5 Customer 0 at (1050, 4722) accepts Parcel 124 for cust 0
 [6] 22:04:59.1 Customer 0 at (1050, 4722) accepts Parcel 125 for cust 0
 [6] 22:05:10.4 Customer 0 at (1050, 4722) signs off
 [6] 22:05:26.8 Driver drives to Customer 2 at (1618, 4500)
 [6] 22:08:36.4 Driver arrived at Customer 2 at (1618, 4500)
 [6] 22:09:33.1 Customer 2 at (1618, 4500) answers door
 [6] 22:09:33.1 Customer 2 at (1618, 4500) accepts Parcel 79 for cust 2
 [6] 22:10:19.7 Customer 2 at (1618, 4500) accepts Parcel 126 for cust 2
 [6] 22:10:33.4 Customer 2 at (1618, 4500) signs off
 [6] 22:10:57.1 Driver drives to Customer 3 at (2200, 3898)
 [6] 22:15:41.2 Driver arrived at Customer 3 at (2200, 3898)
 [6] 22:15:50.4 Customer 3 at (2200, 3898) answers door
 [6] 22:15:50.4 Customer 3 at (2200, 3898) accepts Parcel 18 for cust 3
 [6] 22:15:58.1 Customer 3 at (2200, 3898) accepts Parcel 41 for cust 3
 [6] 22:16:07.2 Customer 3 at (2200, 3898) accepts Parcel 57 for cust 3
 [6] 22:16:24.7 Customer 3 at (2200, 3898) accepts Parcel 80 for cust 3
 [6] 22:16:31.3 Customer 3 at (2200, 3898) accepts Parcel 81 for cust 3
 [6] 22:16:47.0 Customer 3 at (2200, 3898) accepts Parcel 102 for cust 3
 [6] 22:16:51.9 Customer 3 at (2200, 3898) accepts Parcel 103 for cust 3
 [6] 22:17:00.7 Customer 3 at (2200, 3898) signs off

[6] 22:17:19.8 Driver returns to delivery centre
[6] 22:24:20.2 Driver arrived at delivery centre
[6] 22:24:20.2 Parcel 3 for cust 7 return from delivery
[6] 22:24:50.2 Parcel 4 for cust 7 return from delivery
[6] 22:25:20.2 Parcel 22 for cust 7 return from delivery
[6] 22:25:50.2 Parcel 44 for cust 7 return from delivery
[6] 22:26:20.2 Parcel 62 for cust 7 return from delivery
[6] 22:26:50.2 Parcel 83 for cust 7 return from delivery
[6] 22:27:20.2 Parcel 9 for cust 16 return from delivery
[6] 22:27:50.2 Parcel 10 for cust 16 return from delivery
[6] 22:28:20.2 Parcel 11 for cust 16 return from delivery
[6] 22:28:50.2 Parcel 33 for cust 16 return from delivery
[6] 22:29:20.2 Parcel 91 for cust 16 return from delivery
[6] 22:29:50.2 Parcel 92 for cust 16 return from delivery
[6] 22:30:20.2 Parcel 93 for cust 16 return from delivery
[6] 22:30:50.2 Parcel 94 for cust 16 return from delivery
[6] 22:31:20.2 Parcel 95 for cust 16 return from delivery
[6] 22:31:50.2 Parcel 121 for cust 16 return from delivery
[6] 22:32:20.2 Parcel 142 for cust 16 return from delivery
[6] 22:32:50.2 Parcel 143 for cust 16 return from delivery
[6] 22:33:20.2 Parcel 144 for cust 16 return from delivery
[6] 22:33:50.2 Parcel 114 for cust 13 return from delivery
[6] 22:34:20.2 Parcel 115 for cust 13 return from delivery
[6] 22:34:50.2 Parcel 116 for cust 13 return from delivery
[6] 22:35:20.2 Parcel 138 for cust 13 return from delivery
[6] 22:35:50.2 Parcel 28 for cust 14 return from delivery
[6] 22:36:20.2 Parcel 29 for cust 14 return from delivery
[6] 22:36:50.2 Parcel 30 for cust 14 return from delivery
[6] 22:37:20.2 Parcel 50 for cust 14 return from delivery
[6] 22:37:50.2 Parcel 51 for cust 14 return from delivery
[6] 22:38:20.2 Parcel 68 for cust 14 return from delivery
[6] 22:38:50.2 Parcel 117 for cust 14 return from delivery
[6] 22:39:20.2 Parcel 139 for cust 14 return from delivery
[6] 22:39:50.2 Parcel 140 for cust 14 return from delivery
[6] 22:40:20.2 Parcel 141 for cust 14 return from delivery
[6] 22:40:50.2 Parcel 12 for cust 17 return from delivery
[6] 22:41:20.2 Parcel 13 for cust 17 return from delivery
[6] 22:41:50.2 Parcel 69 for cust 17 return from delivery
[6] 22:42:20.2 Parcel 96 for cust 17 return from delivery
[6] 22:42:50.2 Parcel 97 for cust 17 return from delivery
[6] 22:43:20.2 Parcel 122 for cust 17 return from delivery
[6] 22:43:50.2 Parcel 145 for cust 17 return from delivery
[6] 22:44:20.2 Parcel 14 for cust 18 return from delivery
[6] 22:44:50.2 Parcel 34 for cust 18 return from delivery
[6] 22:45:20.2 Parcel 70 for cust 18 return from delivery
[6] 22:45:50.2 Parcel 71 for cust 18 return from delivery
[6] 22:46:20.2 Parcel 98 for cust 18 return from delivery
[6] 22:46:50.2 Parcel 146 for cust 18 return from delivery

[6] 22:47:20.2 Parcel 147 for cust 18 return from delivery
[6] 22:47:50.2 Parcel 148 for cust 19 return from delivery
[6] 22:48:20.2 Parcel 149 for cust 19 return from delivery
[6] 22:48:50.2 Parcel 150 for cust 19 return from delivery
[6] 22:49:20.2 Parcel 89 for cust 12 return from delivery
[6] 22:49:50.2 Parcel 137 for cust 12 return from delivery
[6] 22:50:20.2 Parcel 110 for cust 9 return from delivery
[6] 22:50:50.2 Parcel 63 for cust 8 return from delivery
[6] 22:51:20.2 Parcel 64 for cust 8 return from delivery
[6] 22:51:50.2 Parcel 84 for cust 8 return from delivery
[6] 22:52:20.2 Parcel 85 for cust 8 return from delivery
[6] 22:52:50.2 Parcel 86 for cust 8 return from delivery
[6] 22:53:20.2 Parcel 109 for cust 8 return from delivery
[6] 22:53:50.2 Parcel 133 for cust 8 return from delivery
[6] 22:54:20.2 Parcel 134 for cust 8 return from delivery
[6] 22:54:50.2 Parcel 135 for cust 8 return from delivery
[6] 22:55:20.2 Parcel 1 for cust 6 return from delivery
[6] 22:55:50.2 Parcel 2 for cust 6 return from delivery
[6] 22:56:20.2 Parcel 21 for cust 6 return from delivery
[6] 22:56:50.2 Parcel 61 for cust 6 return from delivery
[6] 22:57:20.2 Parcel 106 for cust 6 return from delivery
[6] 22:57:50.2 Parcel 107 for cust 6 return from delivery
[6] 22:58:20.2 Parcel 108 for cust 6 return from delivery
[6] 22:58:50.2 Parcel 131 for cust 6 return from delivery
[6] 22:59:20.2 Parcel 132 for cust 6 return from delivery
[6] 22:59:50.2 Parcel 42 for cust 4 return from delivery
[6] 23:00:20.2 Parcel 58 for cust 4 return from delivery
[6] 23:00:50.2 Parcel 104 for cust 4 return from delivery
[6] 23:01:20.2 Parcel 105 for cust 4 return from delivery
[6] 23:01:50.2 Parcel 127 for cust 4 return from delivery
[6] 23:02:20.2 Parcel 46 for cust 10 return from delivery
[6] 23:02:50.2 Parcel 47 for cust 10 return from delivery
[6] 23:03:20.2 Parcel 66 for cust 10 return from delivery
[6] 23:03:50.2 Parcel 87 for cust 10 return from delivery
[6] 23:04:20.2 Parcel 88 for cust 10 return from delivery
[6] 23:04:50.2 Parcel 111 for cust 10 return from delivery
[6] 23:05:20.2 Parcel 26 for cust 11 return from delivery
[6] 23:05:50.2 Parcel 48 for cust 11 return from delivery
[6] 23:06:20.2 Parcel 112 for cust 11 return from delivery
[6] 23:06:50.2 Parcel 113 for cust 11 return from delivery
[6] 23:07:20.2 Parcel 136 for cust 11 return from delivery
[6] 23:07:50.2 Parcel 82 for cust 5 return from delivery
[6] 23:08:20.2 Parcel 128 for cust 5 return from delivery
[6] 23:08:50.2 Parcel 129 for cust 5 return from delivery
[6] 23:09:20.2 Parcel 130 for cust 5 return from delivery
[6] 23:09:50.2 91 parcels left for next day
[6] 23:19:50.2 Driver goes home
Delivery Centre Inventory: 91 parcels

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