APPENDIX A
DIJKSTRA ALGORITHM

Alg. 1 presents the classical Dijkstra algorithm, which has been adopted in many researches, especially networking. Here the classical Dijkstra algorithm is used to obtain the routing metric G. The input parameters, i.e., the edge weights in the graph ($W[N][N]$), has been provided by the 16th Line of Alg. 3. Here *INF* denotes the maximum float value, which is permitted in the simulation platform.

Algorithm 1 Delivery Metric based on Dijkstra from i to d

Require: i, d, $\mathcal{N}$, $W[N][N]$, a
Ensure: $G_{i,d}^{t,T}$
1: init distance vector $\{dis[x]\}_{1\leq x\leq N}$ as *INF*
2: init pointing vector $\{prev[x]\}_{1\leq x\leq N}$ as -1
3: init label vector $\{vis[x]\}_{1\leq x\leq N}$ as 0
4: /* init the Dijkstra algorithm */
5: **for** each x, $x \in \mathcal{N}$ **do**
6: $dis[x] \leftarrow W[i][x]$
7: $prev[x] \leftarrow i$
8: **end for**
9: $vis[i] \leftarrow 1$
10: $count \leftarrow 1$
11: **while** $count \neq N$ **do**
12: choose the minimum x_m and $dis(x_m)$ from $\{dis[x]\}$
13: $vis[x_m] \leftarrow 1$
14: $count \leftarrow count + 1$
15: **for** each r, $r \in \mathcal{N}$ **do**
16: **if** $vis[r] \neq 1$ and $W[x_m][i] \neq$ inf and $dis[x_m] + W[x_m][r] < dis[r]$ **then**
17: $dis[r] \leftarrow dis[x_m] + W[x_m][r]$
18: $pre[r] \leftarrow x_m$
19: **end if**
20: **end for**
21: **end while**
22: $G_{i,d}^{t,T} \leftarrow a^{dis[d]}$