Activity 11.2
Ramzy Izza Wardhana - 21/472698/PA/20322

Output (Dijkstra with If Clause)

```
~/tenth-meet/activity/src                                    —    □    ✕

sys       0m0.000s

Ramzy@-- ~/tenth-meet/activity/src
$ ls
Dijkstra.class   Dijkstra_if.java      Run2Dijkstra.class   routedata04.txt   routedata10.txt
Dijkstra.java    Dijkstra_no_if.java   Run2Dijkstra.java    routedata05.txt

Ramzy@-- ~/tenth-meet/activity/src
$ javac Dijkstra_if.java

Ramzy@-- ~/tenth-meet/activity/src
$ javac Run2Dijkstra.java

Ramzy@-- ~/tenth-meet/activity/src
$ time (java Run2Dijkstra.java < routedata10.txt)
2.0

real      0m2.216s
user      0m0.015s
sys       0m0.000s

Ramzy@-- ~/tenth-meet/activity/src
$ time (java Run2Dijkstra.java < routedata10.txt)
2.0

real      0m1.565s
user      0m0.000s
sys       0m0.000s

Ramzy@-- ~/tenth-meet/activity/src
$ time (java Run2Dijkstra.java < routedata10.txt)
2.0

real      0m1.764s
user      0m0.000s
sys       0m0.015s

Ramzy@-- ~/tenth-meet/activity/src
$ time (java Run2Dijkstra.java < routedata10.txt)
2.0

real      0m1.590s
user      0m0.000s
sys       0m0.015s

Ramzy@-- ~/tenth-meet/activity/src
$ time (java Run2Dijkstra.java < routedata10.txt)
2.0

real      0m1.584s
user      0m0.000s
sys       0m0.000s

Ramzy@-- ~/tenth-meet/activity/src
$ time (java Run2Dijkstra.java < routedata10.txt)
2.0

real      0m1.569s
user      0m0.000s
sys       0m0.000s
```

Output (Dijkstra without If Clause)

```
~/tenth-meet/activity/src                                    —    □    ×
$

Ramzy@-- ~/tenth-meet/activity/src
$ javac Dijkstra_no_if.java

Ramzy@-- ~/tenth-meet/activity/src
$ javac Run2Dijkstra.java

Ramzy@-- ~/tenth-meet/activity/src
$ time (java Run2Dijkstra.java < routedata10.txt)
2.0

real    0m2.437s
user    0m0.000s
sys     0m0.000s

Ramzy@-- ~/tenth-meet/activity/src
$ time (java Run2Dijkstra.java < routedata10.txt)
2.0

real    0m1.811s
user    0m0.000s
sys     0m0.000s

Ramzy@-- ~/tenth-meet/activity/src
$ time (java Run2Dijkstra.java < routedata10.txt)
2.0

real    0m1.769s
user    0m0.000s
sys     0m0.000s

Ramzy@-- ~/tenth-meet/activity/src
$ time (java Run2Dijkstra.java < routedata10.txt)
2.0

real    0m1.719s
user    0m0.000s
sys     0m0.000s

Ramzy@-- ~/tenth-meet/activity/src
$ time (java Run2Dijkstra.java < routedata10.txt)
2.0

real    0m1.730s
user    0m0.000s
sys     0m0.015s

Ramzy@-- ~/tenth-meet/activity/src
$ time (java Run2Dijkstra.java < routedata10.txt)
2.0

real    0m1.779s
user    0m0.000s
sys     0m0.000s

Ramzy@-- ~/tenth-meet/activity/src
$
```

Routedata10.txt (Modified the distance from node 0 -> node 2)

```
16424     25 29 7
16425     26 28 6
16426     26 29 2
16427     27 29 8
16428     0 2
```

Summary

Iteration	With If Clause (Second)	Without If Clause (Second)
1 (Ignored)	2.216s	2.437s
2	1.565s	1.811s
3	1.746s	1.769s
4	1.590s	1.719s
5	1.584s	1.730s
6	1.569s	1.779s
Average 5 Iterations	1.6108s	1.7616s

Calculating the Speed Up = AVG(Time Without If) / AVG(Time with If)

Speed Up = 1.7616s / 1.6108s = 1.093618077973678