

User manual for Dijkstra

1. Open the “Dijkstra” folder.
2. Open 7 different terminals in the current path.
3. Execute the following 7 different commands for 7 different terminal (One command for one terminal):

```
python router.py A s/r/b
```

```
python router.py B s/r/b
```

```
python router.py C s/r/b
```

```
python router.py D s/r/b
```

```
python router.py E s/r/b
```

```
python router.py F s/r/b
```

```
python router.py G s/r/b
```

For the last parameter:

- “s” means sending
- “r” means receiving
- “b” means broadcasting

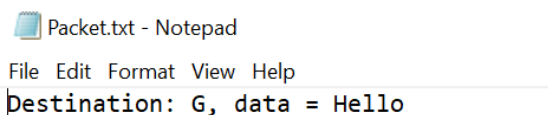
4. If you want to test a router sending single packet to another using the shortest path, then the sender router should be started in “s” mode and all other routers should be started in “r” mode. For testing this case, the packet to be transmitted is taken from “Packet.txt” file. Modify the packet in that file with the destination router’s name.

Sender-Receiver Mode:

Here, A is the sender and C is the receiver. A sends packet to C via B, so routers B and C are in receiving mode.

The packet has to be modified as below:

Packet Format:



The image shows three terminal windows running a network simulation. The top-left window shows router A's output: it receives a message from 127.0.0.1 and forwards it to 1001, then to 1004 and 1001 B. The top-right window shows router B's output: it receives a message from 127.0.0.1 and forwards it to 2001, then to 127.0.0.1 and 2004 C and 2001 C. The bottom window shows router C's output: it receives a message from 127.0.0.1.

```
C:\Windows\System32\cmd.exe
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\madhu\Downloads\lab4-master-Dijkstra\lab4-master-Dijkstra>python router.py A s
here
127.0.0.1
Message Forwarded
1001
A 1 1004 C 1001 B
C:\Users\madhu\Downloads\lab4-master-Dijkstra\lab4-master-Dijkstra>

C:\Windows\System32\cmd.exe - python router.py B r
Microsoft Windows [Version 10.0.18362.476]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\madhu\Downloads\lab4-master-Dijkstra\lab4-master-Dijkstra>python
router.py B r
here
127.0.0.1
Message Forwarded
2001
B 127.0.0.1 2004 C 2001 C

C:\Windows\System32\cmd.exe - python router.py C r
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\madhu\Downloads\lab4-master-Dijkstra\lab4-master-Dijkstra>python router.py C r
here
127.0.0.1
Message Recieved
```

5. If you want to test the broadcasting part, then router initiating the broadcast should be started in “b” mode and all other routers should be started in “r” mode. No packet modification is required in this case.

Broadcast Mode:

The image shows four terminal windows running a network simulation in broadcast mode. The top-left window shows router A's output: it receives a message from 127.0.0.1 and forwards it to 1001, then to 1004 B and 1001 B, then to 1004 C and 1001 B, then to 1004 D and 1001 B, then to 1004 E and 1003 E, and finally to 1003. The top-right window shows router B's output: it receives a message from 127.0.0.1 and forwards it to 3002, then to 127.0.0.1 and 3004 G and 3002 G. The bottom-left window shows router C's output: it receives a message from 127.0.0.1 and forwards it to 2001 C. The bottom-right window shows router D's output: it receives a message from 127.0.0.1.

```
Command Prompt
C:\Windows\System32\cmd.exe
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\madhu\Downloads\lab4-master-Dijkstra\lab4-master-Dijkstra>python router.py A b
here
127.0.0.1
Message Forwarded
1001
A 1 1004 B 1001 B
Message Forwarded
1001
A 1 1004 C 1001 B
Message Forwarded
1001
A 1 1004 D 1001 B
Message Forwarded
1003
A 1 1004 E 1003 E
Message Forwarded

C:\Windows\System32\cmd.exe - python router.py B r
Microsoft Windows [Version 10.0.18362.476]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\madhu\Downloads\lab4-master-Dijkstra\lab4-master-Dijkstra>python router.py C r
here
127.0.0.1
Message Forwarded
3002
C 127.0.0.1 3004 G 3002 G

C:\Windows\System32\cmd.exe - python router.py D r
Microsoft Windows [Version 10.0.18362.476]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\madhu\Downloads\lab4-master-Dijkstra\lab4-master-Dijkstra>python router.py F r
here
127.0.0.1
Message Recieved

C:\Windows\System32\cmd.exe - python router.py E r
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\madhu\Downloads\lab4-master-Dijkstra\lab4-master-Dijkstra>python router.py E r
here
127.0.0.1
Message Recieved
```

6. After execution of the above, we can open and see the log files (log_A.txt, log_B.txt, log_C.txt, log_D.txt, log_E.txt, log_F.txt, log_G.txt) for the expected outputs.

log_A.txt - Notepad

File	Edit	Format	View	Help	
1	1004	G	1001	DIJKSTRA	B

1	1004	C	1001	DIJKSTRA	B

1	1004	B	1001	DIJKSTRA	B

1	1004	C	1001	DIJKSTRA	B

1	1004	D	1001	DIJKSTRA	B

1	1004	E	1003	DIJKSTRA	E

1	1004	F	1002	DIJKSTRA	F

1	1004	G	1001	DIJKSTRA	B