OSPF REPORT

Input-1.txt:

```
9 25
0 1 3 5
0 7 7 9
1 2 2 4
1 7 11 15
1 5 1 5
1 3 8 24
2 4 7 10
2 3 2 8
3 7 3 5
3 8 14 16
3 7 3 7
3 6 3 7
3 5 12 16
4 5 3 5
4 3 8 10
5 8 7 18
5 6 8 17
6 4 4 9
6 7 31 42
7 8 6 8
7 5 6 10
7 2 1 4
8 6 5 7
8 4 10 13
8 0 8 14
```

Corresponding Routing tables for Each Node:

Routing Table for Router 0:

Routing Table for Node No. 0 at time 20

Destination	Path	Cost
1	0-1	4
2	0-1-2	7

3	0-7-3	12
4	0-1-5-4	11
5	0-1-5	7
6	0-8-6	16
7	0-7	8
8	0-8	10

Routing Table for Node No. 0 at time 40

Destination	Path	Cost
1	0-1	4
2	0-1-2	7
3	0-7-3	12
4	0-1-5-4	11
5	0-1-5	7
6	0-1-5-4-6	17
7	0-7	8
8	0-8	13

Routing Table for Router 1:

Routing Table for Node No. 1 at time 20

Destination	Path	Cost
0	1-0	4
2	1-2	3
3	1-2-3	9
4	1-5-4	7
5	1-5	3
6	1-5-4-6	13
7	1-2-7	6
8	1-5-8	12

Routing Table for Node No. 1 at time 40

Destination	Path	Cost
0	1-0	4
2	1-2	3
3	1-2-3	9
4	1-5-4	7
5	1-5	3
6	1-5-4-6	13
7	1-2-7	6
8	1-5-8	12

Routing Table for Router 2:

Routing Table for Node No. 2 at time 20

Destination	Path	Cost
0	2-1-0	7
1	2-1	3
3	2-3	6
4	2-4	8
5	2-1-5	6
6	2-3-6	11
7	2-7	3
8	2-7-8	10

Routing Table for Node No. 2 at time 40

Destination	Path	Cost
0	2-1-0	7
1	2-1	3
3	2-3	6
4	2-4	8
5	2-1-5	6
6	2-3-6	11
7	2-7	3
8	2-7-8	10

Routing Table for Router 3:

Routing Table for Node No. 3 at time 20

Destination	Path	Cost
0	3-7-0	14
1	3-2-1	10
2	3-2	7
4	3-4	9
5	3-4-5	13
6	3-6	5
7	3-7	6
8	3-6-8	11

Routing Table for Node No. 3 at time 40

Destination	Path	Cost
0	3-2-1-0	10
1	3-2-1	6
2	3-2	3
4	3-4	9
5	3-2-1-5	9

6	3-6	5
7	3-7	6
8	3-6-8	11

Routing Table for Router 4:

Routing Table for Node No. 4 at time 20

Destination	Path	Cost
0	4-5-1-0	10
1	4-5-1	6
2	4-2	8
3	4-3	9
5	4-5	4
6	4-6	6
7	4-2-7	11
8	4-8	11

Routing Table for Node No. 4 at time 40

Destination	Path	Cost
0	4-5-1-0	10
1	4-5-1	6
2	4-2	8
3	4-3	9
5	4-5	4
6	4-6	6
7	4-2-7	11
8	4-8	11

Routing Table for Router 5:

Routing Table for Node No. 5 at time 20

Destination	Path	Cost
0	5-1-0	6
1	5-1	2
2	5-1-2	5
3	5-1-2-3	11
4	5-4	4
6	5-4-6	10
7	5-1-2-7	8
8	5-8	9

Routing Table for Node No. 5 at time 40

Destination	Path	Cost
0	5-1-0	6
1	5-1	2
2	5-1-2	5

3	5-1-2-3	11
4	5-4	4
6	5-4-6	10
7	5-1-2-7	8
8	5-8	9

Routing Table for Router 6:

Routing Table for Node No. 6 at time 20

Destination	Path	Cost
0	6-5-1-0	16
1	6-5-1	12
2	6-3-2	11
3	6-3	4
4	6-4	8
5	6-5	10
7	6-3-7	10
8	6-8	6

Routing Table for Node No. 6 at time 40

Destination	Path	Cost
0	6-3-2-1-0	14
1	6-3-2-1	10
2	6-3-2	7
3	6-3	4
4	6-4	8
5	6-5	10
7	6-3-7	10
8	6-8	6

Routing Table for Router 7:

Routing Table for Node No. 7 at time 20

Destination	Path	Cost
0	7-0	8
1	7-2-1	6
2	7-2	3
3	7-3	4
4	7-2-4	11
5	7-5	9
6	7-3-6	9
8	7-8	7

Routing Table for Node No. 7 at time 40

Destination	Path	Cost
0	7-0	8
1	7-2-1	6
2	7-2	3
3	7-3	4
4	7-2-4	11
5	7-5	9
6	7-3-6	9
8	7-8	7

Routing Table for Router 8:

Routing Table for Node No. 8 at time 20

Destination	Path	Cost
0	8-0	13
1	8-5-1	12
2	8-7-2	10
3	8-6-3	10
4	8-4	11
5	8-5	10
6	8-6	6
7	8-7	7

Routing Table for Node No. 8 at time 40

Destination	Path	Cost
0	8-0	13
1	8-5-1	12
2	8-7-2	10
3	8-6-3	10
4	8-4	11
5	8-5	10
6	8-6	6
7	8-7	7

Input-2.txt:

```
11 30
0 1 3 5
0 7 7 9
1 2 2 4
1 7 11 15
1 5 1 5
```

1 3 8 24
2 4 7 10
2 3 2 8
3 7 3 5
3 8 14 16
3 7 3 7
3 6 3 7
3 5 12 16
4 5 3 5
4 3 8 10
5 8 7 18
5 6 8 17
6 4 4 9
6 7 31 42
7 8 6 8
7 5 6 10
7 2 1 4
8 6 5 7
8 4 10 13
8 0 8 14
9 3 90 95
9 7 60 69
10 5 30 35
10 9 10 19
10 0 5 90

Corresponding Routing tables for Each Node:

Routing Table for Router 0:

Routing Table for Node No. 0 at time 20

Destination	Path	Cost
1	0-1	4
2	0-1-2	7
3	0-1-2-3	14
4	0-1-5-4	10
5	0-1-5	6
6	0-8-6	15
7	0-7	8

8	0-8	9
9	0-10-9	51
10	0-10	33

Routing Table for Node No. 0 at time 40

Destination	Path	Cost
1	0-1	4
2	0-1-2	7
3	0-1-2-3	14
4	0-1-5-4	10
5	0-1-5	6
6	0-8-6	15
7	0-7	8
8	0-8	9
9	0-10-9	45
10	0-10	33

Routing Table for Router 1:

Routing Table for Node No. 1 at time 20

Destination	Path	Cost
0	1-0	4
2	1-2	3
3	1-2-3	10
4	1-5-4	6
5	1-5	2
6	1-5-6	14
7	1-2-7	5
8	1-2-7-8	12
9	1-5-10-9	52
10	1-5-10	36

Routing Table for Node No. 1 at time 40

Destination	Path	Cost
0	1-0	4
2	1-2	3
3	1-2-3	10
4	1-5-4	6
5	1-5	2
6	1-5-6	14
7	1-2-7	5
8	1-2-7-8	12
9	1-5-10-9	48

10	1-5-10	36

Routing Table for Router 2:

Routing Table for Node No. 2 at time 20

Destination	Path	Cost
0	2-1-0	7
1	2-1	3
3	2-3	7
4	2-4	9
5	2-1-5	5
6	2-3-6	12
7	2-7	2
8	2-7-8	9
9	2-1-5-10-9	55
10	2-1-5-10	39

Routing Table for Node No. 2 at time 40

Destination	Path	Cost
0	2-1-0	7
1	2-1	3
3	2-3	7
4	2-4	8
5	2-1-5	5
6	2-3-6	12
7	2-7	2
8	2-7-8	9
9	2-1-5-10-9	51
10	2-1-5-10	39

Routing Table for Router 3:

Routing Table for Node No. 3 at time 20

Destination	Path	Cost
0	3-2-1-0	12
1	3-2-1	8
2	3-2	5
4	3-4	9
5	3-2-1-5	10
6	3-6	5
7	3-7	5
8	3-6-8	11
9	3-2-1-5-10-9	62

10	3-2-1-5-10	44

Routing Table for Node No. 3 at time 40

Destination	Path	Cost
0	3-2-1-0	12
1	3-2-1	8
2	3-2	5
4	3-4	9
5	3-2-1-5	10
6	3-6	5
7	3-7	5
8	3-6-8	11
9	3-2-1-5-10-9	56
10	3-2-1-5-10	44

Routing Table for Router 4:

Routing Table for Node No. 4 at time 20

Destination	Path	Cost
0	4-5-1-0	11
1	4-5-1	7
2	4-2	8
3	4-3	9
5	4-5	4
6	4-6	8
7	4-2-7	10
8	4-8	11
9	4-5-10-9	54
10	4-5-10	38

Routing Table for Node No. 4 at time 40

Destination	Path	Cost
0	4-5-1-0	11
1	4-5-1	7
2	4-2	8
3	4-3	9
5	4-5	4
6	4-6	8
7	4-2-7	10
8	4-8	11
9	4-5-10-9	50
10	4-5-10	38

Routing Table for Router 5:

Routing Table for Node No. 5 at time 20

Destination	Path	Cost
0	5-1-0	7
1	5-1	3
2	5-1-2	6
3	5-4-3	13
4	5-4	4
6	5-6	12
7	5-7	8
8	5-8	14
9	5-10-9	50
10	5-10	34

Routing Table for Node No. 5 at time 40

Destination	Path	Cost
0	5-1-0	7
1	5-1	3
2	5-1-2	6
3	5-4-3	13
4	5-4	4
6	5-6	12
7	5-7	8
8	5-8	14
9	5-10-9	46
10	5-10	34

Routing Table for Router 6:

Routing Table for Node No. 6 at time 20

Destination	Path	Cost
0	6-8-0	15
1	6-4-5-1	13
2	6-3-2	11
3	6-3	6
4	6-4	6
5	6-4-5	10
7	6-3-7	11
8	6-8	6
9	6-4-5-10-9	60
10	6-4-5-10	44

Routing Table for Node No. 6 at time 40

Destination	Path	Cost
0	6-8-0	15
1	6-4-5-1	13
2	6-3-2	11
3	6-3	6
4	6-4	6
5	6-4-5	10
7	6-3-7	11
8	6-8	6
9	6-4-5-10-9	56
10	6-4-5-10	44

Routing Table for Router 7:

Routing Table for Node No. 7 at time 20

Destination	Path	Cost
0	7-0	8
1	7-2-1	6
2	7-2	3
3	7-3	6
4	7-5-4	11
5	7-5	7
6	7-3-6	11
8	7-8	7
9	7-5-10-9	57
10	7-5-10	41

Routing Table for Node No. 7 at time 40

Destination	Path	Cost
0	7-0	8
1	7-2-1	6
2	7-2	3
3	7-3	6
4	7-5-4	11
5	7-5	7
6	7-3-6	11
8	7-8	7
9	7-5-10-9	53
10	7-5-10	41

Routing Table for Router 8:

Routing Table for Node No. 8 at time 20

Destination	Path	Cost
0	8-0	9
1	8-0-1	13
2	8-7-2	10
3	8-6-3	12
4	8-4	12
5	8-5	13
6	8-6	6
7	8-7	7
9	8-0-10-9	58
10	8-0-10	42

Routing Table for Node No. 8 at time 40

Destination	Path	Cost
0	8-0	9
1	8-0-1	13
2	8-7-2	10
3	8-6-3	12
4	8-4	12
5	8-5	13
6	8-6	6
7	8-7	7
9	8-0-10-9	54
10	8-0-10	42

Routing Table for Node No. 9 at time 20

Destination	Path	Cost
0	9-10-5-1-0	55
1	9-10-5-1	51
2	9-10-5-1-2	54
3	9-10-5-4-3	61
4	9-10-5-4	52
5	9-10-5	48
6	9-10-5-6	60
7	9-10-5-7	56
8	9-10-5-8	62
10	9-10	15

Routing Table for Node No. 9 at time 40

Destination	Path	Cost
0	9-10-0	43

1	9-10-0-1	47
2	9-10-0-1-2	50
3	9-10-0-1-2-3	57
4	9-10-5-4	52
5	9-10-5	48
6	9-10-0-8-6	58
7	9-10-0-7	51
8	9-10-0-8	52
10	9-10	15

Routing Table for Node No. 10 at time 20

Destination	Path	Cost
0	10-0	20
1	10-0-1	24
2	10-0-1-2	27
3	10-0-1-2-3	34
4	10-0-1-5-4	30
5	10-0-1-5	26
6	10-0-8-6	35
7	10-0-7	28
8	10-0-8	29
9	10-9	11

Routing Table for Node No. 10 at time 40

Destination	Path	Cost
0	10-0	28
1	10-0-1	32
2	10-0-1-2	35
3	10-0-1-2-3	42
4	10-5-4	37
5	10-5	33
6	10-0-8-6	43
7	10-0-7	36
8	10-0-8	37
9	10-9	12

Result:

The result contains 2 tables for each node which run for 40 sec as (SPF_INTERVAL = 20 sec). For every SPF_INTERVAL interval, each router prints a

routing table. input1.txt contains 9 routers and 25 links and input2.txt contains 11 routers,30 links