OSPF Routing Algorithm Report

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Topology-1:

1. The network topology is

All Links are bidirectional
i,j on link is $minC_{ij}$, $maxC_{ij}$
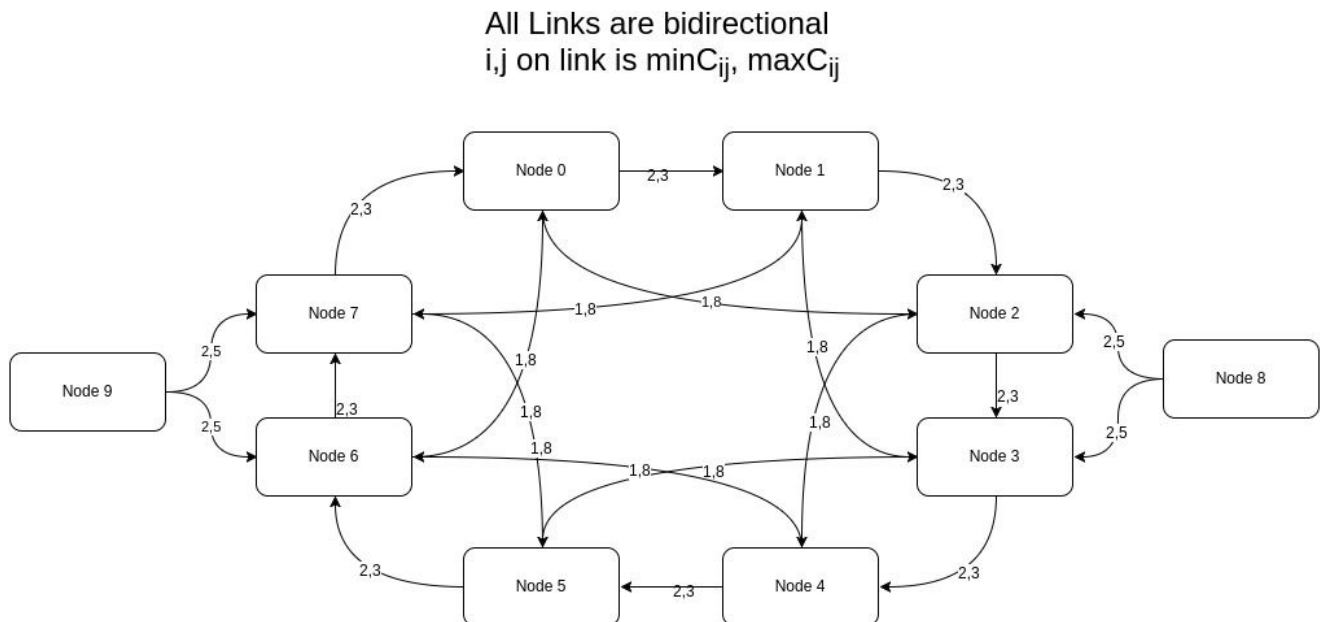
2. Routing Tables:
   a. For Node 0:

```
Routing Table for Node No. 0 at Time 40
Dest Path       Cost
0    0          0
1    0-1        2
2    0-2        3
3    0-2-3      6
4    0-7-5-4    7
5    0-7-5      5
6    0-6        6
7    0-7        3
8    0-7-8      7
9    0-2-9      6
```

b. For Node 1:

```
Routing Table for Node No. 1 at Time 40
Dest Path        Cost
0    1-0         2
1    1           0
2    1-2         3
3    1-3         4
4    1-3-4       6
5    1-0-7-5     6
6    1-0-6       4
7    1-0-7       4
8    1-0-7-8     8
9    1-2-9       6
```

c. For Node 2:

```
Routing Table for Node No. 2 at Time 40
Dest Path        Cost
0    2-0         1
1    2-1         3
2    2           0
3    2-3         3
4    2-4         2
5    2-4-5       4
6    2-0-6       3
7    2-0-7       3
8    2-0-7-8     7
9    2-9         4
```

d. For Node 3:

```
Routing Table for Node No. 3 at Time 40
Dest Path        Cost
0    3-1-0       4
1    3-1         2
2    3-2         3
3    3           0
4    3-4         2
5    3-5         4
6    3-4-6       6
7    3-1-0-7     6
8    3-1-0-7-8 10
9    3-9         4
```

e. For Node 4:

```
Routing Table for Node No. 4 at Time 40
Dest Path      Cost
0    4-6-0     9
1    4-3-1     7
2    4-3-2     6
3    4-3       3
4    4         0
5    4-5       3
6    4-6       4
7    4-6-7     7
8    4-6-8     9
9    4-3-9     6
```

f. For Node 5:

```
Routing Table for Node No. 5 at Time 40
Dest Path      Cost
0    5-6-0     8
1    5-6-7-1   7
2    5-4-2     7
3    5-4-3     4
4    5-4       2
5    5         0
6    5-6       3
7    5-6-7     6
8    5-6-8     8
9    5-4-3-9   7
```

g. For Node 6:

```
Routing Table for Node No. 6 at Time 40
Dest Path      Cost
0    6-0       2
1    6-7-1     3
2    6-0-2     3
3    6-0-2-3   5
4    6-5-4     6
5    6-5       3
6    6         0
7    6-7       2
8    6-8       4
9    6-0-2-9   5
```

h. For Node 7:

```
Routing Table for Node No. 7 at Time 40
Dest Path      Cost
0    7-0        3
1    7-0-1      6
2    7-0-2      4
3    7-5-3      4
4    7-5-4      5
5    7-5        2
6    7-6        2
7    7          0
8    7-8        4
9    7-0-2-9    6
```

i. For Node 8:

```
Routing Table for Node No. 8 at Time 40
Dest Path      Cost
0    8-7-0      5
1    8-7-0-1    8
2    8-7-0-2    6
3    8-6-5-3    7
4    8-6-5-4    8
5    8-6-5      5
6    8-6        3
7    8-7        3
8    8          0
9    8-7-0-2-9 8
```
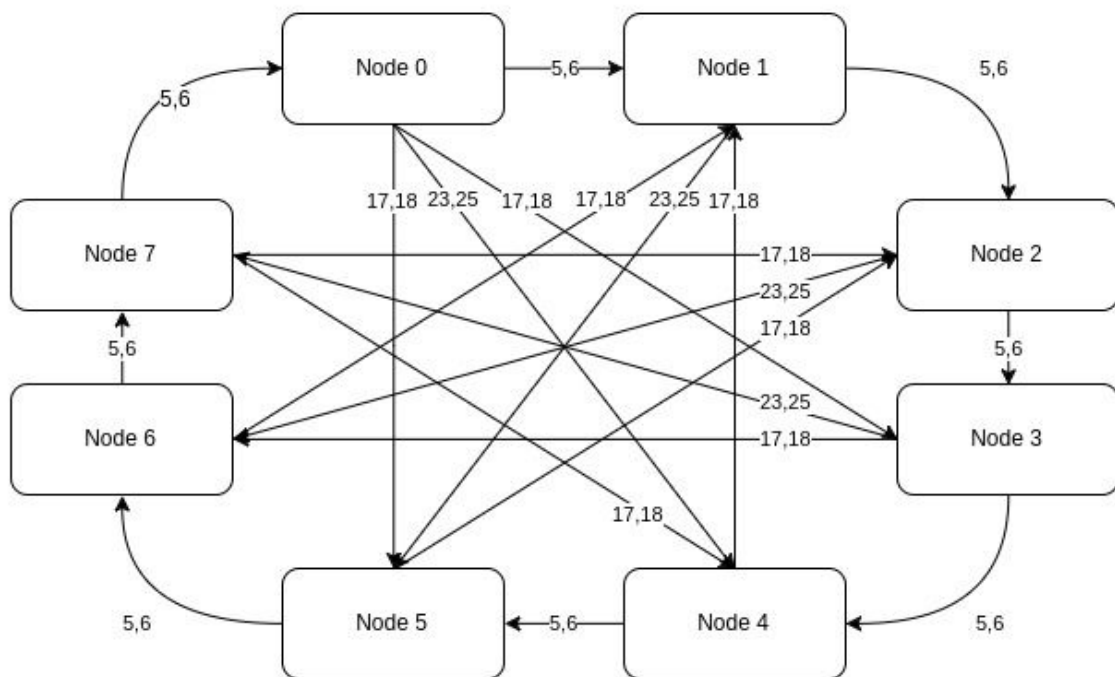
j. For Node 9:

```
Routing Table for Node No. 9 at Time 40
Dest Path      Cost
0    9-2-1-0    7
1    9-2-1      5
2    9-2        3
3    9-3        2
4    9-3-4      5
5    9-3-5      5
6    9-3-5-6    8
7    9-3-5-7    8
8    9-3-5-7-8 11
9    9          0
```

Topology-2

1. The network topology is

All Links are bidirectional
i,j on link is minC$_{ij}$, maxC$_{ij}$

2. Routing Tables:

   a. For Node 0:

```
Routing Table for Node No. 0 at Time 40
Dest Path       Cost
0    0          0
1    0-1        6
2    0-1-2      12
3    0-3        18
4    0-4        23
5    0-5        18
6    0-7-6      12
7    0-7        6
```

b. For Node 1:

```
Routing Table for Node No. 1 at Time 40
Dest Path        Cost
0    1-0         6
1    1           0
2    1-2         6
3    1-2-3       11
4    1-2-3-4     17
5    1-0-7-6-5 21
6    1-0-7-6     16
7    1-0-7       11
```

c. For Node 2:

```
Routing Table for Node No. 2 at Time 40
Dest Path        Cost
0    2-1-0       10
1    2-1         5
2    2           0
3    2-3         6
4    2-3-4       12
5    2-3-4-5     17
6    2-1-0-7-6 20
7    2-1-0-7     15
```

d. For Node 3:

```
Routing Table for Node No. 3 at Time 40
Dest Path        Cost
0    3-2-1-0     17
1    3-2-1       12
2    3-2         6
3    3           0
4    3-4         6
5    3-4-5       11
6    3-6         17
7    3-6-7       22
```

e. For Node 4:

```
Routing Table for Node No. 4 at Time 40
Dest Path        Cost
0    4-3-2-1-0 22
1    4-3-2-1     17
2    4-3-2       11
```

```
3      4-3        6
4      4          0
5      4-5        6
6      4-5-6      12
7      4-7        17
```

f. For Node 5:

```
Routing Table for Node No. 5 at Time 40
Dest Path       Cost
0    5-6-7-0    16
1    5-4-3-2-1  21
2    5-4-3-2    15
3    5-4-3      10
4    5-4        5
5    5          0
6    5-6        5
7    5-6-7      10
```

g. For Node 6:

```
Routing Table for Node No. 6 at Time 40
Dest Path       Cost
0    6-7-0      11
1    6-7-0-1    16
2    6-5-4-3-2  21
3    6-5-4-3    16
4    6-5-4      11
5    6-5        6
6    6          0
7    6-7        5
```

h. For Node 7:

```
Routing Table for Node No. 7 at Time 40
Dest Path       Cost
0    7-0        6
1    7-0-1      11
2    7-2        17
3    7-4-3      22
4    7-4        17
5    7-6-5      12
6    7-6        6
7    7          0
```