```
>> newtestcodepath
Trying source-destination pair: 1 -> 2
The path request is from source node 1 to destination node 2, with K = 3
Path # 1:
     1     3     2

Cost of path 1 is 300.00

Path # 2:
     1     2

Cost of path 2 is 400.00

Path # 3:
     1     4     3     2

Cost of path 3 is 700.00

Trying path #1:
     1     3     2

The cost of path #1 is 300.00
Random number of spectral slots needed for the chosen path: 4
Allocated 4 slots starting at slot 1 for connection 1-3
Allocated 4 slots starting at slot 1 for connection 3-2
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Connection 2-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
```

```
0  0  0  0  0  0  0
Trying source-destination pair: 1 -> 3
The path request is from source node 1 to destination node 3, with K = 3
Path # 1:
     1     3

Cost of path 1 is 100.00

Path # 2:
     1     4     3

Cost of path 2 is 500.00

Path # 3:
     1     2     3

Cost of path 3 is 600.00

Trying path #1:
     1     3

The cost of path #1 is 100.00
Random number of spectral slots needed for the chosen path: 9
Allocated 9 slots starting at slot 5 for connection 1-3
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 3-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Trying source-destination pair: 1 -> 4
The path request is from source node 1 to destination node 4, with K = 3
Path # 1:
     1     4

Cost of path 1 is 200.00

Path # 2:
     1     3     4

Cost of path 2 is 400.00

Path # 3:
     1     2     3     4

Cost of path 3 is 900.00

Trying path #1:
     1     4

The cost of path #1 is 200.00
Random number of spectral slots needed for the chosen path: 6
Allocated 6 slots starting at slot 1 for connection 1-4
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Trying source-destination pair: 1 -> 5
```

```
The path request is from source node 1 to destination node 5, with K = 3
Path # 1:
     1     4     5

Cost of path 1 is 600.00

Path # 2:
     1     3     4     5

Cost of path 2 is 800.00

Path # 3:
     1     3     2     6     5

Cost of path 3 is 1000.00

Trying path #1:
     1     4     5

The cost of path #1 is 600.00
Random number of spectral slots needed for the chosen path: 4
Allocated 4 slots starting at slot 7 for connection 1-4
Allocated 4 slots starting at slot 1 for connection 4-5
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Trying source-destination pair: 1 -> 6
```

```
The path request is from source node 1 to destination node 6, with K = 3
Path # 1:
     1     3     2     6

Cost of path 1 is 500.00

Path # 2:
     1     2     6

Cost of path 2 is 600.00

Path # 3:
     1     3     6

Cost of path 3 is 700.00

Trying path #1:
     1     3     2     6

The cost of path #1 is 500.00
Random number of spectral slots needed for the chosen path: 10
Allocated 10 slots starting at slot 14 for connection 1-3
Allocated 10 slots starting at slot 5 for connection 3-2
Allocated 10 slots starting at slot 1 for connection 2-6
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 3-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Trying source-destination pair: 2 -> 1
The path request is from source node 2 to destination node 1, with K = 3
Path # 1:
     2     3     1

Cost of path 1 is 300.00

Path # 2:
     2     1

Cost of path 2 is 400.00

Path # 3:
     2     3     4     1

Cost of path 3 is 700.00

Trying path #1:
     2     3     1

The cost of path #1 is 300.00
Random number of spectral slots needed for the chosen path: 9
Allocated 9 slots starting at slot 1 for connection 2-3
Allocated 9 slots starting at slot 1 for connection 3-1
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Trying source-destination pair: 2 -> 3
The path request is from source node 2 to destination node 3, with K = 3
Path # 1:
     2     3

Cost of path 1 is 200.00

Path # 2:
     2     1     3

Cost of path 2 is 500.00

Path # 3:
     2     6     3

Cost of path 3 is 800.00

Trying path #1:
     2     3

The cost of path #1 is 200.00
Random number of spectral slots needed for the chosen path: 6
Allocated 6 slots starting at slot 10 for connection 2-3
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-1: 0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Trying source-destination pair: 2 -> 4
```

```
The path request is from source node 2 to destination node 4, with K = 3
Path # 1:
     2     3     4

Cost of path 1 is 500.00

Path # 2:
     2     3     1     4

Cost of path 2 is 500.00

Path # 3:
     2     1     4

Cost of path 3 is 600.00

Trying path #1:
     2     3     4

The cost of path #1 is 500.00
Random number of spectral slots needed for the chosen path: 7
Allocated 7 slots starting at slot 16 for connection 2-3
Allocated 7 slots starting at slot 1 for connection 3-4
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-1: 0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Trying source-destination pair: 2 -> 5
```

```
The path request is from source node 2 to destination node 5, with K = 3
Path # 1:
     2     6     5

Cost of path 1 is 700.00

Path # 2:
     2     3     4     5

Cost of path 2 is 900.00

Path # 3:
     2     3     1     4     5

Cost of path 3 is 900.00

Trying path #1:
     2     6     5

The cost of path #1 is 700.00
Random number of spectral slots needed for the chosen path: 6
Allocated 6 slots starting at slot 11 for connection 2-6
Allocated 6 slots starting at slot 1 for connection 6-5
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-1: 0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Trying source-destination pair: 2 -> 6
```

```
The path request is from source node 2 to destination node 6, with K = 3
Path # 1:
     2     6

Cost of path 1 is 200.00

Path # 2:
     2     3     6

Cost of path 2 is 800.00

Path # 3:
     2     1     3     6

Cost of path 3 is 1100.00

Trying path #1:
     2     6

The cost of path #1 is 200.00
Random number of spectral slots needed for the chosen path: 3
Allocated 3 slots starting at slot 17 for connection 2-6
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 3 -> 1
The path request is from source node 3 to destination node 1, with K = 3
```

```
Path # 1:
     3     1

Cost of path 1 is 100.00

Path # 2:
     3     4     1

Cost of path 2 is 500.00

Path # 3:
     3     2     1

Cost of path 3 is 600.00

Trying path #1:
     3     1

The cost of path #1 is 100.00
Random number of spectral slots needed for the chosen path: 4
Allocated 4 slots starting at slot 10 for connection 3-1
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 3 -> 2
The path request is from source node 3 to destination node 2, with K = 3
Path # 1:
```

```
     3     2

Cost of path 1 is 200.00

Path # 2:
     3     1     2

Cost of path 2 is 500.00

Path # 3:
     3     6     2

Cost of path 3 is 800.00

Trying path #1:
     3     2

The cost of path #1 is 200.00
Random number of spectral slots needed for the chosen path: 5
Allocated 5 slots starting at slot 15 for connection 3-2
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Trying source-destination pair: 3 -> 4
The path request is from source node 3 to destination node 4, with K = 3
Path # 1:
     3     4
```

```
Cost of path 1 is 300.00

Path # 2:
     3     1     4

Cost of path 2 is 300.00

Path # 3:
     3     2     1     4

Cost of path 3 is 800.00

Trying path #1:
     3     4

The cost of path #1 is 300.00
Random number of spectral slots needed for the chosen path: 3
Allocated 3 slots starting at slot 8 for connection 3-4
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 3 -> 5
The path request is from source node 3 to destination node 5, with K = 3
Path # 1:
     3     4     5
```

```
Cost of path 1 is 700.00

Path # 2:
     3     1     4     5

Cost of path 2 is 700.00

Path # 3:
     3     2     6     5

Cost of path 3 is 900.00

Trying path #1:
     3     4     5

The cost of path #1 is 700.00
Random number of spectral slots needed for the chosen path: 9
Allocated 9 slots starting at slot 11 for connection 3-4
Allocated 9 slots starting at slot 5 for connection 4-5
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 3 -> 6
The path request is from source node 3 to destination node 6, with K = 3
Path # 1:
     3     2     6
```

```
Cost of path 1 is 400.00

Path # 2:
     3     6

Cost of path 2 is 600.00

Path # 3:
     3     1     2     6

Cost of path 3 is 700.00

Trying path #1:
     3     2     6

The cost of path #1 is 400.00
Random number of spectral slots needed for the chosen path: 2
Allocated 2 slots starting at slot 20 for connection 3-2
Allocated 2 slots starting at slot 20 for connection 2-6
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 4 -> 1
The path request is from source node 4 to destination node 1, with K = 3
Path # 1:
     4     1
```

```
Cost of path 1 is 200.00

Path # 2:
     4     3     1

Cost of path 2 is 400.00

Path # 3:
     4     3     2     1

Cost of path 3 is 900.00

Trying path #1:
     4     1

The cost of path #1 is 200.00
Random number of spectral slots needed for the chosen path: 3
Allocated 3 slots starting at slot 1 for connection 4-1
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
```

```
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Trying source-destination pair: 4 -> 2
The path request is from source node 4 to destination node 2, with K = 3
Path # 1:
     4     3     2

Cost of path 1 is 500.00
```

```
Path # 2:
     4     1     3     2

Cost of path 2 is 500.00

Path # 3:
     4     1     2

Cost of path 3 is 600.00

Trying path #1:
     4     3     2

The cost of path #1 is 500.00
Random number of spectral slots needed for the chosen path: 2
Allocated 2 slots starting at slot 1 for connection 4-3
Allocated 2 slots starting at slot 22 for connection 3-2
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
```

```
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 4 -> 3
The path request is from source node 4 to destination node 3, with K = 3
Path # 1:
     4     3

Cost of path 1 is 300.00
```

```
Path # 2:
     4     1     3

Cost of path 2 is 300.00

Path # 3:
     4     1     2     3

Cost of path 3 is 800.00

Trying path #1:
     4     3

The cost of path #1 is 300.00
Random number of spectral slots needed for the chosen path: 3
Allocated 3 slots starting at slot 3 for connection 4-3
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 4 -> 5
The path request is from source node 4 to destination node 5, with K = 3
Path # 1:
     4     5

Cost of path 1 is 400.00
```

```
Path # 2:
     4     3     2     6     5

Cost of path 2 is 1200.00

Path # 3:
     4     1     3     2     6     5

Cost of path 3 is 1200.00

Trying path #1:
     4     5

The cost of path #1 is 400.00
Random number of spectral slots needed for the chosen path: 5
Allocated 5 slots starting at slot 14 for connection 4-5
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Trying source-destination pair: 4 -> 6
The path request is from source node 4 to destination node 6, with K = 3
Path # 1:
     4     3     2     6

Cost of path 1 is 700.00

Path # 2:
```

```
     4     1     3     2     6

Cost of path 2 is 700.00

Path # 3:
     4     1     2     6

Cost of path 3 is 800.00

Trying path #1:
     4     3     2     6

The cost of path #1 is 700.00
Random number of spectral slots needed for the chosen path: 4
Allocated 4 slots starting at slot 6 for connection 4-3
Allocated 4 slots starting at slot 24 for connection 3-2
Allocated 4 slots starting at slot 22 for connection 2-6
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 5 -> 1
The path request is from source node 5 to destination node 1, with K = 3
Path # 1:
     5     4     1

Cost of path 1 is 600.00
```

```
Path # 2:
     5     4     3     1

Cost of path 2 is 800.00

Path # 3:
     5     6     2     3     1

Cost of path 3 is 1000.00

Trying path #1:
     5     4     1

The cost of path #1 is 600.00
Random number of spectral slots needed for the chosen path: 10
Allocated 10 slots starting at slot 1 for connection 5-4
Allocated 10 slots starting at slot 4 for connection 4-1
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 5 -> 2
The path request is from source node 5 to destination node 2, with K = 3
Path # 1:
     5     6     2

Cost of path 1 is 700.00
```

```
Path # 2:
     5     4     3     2

Cost of path 2 is 900.00

Path # 3:
     5     4     1     3     2

Cost of path 3 is 900.00

Trying path #1:
     5     6     2

The cost of path #1 is 700.00
Random number of spectral slots needed for the chosen path: 5
Allocated 5 slots starting at slot 1 for connection 5-6
Allocated 5 slots starting at slot 1 for connection 6-2
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 5 -> 3
The path request is from source node 5 to destination node 3, with K = 3
Path # 1:
     5     4     3

Cost of path 1 is 700.00
```

```
Path # 2:
     5     4     1     3

Cost of path 2 is 700.00

Path # 3:
     5     6     2     3

Cost of path 3 is 900.00

Trying path #1:
     5     4     3

The cost of path #1 is 700.00
Random number of spectral slots needed for the chosen path: 2
Allocated 2 slots starting at slot 11 for connection 5-4
Allocated 2 slots starting at slot 10 for connection 4-3
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 5 -> 4
The path request is from source node 5 to destination node 4, with K = 3
Path # 1:
     5     4

Cost of path 1 is 400.00
```

```
Path # 2:
     5     6     2     3     4

Cost of path 2 is 1200.00

Path # 3:
     5     6     2     3     1     4

Cost of path 3 is 1200.00

Trying path #1:
     5     4

The cost of path #1 is 400.00
Random number of spectral slots needed for the chosen path: 10
Allocated 10 slots starting at slot 13 for connection 5-4
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Trying source-destination pair: 5 -> 6
The path request is from source node 5 to destination node 6, with K = 3
Path # 1:
     5     6

Cost of path 1 is 500.00

Path # 2:
```

```
     5     4     3     2     6

Cost of path 2 is 1100.00

Path # 3:
     5     4     1     3     2     6

Cost of path 3 is 1100.00

Trying path #1:
     5     6

The cost of path #1 is 500.00
Random number of spectral slots needed for the chosen path: 10
Allocated 10 slots starting at slot 6 for connection 5-6
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 6 -> 1
The path request is from source node 6 to destination node 1, with K = 3
Path # 1:
     6     2     3     1

Cost of path 1 is 500.00

Path # 2:
     6     2     1
```

```
Cost of path 2 is 600.00

Path # 3:
     6     3     1

Cost of path 3 is 700.00

Trying path #1:
     6     2     3     1

The cost of path #1 is 500.00
Random number of spectral slots needed for the chosen path: 5
Allocated 5 slots starting at slot 6 for connection 6-2
Allocated 5 slots starting at slot 23 for connection 2-3
Allocated 5 slots starting at slot 14 for connection 3-1
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Trying source-destination pair: 6 -> 2
The path request is from source node 6 to destination node 2, with K = 3
Path # 1:
     6     2

Cost of path 1 is 200.00

Path # 2:
```

```
     6     3     2

Cost of path 2 is 800.00

Path # 3:
     6     3     1     2

Cost of path 3 is 1100.00

Trying path #1:
     6     2

The cost of path #1 is 200.00
Random number of spectral slots needed for the chosen path: 2
Allocated 2 slots starting at slot 11 for connection 6-2
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 6 -> 3
The path request is from source node 6 to destination node 3, with K = 3
Path # 1:
     6     2     3

Cost of path 1 is 400.00

Path # 2:
     6     3
```

```
Cost of path 2 is 600.00

Path # 3:
     6     2     1     3

Cost of path 3 is 700.00

Trying path #1:
     6     2     3

The cost of path #1 is 400.00
Random number of spectral slots needed for the chosen path: 3
Allocated 3 slots starting at slot 13 for connection 6-2
Allocated 3 slots starting at slot 28 for connection 2-3
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 6 -> 4
The path request is from source node 6 to destination node 4, with K = 3
Path # 1:
     6     2     3     4

Cost of path 1 is 700.00

Path # 2:
     6     2     3     1     4
```

```
Cost of path 2 is 700.00

Path # 3:
     6     2     1     4

Cost of path 3 is 800.00

Trying path #1:
     6     2     3     4

The cost of path #1 is 700.00
Random number of spectral slots needed for the chosen path: 5
Allocated 5 slots starting at slot 16 for connection 6-2
No sufficient contiguous slots available for connection 2-3
Path #1 blocked due to insufficient slots.
Trying path #2:
     6     2     3     1     4

The cost of path #2 is 700.00
Random number of spectral slots needed for the chosen path: 6
Allocated 6 slots starting at slot 21 for connection 6-2
No sufficient contiguous slots available for connection 2-3
Path #2 blocked due to insufficient slots.
Trying path #3:
     6     2     1     4

The cost of path #3 is 800.00
Random number of spectral slots needed for the chosen path: 3
Allocated 3 slots starting at slot 27 for connection 6-2
Allocated 3 slots starting at slot 1 for connection 2-1
Allocated 3 slots starting at slot 11 for connection 1-4
Successfully allocated spectral slots for path #3
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
```

```
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  1
```

```
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Trying source-destination pair: 6 -> 5
The path request is from source node 6 to destination node 5, with K = 3
Path # 1:
     6     5

Cost of path 1 is 500.00

Path # 2:
     6     2     3     4     5

Cost of path 2 is 1100.00

Path # 3:
     6     2     3     1     4     5

Cost of path 3 is 1100.00

Trying path #1:
     6     5

The cost of path #1 is 500.00
Random number of spectral slots needed for the chosen path: 7
Allocated 7 slots starting at slot 7 for connection 6-5
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 2-1: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
```

```
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Blocked Connections:
Path Numbers Used for Spectral Allocation:
     1     2     1
     1     3     1
     1     4     1
     1     5     1
     1     6     1
     2     1     1
     2     3     1
     2     4     1
     2     5     1
     2     6     1
     3     1     1
     3     2     1
     3     4     1
     3     5     1
     3     6     1
     4     1     1
     4     2     1
     4     3     1
     4     5     1
     4     6     1
     5     1     1
     5     2     1
     5     3     1
     5     4     1
     5     6     1
     6     1     1
     6     2     1
     6     3     1
     6     4     3
     6     5     1

>> newtestcodepath
Trying source-destination pair: 1 -> 2
The path request is from source node 1 to destination node 2, with K = 3
Path # 1:
     1     3     2

Cost of path 1 is 300.00

Path # 2:
```

```
     1     2

Cost of path 2 is 400.00

Path # 3:
     1     4     3     2

Cost of path 3 is 700.00

Trying path #1:
     1     3     2

The cost of path #1 is 300.00
Random number of spectral slots needed for the chosen path: 8
Allocated 8 slots starting at slot 1 for connection 1-3
Allocated 8 slots starting at slot 1 for connection 3-2
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Trying source-destination pair: 1 -> 3
The path request is from source node 1 to destination node 3, with K = 3
Path # 1:
     1     3

Cost of path 1 is 100.00

Path # 2:
```

```
     1     4     3

Cost of path 2 is 500.00

Path # 3:
     1     2     3

Cost of path 3 is 600.00

Trying path #1:
     1     3

The cost of path #1 is 100.00
Random number of spectral slots needed for the chosen path: 3
Allocated 3 slots starting at slot 9 for connection 1-3
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 1 -> 4
The path request is from source node 1 to destination node 4, with K = 3
Path # 1:
     1     4

Cost of path 1 is 200.00

Path # 2:
     1     3     4
```

```
Cost of path 2 is 400.00

Path # 3:
     1     2     3     4

Cost of path 3 is 900.00

Trying path #1:
     1     4

The cost of path #1 is 200.00
Random number of spectral slots needed for the chosen path: 2
Allocated 2 slots starting at slot 1 for connection 1-4
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
```

```
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 1 -> 5
The path request is from source node 1 to destination node 5, with K = 3
Path # 1:
     1     4     5

Cost of path 1 is 600.00

Path # 2:
     1     3     4     5
```

```
Cost of path 2 is 800.00

Path # 3:
     1     3     2     6     5

Cost of path 3 is 1000.00

Trying path #1:
     1     4     5

The cost of path #1 is 600.00
Random number of spectral slots needed for the chosen path: 3
Allocated 3 slots starting at slot 3 for connection 1-4
Allocated 3 slots starting at slot 1 for connection 4-5
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
```

```
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 1 -> 6
The path request is from source node 1 to destination node 6, with K = 3
Path # 1:
     1     3     2     6

Cost of path 1 is 500.00

Path # 2:
     1     2     6
```

```
Cost of path 2 is 600.00

Path # 3:
     1     3     6

Cost of path 3 is 700.00

Trying path #1:
     1     3     2     6

The cost of path #1 is 500.00
Random number of spectral slots needed for the chosen path: 4
Allocated 4 slots starting at slot 12 for connection 1-3
Allocated 4 slots starting at slot 9 for connection 3-2
Allocated 4 slots starting at slot 1 for connection 2-6
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 2 -> 1
The path request is from source node 2 to destination node 1, with K = 3
Path # 1:
     2     3     1

Cost of path 1 is 300.00

Path # 2:
     2     1
```

```
Cost of path 2 is 400.00

Path # 3:
     2     3     4     1

Cost of path 3 is 700.00

Trying path #1:
     2     3     1

The cost of path #1 is 300.00
Random number of spectral slots needed for the chosen path: 5
Allocated 5 slots starting at slot 1 for connection 2-3
Allocated 5 slots starting at slot 1 for connection 3-1
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 2 -> 3
The path request is from source node 2 to destination node 3, with K = 3
Path # 1:
     2     3

Cost of path 1 is 200.00

Path # 2:
     2     1     3
```

```
Cost of path 2 is 500.00

Path # 3:
     2     6     3

Cost of path 3 is 800.00

Trying path #1:
     2     3

The cost of path #1 is 200.00
Random number of spectral slots needed for the chosen path: 6
Allocated 6 slots starting at slot 6 for connection 2-3
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
```

```
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Trying source-destination pair: 2 -> 4
The path request is from source node 2 to destination node 4, with K = 3
Path # 1:
     2     3     4

Cost of path 1 is 500.00

Path # 2:
     2     3     1     4
```

```
Cost of path 2 is 500.00

Path # 3:
     2     1     4

Cost of path 3 is 600.00

Trying path #1:
     2     3     4

The cost of path #1 is 500.00
Random number of spectral slots needed for the chosen path: 1
Allocated 1 slots starting at slot 12 for connection 2-3
Allocated 1 slots starting at slot 1 for connection 3-4
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
```

```
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 2 -> 5
The path request is from source node 2 to destination node 5, with K = 3
Path # 1:
     2     6     5

Cost of path 1 is 700.00

Path # 2:
     2     3     4     5
```

```
Cost of path 2 is 900.00

Path # 3:
     2     3     1     4     5

Cost of path 3 is 900.00

Trying path #1:
     2     6     5

The cost of path #1 is 700.00
Random number of spectral slots needed for the chosen path: 3
Allocated 3 slots starting at slot 5 for connection 2-6
Allocated 3 slots starting at slot 1 for connection 6-5
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
```

```
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 2 -> 6
The path request is from source node 2 to destination node 6, with K = 3
Path # 1:
     2     6

Cost of path 1 is 200.00

Path # 2:
     2     3     6
```

```
Cost of path 2 is 800.00

Path # 3:
     2     1     3     6

Cost of path 3 is 1100.00

Trying path #1:
     2     6

The cost of path #1 is 200.00
Random number of spectral slots needed for the chosen path: 9
Allocated 9 slots starting at slot 8 for connection 2-6
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 4-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Trying source-destination pair: 3 -> 1
The path request is from source node 3 to destination node 1, with K = 3
Path # 1:
     3     1

Cost of path 1 is 100.00

Path # 2:
     3     4     1

Cost of path 2 is 500.00
```

```
Path # 3:
     3     2     1

Cost of path 3 is 600.00

Trying path #1:
     3     1

The cost of path #1 is 100.00
Random number of spectral slots needed for the chosen path: 1
Allocated 1 slots starting at slot 6 for connection 3-1
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 3 -> 2
The path request is from source node 3 to destination node 2, with K = 3
Path # 1:
     3     2

Cost of path 1 is 200.00

Path # 2:
     3     1     2

Cost of path 2 is 500.00
```

```
Path # 3:
     3     6     2

Cost of path 3 is 800.00

Trying path #1:
     3     2

The cost of path #1 is 200.00
Random number of spectral slots needed for the chosen path: 10
Allocated 10 slots starting at slot 13 for connection 3-2
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 3 -> 4
The path request is from source node 3 to destination node 4, with K = 3
Path # 1:
     3     4

Cost of path 1 is 300.00

Path # 2:
     3     1     4

Cost of path 2 is 300.00

Path # 3:
```

```
     3     2     1     4

Cost of path 3 is 800.00

Trying path #1:
     3     4

The cost of path #1 is 300.00
Random number of spectral slots needed for the chosen path: 8
Allocated 8 slots starting at slot 2 for connection 3-4
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 3 -> 5
The path request is from source node 3 to destination node 5, with K = 3
Path # 1:
     3     4     5

Cost of path 1 is 700.00

Path # 2:
     3     1     4     5

Cost of path 2 is 700.00

Path # 3:
     3     2     6     5
```

```
Cost of path 3 is 900.00

Trying path #1:
     3     4     5

The cost of path #1 is 700.00
Random number of spectral slots needed for the chosen path: 5
Allocated 5 slots starting at slot 10 for connection 3-4
Allocated 5 slots starting at slot 4 for connection 4-5
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Trying source-destination pair: 3 -> 6
The path request is from source node 3 to destination node 6, with K = 3
Path # 1:
     3     2     6

Cost of path 1 is 400.00

Path # 2:
     3     6

Cost of path 2 is 600.00

Path # 3:
     3     1     2     6
```

```
Cost of path 3 is 700.00

Trying path #1:
     3     2     6

The cost of path #1 is 400.00
Random number of spectral slots needed for the chosen path: 6
Allocated 6 slots starting at slot 23 for connection 3-2
Allocated 6 slots starting at slot 17 for connection 2-6
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 4 -> 1
The path request is from source node 4 to destination node 1, with K = 3
Path # 1:
     4     1

Cost of path 1 is 200.00

Path # 2:
     4     3     1

Cost of path 2 is 400.00

Path # 3:
     4     3     2     1
```

```
Cost of path 3 is 900.00

Trying path #1:
     4     1

The cost of path #1 is 200.00
Random number of spectral slots needed for the chosen path: 3
Allocated 3 slots starting at slot 1 for connection 4-1
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 4 -> 2
The path request is from source node 4 to destination node 2, with K = 3
Path # 1:
     4     3     2

Cost of path 1 is 500.00

Path # 2:
     4     1     3     2

Cost of path 2 is 500.00

Path # 3:
     4     1     2
```

```
Cost of path 3 is 600.00

Trying path #1:
     4     3     2

The cost of path #1 is 500.00
Random number of spectral slots needed for the chosen path: 5
Allocated 5 slots starting at slot 1 for connection 4-3
No sufficient contiguous slots available for connection 3-2
Path #1 blocked due to insufficient slots.
Trying path #2:
     4     1     3     2

The cost of path #2 is 500.00
Random number of spectral slots needed for the chosen path: 10
Allocated 10 slots starting at slot 4 for connection 4-1
Allocated 10 slots starting at slot 16 for connection 1-3
No sufficient contiguous slots available for connection 3-2
Path #2 blocked due to insufficient slots.
Trying path #3:
     4     1     2

The cost of path #3 is 600.00
Random number of spectral slots needed for the chosen path: 6
Allocated 6 slots starting at slot 14 for connection 4-1
Allocated 6 slots starting at slot 1 for connection 1-2
Successfully allocated spectral slots for path #3
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
```

```
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 4 -> 3
The path request is from source node 4 to destination node 3, with K = 3
Path # 1:
     4     3

Cost of path 1 is 300.00

Path # 2:
     4     1     3

Cost of path 2 is 300.00

Path # 3:
     4     1     2     3

Cost of path 3 is 800.00

Trying path #1:
     4     3

The cost of path #1 is 300.00
Random number of spectral slots needed for the chosen path: 6
Allocated 6 slots starting at slot 6 for connection 4-3
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
```

```
0  0  0  0  0  0  0
Trying source-destination pair: 4 -> 5
The path request is from source node 4 to destination node 5, with K = 3
Path # 1:
     4     5

Cost of path 1 is 400.00

Path # 2:
     4     3     2     6     5

Cost of path 2 is 1200.00

Path # 3:
     4     1     3     2     6     5

Cost of path 3 is 1200.00

Trying path #1:
     4     5

The cost of path #1 is 400.00
Random number of spectral slots needed for the chosen path: 3
Allocated 3 slots starting at slot 9 for connection 4-5
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
```

```
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Trying source-destination pair: 4 -> 6
The path request is from source node 4 to destination node 6, with K = 3
Path # 1:
     4     3     2     6

Cost of path 1 is 700.00

Path # 2:
     4     1     3     2     6

Cost of path 2 is 700.00

Path # 3:
     4     1     2     6

Cost of path 3 is 800.00

Trying path #1:
     4     3     2     6

The cost of path #1 is 700.00
Random number of spectral slots needed for the chosen path: 5
Allocated 5 slots starting at slot 12 for connection 4-3
No sufficient contiguous slots available for connection 3-2
Path #1 blocked due to insufficient slots.
Trying path #2:
     4     1     3     2     6

The cost of path #2 is 700.00
Random number of spectral slots needed for the chosen path: 7
Allocated 7 slots starting at slot 20 for connection 4-1
No sufficient contiguous slots available for connection 1-3
Path #2 blocked due to insufficient slots.
Trying path #3:
     4     1     2     6

The cost of path #3 is 800.00
Random number of spectral slots needed for the chosen path: 7
No sufficient contiguous slots available for connection 4-1
Path #3 blocked due to insufficient slots.
Connection is blocked. No sufficient slots available in any of the paths for nodes 4- ↙
6.
Trying source-destination pair: 5 -> 1
The path request is from source node 5 to destination node 1, with K = 3
Path # 1:
     5     4     1

Cost of path 1 is 600.00
```

```
Path # 2:
     5     4     3     1

Cost of path 2 is 800.00

Path # 3:
     5     6     2     3     1

Cost of path 3 is 1000.00

Trying path #1:
     5     4     1

The cost of path #1 is 600.00
Random number of spectral slots needed for the chosen path: 4
Allocated 4 slots starting at slot 1 for connection 5-4
Allocated 4 slots starting at slot 27 for connection 4-1
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 5 -> 2
The path request is from source node 5 to destination node 2, with K = 3
Path # 1:
     5     6     2

Cost of path 1 is 700.00
```

```
Path # 2:
     5     4     3     2

Cost of path 2 is 900.00

Path # 3:
     5     4     1     3     2

Cost of path 3 is 900.00

Trying path #1:
     5     6     2

The cost of path #1 is 700.00
Random number of spectral slots needed for the chosen path: 4
Allocated 4 slots starting at slot 1 for connection 5-6
Allocated 4 slots starting at slot 1 for connection 6-2
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 5 -> 3
The path request is from source node 5 to destination node 3, with K = 3
Path # 1:
     5     4     3

Cost of path 1 is 700.00
```

```
Path # 2:
     5     4     1     3

Cost of path 2 is 700.00

Path # 3:
     5     6     2     3

Cost of path 3 is 900.00

Trying path #1:
     5     4     3

The cost of path #1 is 700.00
Random number of spectral slots needed for the chosen path: 10
Allocated 10 slots starting at slot 5 for connection 5-4
Allocated 10 slots starting at slot 17 for connection 4-3
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
```

```
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0↙
0  0  0  0  0  0  0
Trying source-destination pair: 5 -> 4
The path request is from source node 5 to destination node 4, with K = 3
Path # 1:
     5     4

Cost of path 1 is 400.00
```

```
Path # 2:
     5     6     2     3     4

Cost of path 2 is 1200.00

Path # 3:
     5     6     2     3     1     4

Cost of path 3 is 1200.00

Trying path #1:
     5     4

The cost of path #1 is 400.00
Random number of spectral slots needed for the chosen path: 1
Allocated 1 slots starting at slot 15 for connection 5-4
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Trying source-destination pair: 5 -> 6
The path request is from source node 5 to destination node 6, with K = 3
Path # 1:
     5     6

Cost of path 1 is 500.00

Path # 2:
```

```
     5     4     3     2     6

Cost of path 2 is 1100.00

Path # 3:
     5     4     1     3     2     6

Cost of path 3 is 1100.00

Trying path #1:
     5     6

The cost of path #1 is 500.00
Random number of spectral slots needed for the chosen path: 9
Allocated 9 slots starting at slot 5 for connection 5-6
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 6 -> 1
The path request is from source node 6 to destination node 1, with K = 3
Path # 1:
     6     2     3     1

Cost of path 1 is 500.00

Path # 2:
     6     2     1
```

```
Cost of path 2 is 600.00

Path # 3:
     6     3     1

Cost of path 3 is 700.00

Trying path #1:
     6     2     3     1

The cost of path #1 is 500.00
Random number of spectral slots needed for the chosen path: 10
Allocated 10 slots starting at slot 5 for connection 6-2
Allocated 10 slots starting at slot 13 for connection 2-3
Allocated 10 slots starting at slot 7 for connection 3-1
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Trying source-destination pair: 6 -> 2
The path request is from source node 6 to destination node 2, with K = 3
Path # 1:
     6     2

Cost of path 1 is 200.00

Path # 2:
```

```
     6     3     2

Cost of path 2 is 800.00

Path # 3:
     6     3     1     2

Cost of path 3 is 1100.00

Trying path #1:
     6     2

The cost of path #1 is 200.00
Random number of spectral slots needed for the chosen path: 8
Allocated 8 slots starting at slot 15 for connection 6-2
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 6 -> 3
The path request is from source node 6 to destination node 3, with K = 3
Path # 1:
     6     2     3

Cost of path 1 is 400.00

Path # 2:
     6     3
```

```
Cost of path 2 is 600.00

Path # 3:
     6     2     1     3

Cost of path 3 is 700.00

Trying path #1:
     6     2     3

The cost of path #1 is 400.00
Random number of spectral slots needed for the chosen path: 1
Allocated 1 slots starting at slot 23 for connection 6-2
Allocated 1 slots starting at slot 23 for connection 2-3
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
1  1  1  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Trying source-destination pair: 6 -> 4
The path request is from source node 6 to destination node 4, with K = 3
Path # 1:
     6     2     3     4

Cost of path 1 is 700.00

Path # 2:
     6     2     3     1     4
```

```
Cost of path 2 is 700.00

Path # 3:
     6     2     1     4

Cost of path 3 is 800.00

Trying path #1:
     6     2     3     4

The cost of path #1 is 700.00
Random number of spectral slots needed for the chosen path: 3
Allocated 3 slots starting at slot 24 for connection 6-2
Allocated 3 slots starting at slot 24 for connection 2-3
Allocated 3 slots starting at slot 15 for connection 3-4
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1 ↙
```

```
1  1  1  1  1  1  1
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
0  0  0  0  0  0  0
Trying source-destination pair: 6 -> 5
The path request is from source node 6 to destination node 5, with K = 3
Path # 1:
     6     5

Cost of path 1 is 500.00

Path # 2:
```

```
     6     2     3     4     5

Cost of path 2 is 1100.00

Path # 3:
     6     2     3     1     4     5

Cost of path 3 is 1100.00

Trying path #1:
     6     5

The cost of path #1 is 500.00
Random number of spectral slots needed for the chosen path: 4
Allocated 4 slots starting at slot 4 for connection 6-5
Successfully allocated spectral slots for path #1
Updated spectral slot allocation:
Connection 1-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-2: 0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  1  1  1  1  1
Connection 1-4: 0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 1-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 1-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-1: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 2-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  1  1  1  1
Connection 2-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 2-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1 ↙
1  1  1  1  1  1  1
Connection 3-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 3-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  1  1
Connection 3-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
```

```
Connection 3-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 3-6: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  1  1  1  1
Connection 4-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 4-5: 0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 4-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-3: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 5-5: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 5-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-1: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-2: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  1  1  1  1
Connection 6-3: 1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-4: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Connection 6-5: 0  0  0  0  0  0  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1 ↙
1  1  1  1  1  1  1
Connection 6-6: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0 ↙
0  0  0  0  0  0  0
Blocked Connections:
     4     6

Path Numbers Used for Spectral Allocation:
     1     2     1
     1     3     1
     1     4     1
     1     5     1
     1     6     1
```

```
     2     1     1
     2     3     1
     2     4     1
     2     5     1
     2     6     1
     3     1     1
     3     2     1
     3     4     1
     3     5     1
     3     6     1
     4     1     1
     4     2     3
     4     3     1
     4     5     1
     5     1     1
     5     2     1
     5     3     1
     5     4     1
     5     6     1
     6     1     1
     6     2     1
     6     3     1
     6     4     1
     6     5     1

>>
```