```
>> 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:
Cost of path 2 is 400.00
Path # 3:
    1
       4
Cost of path 3 is 700.00
Trying path #1:
     3
    1
             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:
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
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
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
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
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
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
Connection 2-2: 0 0 0 0 0 0 0 0
                                  0
                                    0 0 0 0 0
                                                   0
                                                      0
                                                        0
                                                          0 0
                                                                  0 k
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
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
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
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:
        4
Cost of path 2 is 500.00
Path # 3:
   1
       2
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:
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
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 ٢
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
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
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
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
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
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
Connection 2-4: 0 0 0 0
                       0
                         0
                           0
                              0
                                0
                                   0
                                     0
                                       0
                                         0
                                            0
                                              0
                                                0
                                                   0
                                                     0
                                                       0
                                                              0 K
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
```

```
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
Cost of path 2 is 400.00
Path # 3:
       2
            3
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
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
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
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
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
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
Connection 2-2: 0 0 0 0 0 0 0
                              0
                                0
                                  0
                                    0 0
                                         0
                                            0
                                              0
                                                0
                                                   0
                                                     0
                                                       0
                                                         0
                                                              0 6
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 K
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 K
                                              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
                                                              () K
0 0 0 0 0 0
1 1 1 1 1 1 1
```

```
The path request is from source node 1 to destination node 5, with K = 3
Path # 1:
   1
       4
Cost of path 1 is 600.00
Path # 2:
   1
        3
Cost of path 2 is 800.00
Path # 3:
   1
       3
           2
                 6
Cost of path 3 is 1000.00
Trying path #1:
   1 4
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
1 1 1 1 1 1 1
Connection 1-3: 0 0 0 0
                              0
                                0
                                  0
                                    0 0
                                        1
                                           1 1
                                               1 1
                                                    1 1 1 1
                      0
                         0
                           0
1 1 1 1 1 1 1
Connection 1-4: 0 0 0 0 0
                         0
                             0
                                0
                                  1
                                    1 1 1
                                           1
                           0
                                             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
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
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
Connection 2-2: 0 0 0 0 0 0 0 0
                                0
                                  0
                                    0 0 0
                                           0
                                             0
                                               0
                                                  0
                                                    0
                                                      0 0
                                                             0 6
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 2
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 r
                                                      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
1 1 1 1 1 1 1
```

```
The path request is from source node 1 to destination node 6, with K = 3
Path # 1:
        3
   1
           2
Cost of path 1 is 500.00
Path # 2:
   1
Cost of path 2 is 600.00
Path # 3:
   1
       3
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:
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
Connection 1-3: 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
                                  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
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
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
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
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
Connection 2-4: 0 0 0 0
                       0 0
                           0
                              0
                                0
                                  0
                                     0
                                      0
                                         0
                                           0
                                              0
                                                0
                                                  0
                                                     0
                                                       0
                                                              0 K
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
```

```
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
Cost of path 1 is 300.00
Path # 2:
   2
       1
Cost of path 2 is 400.00
Path # 3:
        3
            4
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:
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
Connection 1-3: 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
                                   1
                                        1 1
                                 0
                                     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
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
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
                                     0 0
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
Connection 2-3: 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
Connection 2-4: 0 0 0 0
                       0
                          0
                            0
                              0
                                 0
                                   0
                                      0
                                        0
                                          0
                                             0
                                               0
                                                 0
                                                    0
                                                      0
                                                        0
                                                               0 K
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
```

```
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
Cost of path 2 is 500.00
Path # 3:
        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
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
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
Connection 1-4: 0 0 0 0 0
                            0
                              0
                                 0
                                   0
                                      1
                                        1
                                          1 1
                                                1
                         0
                                                  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
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
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
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 6
0 0 0 0 0 0
Connection 2-3: 0 0 0 0 0
                        0 0
                              0
                                0
                                      0
                                           0
                                                0
                                   0
                                        0
                                             0
                                                  1
                                                     1
                                                       1
                                                          1
                                                            1
                                                                    1 K
1 1 1 1 1 1 1
Connection 2-4: 0 0 0 0 0
                                0
                                     0
                                          0
                                                     0
                                                       0
                                                                    0 4
                        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
1 1 1 1 1 1 1
```

1 1 1 1 1 1 1

```
The path request is from source node 2 to destination node 4, with K = 3
Path # 1:
   2
       3
Cost of path 1 is 500.00
Path # 2:
       3 1
   2
Cost of path 2 is 500.00
Path # 3:
   2
     1
Cost of path 3 is 600.00
Trying path #1:
   2 3
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
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
Connection 1-4: 0 0 0 0 0 0
                         0
                              0
                                0
                                  1
                                    1 1 1
                                           1
                           0
                                             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
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
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
Connection 2-2: 0 0 0 0 0 0
                           0
                             0
                                0
                                   0
                                    0 0
                                         0
                                           0
                                                  0
                                              0
                                                0
                                                     0
                                                       0
                                                         0
                                                              0 6
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
                                                              1 K
1 1 1 1 1 1 1
Connection 2-4: 0 0 0 0 0 0 0 0
                                  0
                                    0 0 0 0
                                                              0 K
                                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
```

```
The path request is from source node 2 to destination node 5, with K = 3
Path # 1:
   2
       6
Cost of path 1 is 700.00
Path # 2:
   2
        3
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
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
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
Connection 1-4: 0 0 0 0
                          0
                               0
                                 0
                                    1
                                     1
                                        1 1
                                             1
                       0
                            0
                                               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
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
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
Connection 2-2: 0 0 0 0 0
                       0 0
                            0
                               0
                                 0
                                    0
                                      0
                                        0
                                          0
                                             0
                                                    0
                                               0
                                                  0
                                                       0
                                                         0
                                                                0 6
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
                                                                1 2
1 1 1 1 1 1 1
Connection 2-4: 0 0 0 0 0 0 0
                              0
                                   0
                                      0 0 0 0
                                                                0 K
                                 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
1 1 1 1 1 1 1
```

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

Trying source-destination pair: 3 -> 1

The path request is from source node 3 to destination node 1, with K = 3

```
Path # 1:
        1
   3
Cost of path 1 is 100.00
Path # 2:
   3
        4
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:
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
Connection 1-3: 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
                                    1
                                        1
                                          1
                                             1
                        0
                          0
                            0
                                      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
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
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
Connection 2-2: 0 0 0
                     0
                        0
                          0
                            0
                               0
                                 0
                                    0
                                      0
                                        0
                                           0
                                             0
                                               0
                                                  0
                                                    0
                                                       0
                                                         0
                                                                0 6
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
1 1 1 1 1 1 1
Connection 2-4: 0 0 0 0 0
                          0
                            0
                               0
                                 0
                                    0
                                      0
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                                          0
                                             0
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                                                                0 k
                       0
0 0 0 0 0 0
Connection 2-5: 0 0 0 0 0
                            0
                              0
                                   0
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                                                    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
```

Path # 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 ٢
1 1 1 1 1 1 1
                                                   0
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
Connection 3-4: 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
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
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
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
Connection 4-2: 0 0 0 0 0 0
                            0
                              0
                                 0
                                   0
                                     0
                                       0
                                          0
                                            0
                                               0
                                                 0
                                                    0
                                                      0
                                                        0
                                                           0
                                                               0 6
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
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
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
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                                                        0 0
                                                               () K
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
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
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
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
Connection 5-5: 0 0 0 0 0 0
                           0
                              0
                                0
                                   0
                                     0
                                       0
                                          0
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0 0 0 0 0 0
Connection 5-6: 1 1 1 1 1 1 1 1
                              1
                                1
                                   1
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                                            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
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                                          0
                                            0
                                              0
                                                 0
                                                      0
0 0 0 0 0 0
Connection 6-2: 1 1 1 1 1 1
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                              1
                                 1
                                   1
                                     1
                                        1
                                          1
                                             1
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                                                 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
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
Connection 6-5: 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
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
```

0 0 0 0 1 1 1 1 **1 L**

Connection 3-2: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

1 1 1 1 1 1 1

```
Cost of path 1 is 300.00
Path # 2:
   3
       1
Cost of path 2 is 300.00
Path # 3:
        2
   3
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:
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
Connection 1-3: 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
                                    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
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
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
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
Connection 2-3: 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
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                        0
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                                                  0
                                                     0
                                                       0
                                                                 0 6
0 0 0 0 0 0
Connection 2-5: 0 0 0 0 0
                          0
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                                    0
                                      0
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                                          0
                                             0
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                                                                0 🗷
                        0
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                                                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
                                                        1 1 1 1 1 4
1 1 1 1 1 1 1
Connection 3-1: 0 0 0 0 0 0
                            0
                               0
                                 0
                                    0
                                      0
                                        0
                                          1
                                             1
                                               1 1
                                                      1 1 1 1 1 1 2
1 1 1 1 1 1 1
```

1 1 1 1 1 1 1

```
Cost of path 1 is 700.00
Path # 2:
       1 4
    3
Cost of path 2 is 700.00
Path # 3:
    3
       2
             6
Cost of path 3 is 900.00
Trying path #1:
    3
       4
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:
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
Connection 1-3: 0 0 0 0
                                      0 0
                                                     0
                        0
                          0
                             0
                               0
                                 0
                                    0
                                           0
                                             0
                                                0
                                                  0
1 1 1 1 1 1
Connection 1-4: 0 0 0 0
                        0
                          0
                             0
                               0
                                 0
                                    1
                                      1 1 1
                                             1 1
                                                  1
                                                       1
1 1 1 1 1 1 1
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
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
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
Connection 2-2: 0 0 0 0
                       0
                          0
                            0
                               0
                                 0
                                    0
                                      0
                                        0
                                           0
                                             0
                                                0
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                                                     0
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                                                         0
                                                            0
0 0 0 0 0 0
Connection 2-3: 0 0 0 0
                        0
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                                    0
                                      0
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                                                     0
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1 1 1 1 1 1 1
Connection 2-4: 0 0 0 0 0
                          0
                            0
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                                  0
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                                        0
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                                                       0
                       0
                                                                 0 6
0 0 0 0 0 0
Connection 2-5: 0 0 0 0 0
                       0 0
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                                      0
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                                                                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
                                                        1 1 1 1 1 4
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 2
1 1 1 1 1 1 1
```

1 1 1 1 1 1 1

```
Cost of path 1 is 400.00
Path # 2:
    3
         6
Cost of path 2 is 600.00
Path # 3:
    3 1
             2
Cost of path 3 is 700.00
Trying path #1:
    3
        2
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:
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
Connection 1-3: 0 0 0 0
                                                        0
                         0
                            0
                              0
                                 0
                                    0
                                      0
                                         0
                                           0
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                                                0
                                                   0
                                                      0
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
Connection 1-5: 0 0 0
                       0
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                            0
                               0
                                 0
                                    0
                                      0
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                                           0
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                                                   0
0 0 0 0 0 0
Connection 1-6: 0 0 0 0 0
                            0
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                                              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
Connection 2-2: 0 0 0 0 0
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0 0 0 0 0 0
Connection 2-3: 0 0 0 0
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1 1 1 1 1 1 1
Connection 2-4: 0 0 0 0 0
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0 0 0 0 0 0
Connection 2-5: 0 0 0 0 0
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                         0
0 0 0 0 0 0
Connection 2-6: 0 0 0 0 0
                         0 0 0
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                                                  0 0
                                                       0 0
                                                            0 0
                                   0
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
Connection 3-2: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 \( \nu \)
```

Connection 3-3: 0 0 0 0 0 0

```
Cost of path 1 is 200.00
Path # 2:
         3 1
    4
Cost of path 2 is 400.00
Path # 3:
    4
       3
             2
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:
0 0 0 0 0 0
Connection 1-2: 1 1 1 1 1 1
                           1 1
                                 1
                                    1
                                      1
                                        1
                                           1 1
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1 1 1 1 1 1 1
Connection 1-3: 0 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 1-4: 0 0 0 0
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1 1 1 1 1 1 1
Connection 1-5: 0 0 0 0
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0 0 0 0 0 0
Connection 1-6: 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 2-1: 1 1 1 1
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1 1 1 1 1 1 1
Connection 2-2: 0 0 0 0 0
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Connection 2-3: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 2-4: 0 0 0 0 0
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Connection 2-5: 0 0 0
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Connection 2-6: 0 0 0 0 0
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Connection 3-1: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 3-2: 0 0 0
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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 \( \mathbf{L} \)
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Connection 3-5: 0 0 0 0 0 0
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Connection 3-6: 1 1
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  1 1 1 1 1 1
Connection 4-1:0
              0 0 1 1 1 1 1 1 1
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1 1 1 1 1 1
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Connection 4-2: 0 0 0 0 0
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Connection 4-3: 1 1 1 1 1 1
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Connection 4-4: 0 0
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Connection 4-5: 0 0 0 0 0
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Connection 4-6: 0 0 0
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Connection 5-1: 0 0 0 0 0
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Connection 5-2:0 0 0
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Connection 5-3:0 0
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Connection 5-4: 1 1 1 1
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Connection 5-5: 0 0 0 0
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Connection 5-6: 1 1 1 1
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1 1 1 1 1 1 1
Connection 6-1: 0 0 0 0 0
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Connection 6-2: 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 6-3: 1 1 1 1
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Connection 6-4: 0 0 0
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0 0 0 0 0 0
Connection 6-5: 0 0 0 0 0 0
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1 1 1 1 1 1 1
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
```

4 3 2

Path # 1:

Cost of path 1 is 500.00

Connection 3-3: 0 0 0 0 0 0

```
Path # 2:
    4
        1
             3
                   2
Cost of path 2 is 500.00
Path # 3:
        1
    4
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:
0 0 0 0 0 0
Connection 1-2: 1 1 1 1 1 1
                            1 1
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1 1 1 1 1 1 1
Connection 1-3: 0 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 1-4: 0 0 0 0
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1 1 1 1 1 1 1
Connection 1-5: 0 0 0 0
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0 0 0 0 0 0
Connection 1-6: 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 2-1: 1 1 1 1
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                       1 1
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1 1 1 1 1 1 1
Connection 2-2: 0 0 0 0 0
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0 0 0 0 0 0
Connection 2-3: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 2-4: 0 0 0 0 0
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0 0 0 0 0 0
Connection 2-5: 0 0 0
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0 0 0 0 0 0
Connection 2-6: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 3-1: 0 0 0
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1 1 1 1 1 1 1
Connection 3-2: 0 0 0
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0 0

0 0

0 0

0 0

0 0 0

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

Cost of path 1 is 300.00

0 0 0 0 0 0

```
Path # 2:
    4
        1
              3
Cost of path 2 is 300.00
Path # 3:
    4
        1
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:
0 0 0 0 0 0
Connection 1-2: 1 1
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1 1 1 1 1 1 1
Connection 1-3: 0 0 0 0
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1 1 1 1 1 1
Connection 1-4: 0 0 0
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1 1 1 1 1 1
Connection 1-5: 0 0
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0 0 0 0 0 0
Connection 1-6: 0 0 0 0
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Connection 2-1: 1 1 1 1
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1 1 1 1 1 1 1
Connection 2-2: 0 0 0 0
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Connection 2-3: 0 0 0 0
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Connection 2-4: 0 0
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Connection 2-5: 0 0 0
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Connection 2-6: 0 0 0 0 0
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Connection 3-1: 0 0 0
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1 1 1 1 1 1 1
Connection 3-2: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 3-3: 0 0 0 0 0 0 0 0
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Connection 3-4: 0 0 0 0 0 0 0 0
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1 1 1 1 1 1 1
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Connection 3-5: 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 3-6: 1 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 4-1: 0 0 0 1 1 1
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1 1 1 1 1 1 1
Connection 4-2: 0 0 0 0
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Connection 4-3: 0 0 0 0
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1 1 1 1 1 1 1
Connection 4-4: 0 0 0 0 0
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0 0 0 0 0 0
Connection 4-5: 0 0 0 0
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1 1 1 1 1 1 1
Connection 4-6: 0 0 0 0
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Connection 5-1: 0 0 0 0 0
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Connection 5-2: 0 0 0 0 0 0
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Connection 5-3: 0 0 0 0 0 0
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Connection 5-4: 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 5-5: 0 0 0 0 0 0 0 0
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Connection 5-6: 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 6-1: 0 0 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 6-2: 1 1 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 6-3: 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 6-4: 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 6-5: 0 0 0 0 0 1 1
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1 1 1 1 1 1 1
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

Connection 3-4: 0 0 0 0 0 0 0

```
Path # 2:
         3
              2
                        5
                   6
    4
Cost of path 2 is 1200.00
Path # 3:
        1
                   2
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:
0 0 0 0 0 0
Connection 1-2: 1 1 1 1 1 1
                                1 1
                                      1
                                          1 1
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                           1 1
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1 1 1 1 1 1 1
Connection 1-3: 0 0 0 0 0
                                      0
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1 1 1 1 1 1 1
Connection 1-4: 0 0 0 0
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1 1 1 1 1 1 1
Connection 1-5: 0 0 0 0
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0 0 0 0 0 0
Connection 1-6: 0 0 0 0 0 0
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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
Connection 2-2: 0 0 0 0
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0 0 0 0 0 0
Connection 2-3: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 2-4: 0 0 0 0 0
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0 0 0 0 0 0
Connection 2-5: 0 0 0 0 0
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0 0 0 0 0 0
Connection 2-6: 0 0 0
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1 1 1 1 1 1 1
Connection 3-1: 0 0 0 0
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1 1 1 1 1 1 1
Connection 3-2: 0 0 0 0
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1 1 1 1 1 1 1
Connection 3-3: 0 0 0
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0 0 0 0 0 0
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0 0

0 0

0 0

0 0 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
Connection 3-6: 1 1 1 1 1 1 1 1
                                    1
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  1 1 1 1 1
Connection 4-1: 0
                0
                   0 1
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  1 1 1 1 1
Connection 4-2:0
                0 0 0 0
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Connection 4-3:00000
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1 1 1 1 1 1
Connection 4-4: 0
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Connection 4-5: 0 0
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Connection 4-6: 0
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Connection 5-1: 0 0 0
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Connection 5-2:0
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Connection 5-3:0 0 0
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0 0 0 0 0
Connection 5-4: 1 1 1 1
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1 1 1 1 1 1
Connection 5-5: 0 0 0 0
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0 0 0 0 0
Connection 5-6: 1 1 1 1
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1 1 1 1 1 1
Connection 6-1: 0 0 0
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Connection 6-2: 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 6-3: 1 1 1 1
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Connection 6-4:0 0 0
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Connection 6-5: 0 0 0 0
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1 1 1 1 1 1 1
Connection 6-6: 0 0 0 0 0 0 0
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                                                                           0 K
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
```

Cost of path 1 is 700.00

Path # 2:

0 0 0 0 0 0

```
1
               3
                    2
                          6
Cost of path 2 is 700.00
Path # 3:
        1
              2
    4
Cost of path 3 is 800.00
Trying path #1:
        3
               2
    4
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
Connection 1-2: 1 1
                   1 1
                        1
                           1
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1 1 1 1 1 1 1
Connection 1-3: 0 0 0 0
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1 1 1 1 1 1 1
Connection 1-4: 0 0 0
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1 1 1 1 1 1
Connection 1-5:0 0
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0 0 0 0 0 0
Connection 1-6: 0 0 0 0
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Connection 2-1: 1 1 1 1
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1 1 1 1 1 1 1
Connection 2-2: 0 0 0 0
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Connection 2-3:00000
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1 1 1 1 1 1 1
Connection 2-4: 0 0 0
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Connection 2-5: 0 0 0 0 0
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Connection 2-6: 0 0 0 0 0
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0 0 1 1 1 1 1
Connection 3-1: 0 0 0
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1 1 1 1 1 1 1
Connection 3-2: 0 0 0 0
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0 0 0 0 1 1 1
Connection 3-3: 0 0 0 0 0 0 0 0
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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 \( \mu \)
1 1 1 1 1 1 1
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Connection 3-5: 0 0 0 0 0 0
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0 0 0 0 0 0
1 1 1 1
1 1 1 1 1 1 1
Connection 4-1: 0 0 0 1 1 1
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1 1 1 1 1 1 1
Connection 4-2: 0 0 0 0
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Connection 4-3: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 4-4: 0 0 0 0
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Connection 4-5: 0 0 0 0
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1 1 1 1 1 1 1
Connection 4-6: 0 0 0 0
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Connection 5-1: 0 0 0 0 0
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Connection 5-2: 0 0 0 0 0 0
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                                                              () k
0 0 0 0 0 0
Connection 5-3: 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 5-4: 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 5-5: 0 0 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 5-6: 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 6-1: 0 0 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 6-2: 1 1 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 6-3: 1 1 1 1 1 1 1 1
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Connection 6-4: 0 0 0 0 0 0 0
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Connection 6-5: 0 0 0 0 0 1 1
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1 1 1 1 1 1 1
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

0 0 0 0 0 0

```
Path # 2:
    5
              3
         4
                    1
Cost of path 2 is 800.00
Path # 3:
    5
                    3
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:
0 0 0 0 0 0
Connection 1-2: 1 1 1 1
                       1
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1 1 1 1 1 1 1
Connection 1-3: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 1-4: 0 0 0 0
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Connection 1-5: 0 0 0 0 0
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Connection 1-6: 0 0 0 0
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Connection 2-1: 1 1 1 1 1 1
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Connection 2-2: 0 0 0 0
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Connection 2-3: 0 0 0 0 0
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Connection 2-4: 0 0 0
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Connection 2-5: 0 0 0 0 0
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Connection 2-6: 0 0 0 0 0
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Connection 3-1: 0 0 0 0 0
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Connection 3-2: 0 0 0 0
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0 0 0 0 1 1 1
Connection 3-3: 0 0 0 0 0 0 0 0
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Connection 3-4: 0 0 0 0 0 0 0 0
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1 1 1 1 1 1 1
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Connection 3-5: 0 0 0 0 0 0
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Connection 3-6: 1 1 1 1 1 1 1 1 1
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Connection 4-1: 0 0 0 0
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Connection 4-2: 0 0 0 0 0
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Connection 4-3: 0 0 0 0 0
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Connection 4-4: 0 0 0 0 0
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Connection 4-5: 0 0 0 0
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Connection 4-6: 0 0 0 0
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Connection 5-1: 0 0 0 0 0
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Connection 5-2: 0 0 0 0 0 0
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Connection 5-3: 0 0 0 0 0
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Connection 5-4: 0 0 0 0 0 0
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Connection 5-5: 0 0 0 0 0 0 0 0
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Connection 5-6: 1 1 1 1 1 1
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Connection 6-1: 0 0 0 0 0 0 0 0
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Connection 6-2: 1 1 1 1 1 1 1 1 1 1
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Connection 6-3: 1 1 1 1 1 1 1 1
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Connection 6-4: 0 0 0 0 0 0 0
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Connection 6-5: 0 0 0 0 0 1 1
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1 1 1 1 1 1 1
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

0 0 0 0 0 0

```
Path # 2:
    5
               3
                     2
          4
Cost of path 2 is 900.00
Path # 3:
    5
                     3
Cost of path 3 is 900.00
Trying path #1:
    5
         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 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
Connection 1-2: 1 1 1 1
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Connection 1-3: 0 0 0 0 0
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Connection 1-4: 0 0 0 0
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Connection 1-5: 0 0
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Connection 1-6: 0 0 0 0
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Connection 2-1: 1 1 1 1
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1 1 1 1 1 1 1
Connection 2-2: 0 0 0 0
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Connection 2-3: 0 0 0 0 0
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Connection 2-4: 0 0 0
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Connection 2-5: 0 0 0 0 0
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Connection 2-6: 0 0 0 0 0
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Connection 3-1: 0 0 0
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Connection 3-2: 0 0 0 0
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Connection 3-3: 0 0 0 0 0 0 0 0
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Connection 3-4: 0 0 0 0 0 0 0 0
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Connection 3-5: 0 0 0 0 0 0
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Connection 3-6: 1 1 1 1 1 1 1 1
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Connection 4-1: 0 0 0 0
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Connection 4-2: 0 0 0 0 0
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Connection 4-3: 0 0 0 0 0
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Connection 4-4: 0 0 0 0 0
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Connection 4-5: 0 0 0 0
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Connection 4-6: 0 0 0 0
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Connection 5-1: 0 0 0 0 0
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Connection 5-2: 0 0 0 0 0 0
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Connection 5-3: 0 0 0 0 0
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Connection 5-4: 0 0 0 0 0 0
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Connection 5-5: 0 0 0 0 0 0
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Connection 5-6: 0 0 0 0 1
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Connection 6-1: 0 0 0 0 0 0 0 0
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Connection 6-2: 0 0 0 0 1 1 1 1 1
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Connection 6-3: 1 1 1 1 1 1 1 1
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Connection 6-4: 0 0 0 0 0 0
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Connection 6-5: 0 0 0 0 0 1 1
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1 1 1 1 1 1 1
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

0 0 0 0 0 0

```
Path # 2:
                     3
    5
          4
               1
Cost of path 2 is 700.00
Path # 3:
    5
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
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Connection 1-2: 1 1
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Connection 1-3: 0 0 0 0 0
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Connection 1-4: 0 0 0 0
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Connection 1-5: 0 0
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Connection 1-6: 0 0 0 0
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Connection 2-1: 1 1 1 1
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Connection 2-2: 0 0 0 0
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Connection 2-3: 0 0 0 0
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Connection 2-4: 0 0 0
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Connection 2-5: 0 0 0 0 0
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Connection 3-1: 0 0 0
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Connection 3-2: 0 0 0 0
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Connection 3-3: 0 0 0 0 0 0 0 0
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Connection 3-4: 0 0 0 0 0 0 0 0
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Connection 3-5: 0 0 0 0 0
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Connection 3-6: 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 4-1: 0 0 0 0 0
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Connection 4-2: 0 0 0 0 0
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Connection 4-3: 0 0 0
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Connection 4-4: 0 0 0 0 0
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Connection 4-5: 0 0 0 0
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Connection 4-6: 0 0 0 0
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Connection 5-1: 0 0 0 0 0
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Connection 5-2: 0 0 0 0 0
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Connection 5-3: 0 0 0 0 0
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Connection 5-4: 0 0 0 0
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1 1 1 1 1 1 1
Connection 5-5: 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 5-6: 0 0 0 0 1
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1 1 1 1 1 1 1
Connection 6-1: 0 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 6-2: 0 0 0 0 1 1 1
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Connection 6-3: 1 1 1 1 1 1 1 1
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Connection 6-4: 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 6-5: 0 0 0 0 0 1 1
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1 1 1 1 1 1 1
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

Connection 3-4: 0 0 0 0 0 0

```
Path # 2:
    5
         6
              2
                   3
                        4
Cost of path 2 is 1200.00
Path # 3:
    5
                   3
                       1
Cost of path 3 is 1200.00
Trying path #1:
    5
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:
0 0 0 0 0 0
Connection 1-2: 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 1-3: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 1-4: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 1-5: 0 0 0 0
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Connection 1-6: 0 0 0 0 0 0
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Connection 2-1: 1 1 1 1 1 1 1 1
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Connection 2-2: 0 0 0 0
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Connection 2-3: 0 0 0 0 0
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Connection 2-4: 0 0 0 0 0
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Connection 2-5: 0 0 0 0 0
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Connection 2-6: 0 0 0
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Connection 3-1: 0 0 0 0
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Connection 3-2: 0 0 0 0
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Connection 3-3: 0 0 0
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0 0 1 1 1 1 1

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

1 1 1 1 1 1 1

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

Path # 2: 6 2 1

Cost of path 1 is 500.00

```
Cost of path 2 is 600.00
Path # 3:
    6
         3
Cost of path 3 is 700.00
Trying path #1:
    6
              3
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:
0 0 0 0 0 0
Connection 1-2: 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 1-3: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 1-4: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 1-5: 0 0 0 0 0
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Connection 1-6: 0 0 0 0
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0 0 0 0 0 0
Connection 2-1: 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 2-2: 0 0 0
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Connection 2-3: 0 0 0 0 0
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Connection 2-4: 0 0 0 0 0
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Connection 2-5: 0 0 0 0 0
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Connection 2-6: 0 0 0
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Connection 3-1: 0 0 0 0
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Connection 3-2: 0 0 0
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Connection 3-3: 0 0 0
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Connection 3-4: 0 0 0 0 0 0
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Connection 3-5: 0 0 0 0 0 0 0 0
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Connection 3-6: 1 1 1 1 1 1
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Connection 4-1: 0
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Connection 4-2:0
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Connection 4-4: 0
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Connection 4-5: 0
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Connection 4-6: 0
                 0
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                              0
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                                                                                0 6
  0 0 0 0 0
                 0
Connection 5-1:0
                 0 0
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                                                                                0 K
0 0 0 0 0
Connection 5-2:0
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  0 0 0 0 0
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Connection 5-3:0
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0 0 0 0 0
Connection 5-4:0
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1 1 1 1 1 1
Connection 5-5: 0 0 0
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0 0 0 0 0
Connection 5-6: 0 0
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1 1 1 1 1 1
Connection 6-1: 0 0
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0 0 0 0 0
Connection 6-2: 0 0
                   0 0
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1 1 1 1 1 1 1
Connection 6-3: 1 1 1 1
                          1
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                                   1
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                                                                       1
                                                                                1 K
1 1 1 1 1 1
Connection 6-4:0 0
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                                                                          0
                                                                                0 4
0 0 0 0 0
Connection 6-5:0
                 0
                   0
                       0
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                                1
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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 K
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:

0 0 0 0 0 0

1 1 1 1 1 1 1

Connection 3-4: 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: 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
Connection 4-3: 0 0 0 0
                                      1
                       0
                         0
                           0
                              0
                                0
                                  0
                                    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
Connection 4-5: 0 0 0 0 0
                      0
                         0
                           0
                              0
                                0
                                  0
                                    0
                                       0
                                         0
                                           0
                                             0
                                                0
                                                  0
                                                    1
                                                       1
                                                         1
                                                             1 2
                                                          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 2
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
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                                                       0
                                                         0
                                                              0 2
0 0 0 0 0 0
Connection 5-2: 0 0 0 0
                                       0
                      0
                         0
                           0
                              0
                                0
                                  0
                                    0
                                         0
                                           0
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                                                0
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                                                         0
                                                              0 6
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
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                                                    0
                                                         0
                                                       0
                                                              0 6
0 0 0 0 0 0
Connection 5-4: 0 0 0 0 0
                      0
                         0
                           0
                              0
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                                  0
                                    0
                                      0
                                         0
                                           0
                                             0
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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 K
0 0 0 0 0 0
Connection 5-6: 0 0 0 0
                      0 0
                           0
                             0
                                0
                                  0
                                    0
                                      0
                                        0
                                           0
                                             1
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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
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 ٢
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
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
Connection 6-5: 0 0 0 0 0
                        1 1
                             1
                                  1
                                      1
                                           1
                                                1
                                                    1
                                                         1
                                                             1 4
                                1
                                    1
                                        1
                                             1
                                                  1
                                                       1
                                                           1
1 1 1 1 1 1 1
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
```

Path # 2:

Cost of path 1 is 400.00

1 1 1 1 1 1 1

```
Cost of path 2 is 600.00
Path # 3:
    6
          2
              1
Cost of path 3 is 700.00
Trying path #1:
    6
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
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
Connection 1-3: 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
                                           1
                                                      1
                                                                 1
                      0
                         0
                             0
                               0
                                  0
                                     0
                                        0
                                             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
Connection 1-6: 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
Connection 2-2: 0 0 0 0
                               0
                                     0
                                        0
                                           0
                                             0
                                                0
                                                   0
                                                               0
                         0
                             0
                                  0
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                                                            0
0 0 0 0 0 0
Connection 2-3: 0 0 0 0
                         0
                             0
                               0
                                  0
                                     0
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                                           0
                                             0
                                                0
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                                                      0
                                                         0
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0 0 0 0 0 0
Connection 2-4: 0 0 0 0
                         0
                             0
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                                                                             0 4
0 0 0 0 0
Connection 2-5: 0 0
                   0
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                                                                             0 6
0 0 0 0 0 0
                               0
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Connection 2-6: 0 0 0 0
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                                        0
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                                                                             0 6
0 0 1 1 1 1 1
Connection 3-1: 0 0 0 0 0
                                  0
                                     0
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1 1 1 1 1 1 1
Connection 3-2: 0 0 0 0 0
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                                                                             0 4
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0 0 0 0 1 1 1
Connection 3-3: 0 0 0 0 0
                            0
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                                  0
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                                                         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
```

Path # 2:

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

Cost of path 2 is 700.00 Path # 3: 6 2 1 Cost of path 3 is 800.00 Trying path #1: 6 2 3 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 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: 1 6 2 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: 0 0 0 0 0 0 Connection 1-2: 1 Connection 1-3: 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 Connection 1-5: 0 Connection 1-6: 0 Connection 2-1: 0 0 0 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
Connection 6-5: 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
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
Cost of path 1 is 500.00
Path # 2:
   6 2
         3 4
Cost of path 2 is 1100.00
Path # 3:
     2
   6
         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:
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
Connection 1-3: 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 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 k
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 Ľ
0 0 0 0 0 0
1 1 1 1 1 1 4
1 1 1 1 1 1 1
0 0 0 0 0 0
```

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

Cost of path 1 is 300.00

Path # 2:

Path # 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
Connection 3-6: 1 1 1 1 1 1 1 1
                                    1
                                       1
                                          1
                                            1
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  1 1 1 1 1
Connection 4-1: 1 1
                   1 1
                        1 1
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  1 1 1 1 1
Connection 4-2:0
                0 0 0 0
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  0 0 0 0 0
                0
Connection 4-3:1
                   1 1
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1 1 1 1 1 1
Connection 4-4: 0
                0 0 0 0
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Connection 4-5: 1 1
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Connection 4-6: 0
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Connection 5-1:0
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0 0 0 0 0
Connection 5-2:0
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Connection 5-3:0 0 0
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0 0 0 0 0
Connection 5-4: 1 1 1 1
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1 1 1 1 1 1
Connection 5-5: 0 0 0
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0 0 0 0 0
Connection 5-6: 1 1 1 1
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1 1 1 1 1 1
Connection 6-1: 0 0 0
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0 0 0 0 0 0
Connection 6-2: 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 6-3: 1 1 1 1
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1 1 1 1 1 1
Connection 6-4:0 0
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                                                                            0 4
0 0 0 0 0 0
Connection 6-5: 1 1 1 1 1 1
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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 K
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 1 1 1 1 1 1

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

Path # 2: 1 3

Cost of path 1 is 200.00

Connection 3-5: 0 0 0 0 0 0

```
Cost of path 2 is 400.00
Path # 3:
    1
        2
             3
Cost of path 3 is 900.00
Trying path #1:
    1
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:
0 0 0 0 0 0
                                                        1
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
Connection 1-3: 0 0 0 0 0 0 0 0
                                     0
                                       1 1 1
                                               1
                                  0
                                                1
                                                   1
                                                      1
                                                         1
                                                           1
                                                             1 1
1 1 1 1 1 1 1
Connection 1-4: 0 0 1 1 1 1
                           1
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                                       1
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1 1 1 1 1 1 1
Connection 1-5: 0 0 0 0 0
                        0
                           0
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                                     0
                                       0
                                         0
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                                                      0
0 0 0 0 0 0
Connection 1-6: 0 0 0 0
                        0 0
                             0
                               0
                                  0
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                                         0
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0 0 0 0 0 0
Connection 2-1: 1 1 1 1 1 1
                           1
                              1
                                1
                                   1
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                                       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
Connection 2-3: 1 1 1 1
                                         1
                      1 1
                           1 1
                                1
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                                            1
                                               1
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                                                      1
1 1 1 1 1 1 1
Connection 2-4: 0
              0 0 0 0
                        0 0
                             0
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                                            0
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                                                 0
0 0 0 0 0 0
Connection 2-5: 0 0 0 0 0
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0 0 0 0 0
Connection 2-6: 1 1 1 1 1 1 1 1
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                                    1 1 1 1
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1 1 1 1 1 1 1
Connection 3-1: 1 1
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1 1 1 1 1 1 1
Connection 3-2: 0 0 0 0 0
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1 1 1 1 1 1
             1
Connection 3-3: 0 0 0 0
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0 0 0 0 0 0
Connection 3-4: 1 1 1 1 1
                           1
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                                                    1
  1 1 1 1 1
```

0 0

0 0 0 0

0 0

0 0

Path # 2:

```
0 0 0 0 0 0
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
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
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
Connection 4-5: 1 1 1 1 1 1 1 1
                          1 1
                              1 1 1 1
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1 1 1 1 1 1 1
Connection 4-6: 0 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 5-1: 0 0 0 0 0 0
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                                            0
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0 0 0 0 0 0
Connection 5-2: 0 0 0 0 0
                    0 0
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                                      0
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                                          0
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0 0 0 0 0 0
Connection 5-3: 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 5-4: 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 5-5: 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 5-6: 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 6-1: 0 0 0 0 0 0 0 0
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0 0 0 0 0 0
1 1 1 1 1 1 1
Connection 6-3: 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 6-4: 0 0 0 0 0 0 0
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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
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
Cost of path 1 is 600.00
```

Path # 2:

```
0 0 0 0 0 0
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
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
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
Connection 4-5: 0 0 0 1 1 1 1 1
                           1
                             1
                               1 1 1 1
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1 1 1 1 1 1 1
Connection 4-6: 0 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 5-1: 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 5-2: 0 0 0 0 0
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0 0 0 0 0 0
Connection 5-3: 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 5-4: 1 1 1 1
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1 1 1 1 1 1 1
Connection 5-5: 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 5-6: 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 6-1: 0 0 0 0 0 0 0
                           0
                             0
                                0
                                 0
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                                      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
Connection 6-3: 1 1 1 1 1 1 1 1
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                                   1 1
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1 1 1 1 1 1 1
Connection 6-4: 0 0 0 0 0 0 0
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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
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
Cost of path 1 is 500.00
```

1 1 1 1 1 1 1

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

Path # 2: 2 1

Cost of path 1 is 300.00

1 1 1 1 1 1 1

```
Cost of path 2 is 400.00
Path # 3:
    2
         3
                    1
Cost of path 3 is 700.00
Trying path #1:
    2
         3
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
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
Connection 1-3: 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 1-4: 0 0 0
                                         1
                                                    1
                                                               1
                     0 0
                           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
Connection 1-6: 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
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
Connection 2-3: 0 0 0 0
                           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
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
Connection 2-6: 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 3-1: 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
                                              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
Connection 3-4: 1 1 1 1 1 1 1 1
                                   1 1
                                        1 1 1 1 1 1
                                                        1
```

```
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
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
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
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
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
Connection 4-5: 0 0 0 1 1 1
                       1 1
                            1
                              1
                                1
                                  1
                                    1 1
                                         1
                                           1
                                             1
                                               1
                                                  1
                                                      1
                                                          1 K
                                                    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 2
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 2
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 6
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 6
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
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 K
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
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
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
Connection 6-4: 0 0 0 0 0 0 0 0
                                0
                                  0 0 0 0
                             0
                                           0
                                            0
                                               0
                                                 0
                                                          0 k
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 4
1 1 1 1 1 1 1
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
```

Path # 2: 2 1 3

Cost of path 1 is 200.00

```
Cost of path 2 is 500.00
Path # 3:
    2
         6
              3
Cost of path 3 is 800.00
Trying path #1:
    2
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:
0 0 0 0 0 0
                                                          1
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
Connection 1-3: 0 0 0 0 0 0
                                 0
                                   0
                                      0
                                        0 0
                                                0
                                                           1
                              0
                                             0
                                                  1
                                                     1
                                                        1
                                                             1
                                                               1 1
                                                                    1 K
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
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
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
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
Connection 2-2: 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
                                        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
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
Connection 2-6: 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 3-1: 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
Connection 3-2: 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 6
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
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
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
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
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
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
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
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
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
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
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
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
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
Connection 6-1: 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
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
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
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
Cost of path 1 is 500.00
```

Path # 2: 2 3 1 4

```
Cost of path 2 is 500.00
Path # 3:
       1 4
    2
Cost of path 3 is 600.00
Trying path #1:
    2 3
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:
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 4
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
Connection 1-4: 0 0 0 0 1
                          1
                            1
                               1
                                  1
                                    1
                                      1
                                         1 1
                                              1
                                                1
                                                   1
                                                        1
                                                                 1 L
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
Connection 1-6: 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
Connection 2-2: 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
                        0 0
                            0
                                  0
                                    0
                                      0
                                           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
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
                                    1 1 1 1
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
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
Connection 3-2: 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
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
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
Connection 3-5: 0 0 0 0 0 0 0 0
                                 0 0
                                      0 0
                                           0
                                                   0
                                                     0
                                                          0 0 0
                                              0
                                                0
                                                       0
```

Path # 2:

```
0 0 0 0 0 0
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
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
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
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
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
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
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
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
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
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
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
Connection 6-1: 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
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
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
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
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
Cost of path 1 is 700.00
```

Path # 2:

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

0 0 0 0 0 0

Cost of path 2 is 500.00

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

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

Cost of path 2 is 500.00

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

Path # 3:

```
6
              2
    3
Cost of path 3 is 800.00
Trying path #1:
    3
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
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
Connection 1-3: 0 0 0 0 0
                         0
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                               0
                                  0
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                                                               1
1 1 1 1 1 1 1
Connection 1-4: 0 0 0 0
                          1
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                               1
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                                            1
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                                                  1
                                                    1
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                                  1
1 1 1 1 1 1 1
Connection 1-5: 0 0 0
                    0
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                                                  0
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0 0 0 0 0 0
Connection 1-6: 0 0 0 0 0
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                                                                       0 6
0 0 0 0 0 0
Connection 2-1: 1 1 1 1
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                          1
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1 1 1 1 1 1 1
Connection 2-2:0 0
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0 0 0 0 0 0
Connection 2-3: 0 0 0
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1 1 1 1 1 1 1
Connection 2-4: 0 0 0 0
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0 0 0 0 0 0
Connection 2-5: 0 0 0 0 0
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0 0 0 0 0 0
Connection 2-6: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 3-1: 0 0 0
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1 1 1 1 1 1 1
Connection 3-2: 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 3-3: 0 0 0 0 0
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0 0 0 0 0 0
Connection 3-4: 0 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 3-5: 0 0 0 0 0 0 0
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                                                                      () K
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 4-2: 0 0 0 0 0 0
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                                           0
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                                              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
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0 0 0 0 0 0
Connection 4-5: 0 0 0 1 1 1
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1 1 1 1 1 1 1
Connection 4-6: 0 0 0 0
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0 0 0 0 0 0
Connection 5-1: 0 0 0 0
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0 0 0 0 0 0 0
Connection 5-2: 0 0 0 0
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Connection 5-3: 0 0 0 0 0 0 0
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Connection 5-4: 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 5-5: 0 0 0 0 0 0 0 0
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                                        0
                                           0
                                             0
                                               0
                                                 0
                                                   0 0
                                                          0 6
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
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
1 1 1 1 1 1 2
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
Connection 6-4: 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
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
Cost of path 1 is 300.00
Path # 2:
       1
   3
```

Path # 3:

Cost of path 2 is 300.00

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
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
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
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
Connection 4-6: 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
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
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
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
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
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
Connection 6-1: 0 0 0 0 0 0
                          0
                            0
                               0
                                 0
                                   0 0
                                       0
                                         0
                                            0
                                              0
                                                0
                                                  0
                                                           0 2
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
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
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
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
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
Cost of path 1 is 700.00
Path # 2:
   3
      1
           4
                5
Cost of path 2 is 700.00
Path # 3:
```

Cost of path 3 is 900.00

```
Trying path #1: 3 4 5
```

Path # 3: 3

```
1 1 1 1 1 1 1
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
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
Connection 4-5: 0 0 0 0 0 0 0 1 1
                               1 1 1 1 1 1 1 1
1 1 1 1 1 1
           1
Connection 4-6: 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
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
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
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
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
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
Connection 6-1: 0 0 0 0 0 0
                         0
                           0
                             0
                               0
                                 0 0
                                     0
                                       0
                                          0
                                           0
                                              0
                                                0
                                                        0 2
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 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
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
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
Cost of path 1 is 400.00
Path # 2:
   3
       6
Cost of path 2 is 600.00
```

Connection 3-5: 0 0 0

1 1 1 1 1 1

Connection 3-6: 1 1 1 1 1

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

0 K

1 1

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

Connection 4-1: 0 0 0 1 1 1 1 1 1

1 1 1 1 1 1 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
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
Connection 1-3: 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 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
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
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
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
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
Connection 2-3: 0 0
                   0
                                0
                                  0
                                     0
                                        0
                                           0
                                              0
                                                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
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
Connection 2-6: 0 0 0
                         0
                             0
                                0
                                  0
                                     0
                                        0
                                           0
                                             0
                                                0
                                                   0
                                                      0
                                                         0
                                                            0
                                                               0
                                                                  0
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
Connection 3-2: 0 0
                   0
                      0
                               0
                                  0
                                           0
                                                0
                                                   0
                          0
                             0
                                     0
                                        0
                                              0
                                                      0
                                                         0
                                                            0
                                                               0
                                                                  0
                                                                    0
                                                                             0 6
0 0 0 0 0 1 1
                                           0
Connection 3-3:0 0 0
                      0
                          0
                             0
                               0
                                  0
                                     0
                                        0
                                              0
                                                0
                                                   0
                                                      0
                                                         0
                                                            0
                                                               0
                                                                  0
                                                                    0
                                                                       0
                                                                             0 6
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
Connection 3-5: 0 0 0
                      0 0
                                     0
                                                0
                                                               0
                                                                             0 K
                            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 1 1 2

```
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
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
Connection 4-5: 0 0 0 0 0
                 0
                  0
                    1
                      1
                       1
                         1 1 1
                              1
                               1
                                 1
                                  1
1 1 1 1 1 1 1
Connection 4-6: 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
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
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
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
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
1 1 1 1 1 1 1
1 1 1 1 1 1 1
0 0 0 0 0 0
1 1 1 1 1 1 1
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
Cost of path 1 is 500.00
Path # 2:
       3
  4
   1
Cost of path 2 is 500.00
Path # 3:
     1
  4
```

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 **v** 0 0 0 0 0 0 Connection 1-2: 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 Connection 1-3: 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 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 Connection 1-6: 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 Connection 2-2: 0 0 0 0 0 6 0 0 0 0 0 0 Connection 2-3: 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 Connection 2-5: 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:
        3
    4
                  6
Cost of path 2 is 1200.00
Path # 3:
    4
       1
            3
                  2
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:
0 0 0 0 0 0
Connection 1-2: 0 0 0 0 0
                          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
Connection 1-4: 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
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
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
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
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
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
Connection 2-4: 0 0 0 0
                        0
                           0
                             0
                                0
                                  0
                                     0
                                       0
                                         0
                                            0
                                              0
                                                 0
                                                   0
                                                      0
                                                        0
                                                           0
                                                                  0 K
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
Connection 2-6: 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 = 3Path # 1: 3 4 Cost of path 1 is 700.00 Path # 2: 1 3 2 Cost of path 2 is 700.00 Path # 3: 1 4 2 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 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 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- arksimTrying source-destination pair: 5 -> 1 The path request is from source node 5 to destination node 1, with K = 3Path # 1: 5 4 1 Cost of path 1 is 600.00

0 0 0 0 0 0

```
Path # 2:
    5
         4
              3
                   1
Cost of path 2 is 800.00
Path # 3:
    5
                   3
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:
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
Connection 1-3: 0 0 0 0
                            0
                               0
                                 0
                                    0
                                       0
                                         0 0
                                               0
                                                 0
                                                    0
                                                      0
                                                         0
                                                                      0 2
                         0
0 0 1 1 1 1 1
Connection 1-4: 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
Connection 1-6: 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
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                                                         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
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
Connection 2-4: 0 0 0 0
                       0
                          0
                            0
                               0
                                  0
                                    0
                                       0
                                         0
                                            0
                                               0
                                                 0
                                                    0
                                                       0
                                                         0
                                                            0
                                                              0
                                                                      0 6
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 6
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
                                                                      1 K
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
Connection 3-2: 0 0 0 0 0
                            0
                               0
                                 0
                                    0
                                       0
                                         0
                                            0
                                              0
                                                 0
                                                    0
                                                                      () K
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
```

```
Connection 3-4: 0 0 0 0 0 0 0 0
                                0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 ٢
1 1 1 1 1 1 1
                                                 0
                                                   0
                                                        0 0 0
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
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: 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
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
Connection 4-4: 0 0 0 0 0
                       0
                          0
                            0
                               0
                                 0
                                   0
                                     0
                                        0
                                          0
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                                               0
                                                 0
                                                    0
                                                      0
                                                        0
                                                                0 6
0 0 0 0 0 0
Connection 4-5: 0 0 0 0
                       0
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                            0
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                                   0
                                     1
                                        1
                                          1
                                             1
                                                 1
                                                    1
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1 1 1 1 1 1 1
Connection 4-6: 0 0 0 0
                       0 0
                            0
                              0
                                 0
                                   0
                                     0
                                        0
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                                             0
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                                                 0
                                                    0
                                                      0
                                                        0
                                                           0
                                                                0 2
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 6
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
                                                                () k
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
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
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
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
Connection 6-1: 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
Connection 6-3: 1 1 1 1 1 1 1 1
                              1
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                                     1
                                       1 1
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                                                    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
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                                                      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
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

0 0 0 0 0 0

```
Path # 2:
    5
              3
                   2
         4
Cost of path 2 is 900.00
Path # 3:
    5
                  3
Cost of path 3 is 900.00
Trying path #1:
    5
        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 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:
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
Connection 1-3: 0 0 0 0
                            0
                               0
                                 0
                                    0
                                       0
                                         0 0
                                              0
                                                 0
                                                    0
                                                      0
                                                         0
                                                                      0 2
                         0
0 0 1 1 1 1 1
Connection 1-4: 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
Connection 1-6: 0 0 0 0
                          0
                            0
                               0
                                  0
                                    0
                                       0
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                                            0
                                              0
                                                 0
                                                    0
0 0 0 0 0 0
Connection 2-1: 1 1 1 1 1 1
                            1
                                  1
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                                            1
                                                 1
                                                            1
                              1
                                    1
                                         1
                                              1
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1 1 1 1 1 1 1
Connection 2-2: 0 0 0 0
                          0
                            0
                               0
                                  0
                                    0
                                       0
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                                            0
                                              0
                                                 0
                                                    0
                                                      0
                                                         0
0 0 0 0 0 0
Connection 2-3: 0 0 0 0 0
                          0
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                               0
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                                    0
                                       0
                                         0
                                            1
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                                                 1
                                                   1
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                                                        1
                                                           1
                                                              1
1 1 1 1 1 1 1
Connection 2-4: 0 0 0 0
                          0
                            0
                               0
                                  0
                                    0
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                                                 0
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                                                                      0 6
0 0 0 0 0 0
Connection 2-5: 0 0 0 0 0
                            0
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                                                              0
                                                                 0
                                                                      0 6
0 0 0 0 0 0
Connection 2-6: 0 0 0 0 0
                         0 0
                              0
                                 0
                                    0
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                                         0
                                           0
                                              0
                                                 0
                                                    0
                                                      0
                                                         0
                                                           0
                                                                      1 K
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
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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
                                                                      () K
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
```

```
Connection 3-4: 0 0 0 0 0 0 0 0
                                 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 ٢
1 1 1 1 1 1 1
                                                    0
                                                         0 0 0
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
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: 0 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
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
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 6
0 0 0 0 0 0
Connection 4-5: 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 2
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 4
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
                                                                () k
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
Connection 5-4: 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 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
Connection 5-6: 0 0 0 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
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
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
Connection 6-4: 0 0 0 0 0 0 0
                               0
                                 0
                                      0 0
                                          0
                                                  0
                                                    0
                                    0
                                             0
                                                0
                                                       0
                                                                0 6
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
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

0 0 0 0 0 0

```
Path # 2:
                    3
    5
          4
               1
Cost of path 2 is 700.00
Path # 3:
    5
                    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
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
Connection 1-3: 0 0 0 0
                              0
                                 0
                                   0
                                      0
                                         0
                                            0 0
                                                 0
                                                    0
                                                       0
                                                         0
                                                            0
                                                                          0 2
                           0
0 0 1 1 1 1 1
Connection 1-4: 0 0 0 0
                           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
Connection 1-6: 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
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
Connection 2-3: 0 0 0 0 0
                           0
                              0
                                 0
                                    0
                                      0
                                         0
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                                              1
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                                                                 1
1 1 1 1 1 1 1
Connection 2-4: 0 0 0
                        0
                           0
                              0
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                                                 0
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0 0 0 0 0 0
Connection 2-5: 0 0 0 0 0
                              0
                                 0
                                    0
                                      0
                                         0
                                            0
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                                                                          0 6
0 0 0 0 0 0
Connection 2-6: 0 0 0 0 0
                              0
                                0
                                   0
                                      0
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                                           0
                                              0
                                                0
                                                    0
                                                       0
                                                         0
                                                            0
                           0
                                                               0
                                                                          1 K
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 4
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
                                                                          () K
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
```

```
Connection 3-4: 0 0 0 0 0 0 0 0
                                 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 ٢
1 1 1 1 1 1 1
                                                     0
                                                          0
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
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: 0 0 0 0 0
                        0
                           0
                             0
                                0
                                  0
                                     0
                                       0
                                         0
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                                              0
                                                 0
                                                   0
                                                     0
0 0 0 0 0 0
Connection 4-2: 0 0 0 0 0
                        0
                           0
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                                0
                                  0
                                     0
                                       0
                                         0
                                            0
                                              0
                                                   0
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                                                 0
0 0 0 0 0 0
Connection 4-3: 0 0 0 0 0
                        0
                           0
                             0
                                0
                                  0
                                     0
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Connection 4-4: 0 0 0 0 0
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Connection 4-5: 0 0 0 0
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Connection 4-6: 0 0 0 0
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Connection 5-1: 0 0 0 0 0
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Connection 5-2: 0 0 0 0 0 0
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Connection 5-3: 0 0 0 0 0
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Connection 5-4: 0 0 0 0 0 0
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Connection 5-5: 0 0 0 0 0 0
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Connection 5-6: 0 0 0 1 1
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1 1 1 1 1 1 1
Connection 6-1: 0 0 0 0 0 0 0 0
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Connection 6-2: 0 0 0 0 1 1 1 1 1 1
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Connection 6-3: 1 1 1 1 1 1 1 1
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Connection 6-4: 0 0 0 0 0 0
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Connection 6-5: 0 0 0 1 1 1 1 1
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1 1 1 1 1 1 1
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

Connection 3-4: 0 0 0 0 0 0

```
Path # 2:
    5
         6
              2
                   3
                       4
Cost of path 2 is 1200.00
Path # 3:
    5
                  3
                      1
Cost of path 3 is 1200.00
Trying path #1:
    5
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:
0 0 0 0 0 0
Connection 1-2: 0 0 0 0 0
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Connection 1-3: 0 0 0 0 0 0
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Connection 1-4: 0 0 0 0 1
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Connection 1-5: 0 0 0 0 0
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Connection 1-6: 0 0 0 0 0 0
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Connection 2-1: 1 1 1 1 1 1 1 1
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Connection 2-2: 0 0 0 0
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Connection 2-3: 0 0 0 0 0
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Connection 2-4: 0 0 0 0 0
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Connection 2-5: 0 0 0 0 0
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Connection 2-6: 0 0 0
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Connection 3-1: 0 0 0 0 0
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Connection 3-2: 0 0 0 0
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Connection 3-3: 0 0 0 0 0
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Connection 3-6: 1 1 1 1 1 1
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Connection 4-1: 0
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Connection 4-4: 0
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Connection 6-3: 1 1 1 1
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Connection 6-5: 0 0 0 1
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Connection 6-6: 0 0 0 0 0 0 0
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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:

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

Connection 3-4: 0 0 0 0 0 0

```
Cost of path 2 is 600.00
Path # 3:
    6
        3
Cost of path 3 is 700.00
Trying path #1:
    6
              3
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:
0 0 0 0 0 0
Connection 1-2: 0 0 0 0 0
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Connection 1-3: 0 0 0 0 0 0
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Connection 1-4: 0 0 0 0 1
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Connection 1-5: 0 0 0 0 0
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Connection 1-6: 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 2-1: 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1
Connection 2-2: 0 0 0 0
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Connection 2-3: 0 0 0 0 0
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Connection 2-4: 0 0 0 0 0
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Connection 2-6: 0 0 0
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Connection 3-1: 0 0 0 0
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Connection 3-2: 0 0 0 0
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Connection 3-3: 0 0 0
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0 0 0 1 1 1 1 1 1 1 1 1 1 1

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

Cost of path 2 is 800.00

Path # 3:

3 1

Cost of path 3 is 1100.00

Trying path #1:

1 1 1 1 1 1 1

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 Connection 1-2: 0 0 0 0 1 1 1 1 1 1 1 Connection 1-3: 0 0 0 0 0 0 0 1 1 1 1 1 Connection 1-4:0 0 0 1 1 1 1 0 0 1 1 1 1 1 1 Connection 1-5: 0 0 0 0 0 0 0 0 0 Connection 1-6: 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 Connection 2-2: 0 0 0 0 0 0 0 0 0 0 0 Connection 2-3: 0 0 0 0 1 1 1 1 1 1 Connection 2-4: 0 0 0 0 0 0 4 0 0 0 0 0 0 Connection 2-5: 0 0 0 6 0 0 0 0 0 0 Connection 2-6: 0 0 0 0 0 1 4 1 1 1 1 1 1 1 Connection 3-1: 0 0 0 0 0 1 2 1 1 1 1 1 1 1 Connection 3-2: 0 0 0 0 0 0 4 0 0 0 0 0 0 0 1 1 Connection 3-3: 0 0 0 0 0 () K 0 0 0 0 0 0 Connection 3-4: 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1

1 1 1 1 1 1 2

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

1 1 1 1 1 1 1

```
Cost of path 2 is 600.00
Path # 3:
    6
          2
              1
Cost of path 3 is 700.00
Trying path #1:
    6
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
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Connection 1-2: 0 0 0 0
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Connection 1-3: 0 0 0
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Connection 1-4:0 0 0
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Connection 1-5: 0 0 0
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Connection 1-6: 0 0 0 0 0
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Connection 2-1: 1 1 1 1
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Connection 2-2: 0 0 0 0
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Connection 2-4: 0 0 0 0 0
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Connection 3-1: 0 0 0 0 0
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Connection 3-2: 0 0 0 0 0
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Connection 3-3: 0 0 0 0 0
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Connection 3-4: 0 0 0 0 0 0 0
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Connection 3-6: 1 1 1 1 1 1
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Connection 4-1: 0 0 0 0 0
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Connection 4-3: 0 0 0 0
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Connection 4-4: 0 0 0 0
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Connection 5-1: 0 0 0 0 0
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Connection 5-3: 0 0 0 0 0 0
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Connection 5-4: 0 0 0 0 0
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Connection 5-5: 0 0 0 0 0 0
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Connection 6-1: 0 0 0 0
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Connection 6-2: 0 0 0 0 0 0 0 0
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Connection 6-3: 1 1 1 1 1 1 1 1
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Connection 6-4: 0 0 0 0 0 0 0 0
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Connection 6-5: 0 0 0 1 1 1
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1 1 1 1 1 1 1
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
```

Path # 2:
6 2 3 1

Cost of path 1 is 700.00

```
Cost of path 2 is 700.00
Path # 3:
    6
         2
             1
Cost of path 3 is 800.00
Trying path #1:
    6
        2
              3
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:
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Connection 1-2: 0 0 0 0 0
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Connection 1-3: 0 0 0 0 0
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Connection 1-4: 0 0 0 0 1
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Connection 1-5: 0 0 0 0 0
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Connection 1-6: 0 0 0 0
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Connection 2-1: 1 1 1 1 1 1 1 1
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Connection 2-2: 0 0 0
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0 0

Connection 3-4: 0 0 0 0 0 0

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0 0

0 0

1 1 1 1 1 1 1 1

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

Connection 3-4: 0 0 0 0 0 0 0 0

1 1 1 1 1 1 1

0 0

1 1 1 1 1 1 2

0 0 0 0 0

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0 0 0 0 0 0
Connection 3-6: 1 1 1 1 1 1 1 1
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Connection 4-1: 0 0 0 0 0 0 0
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Connection 4-2: 0 0 0 0
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Connection 4-3: 0 0 0 0
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0 0 0 1 1 1 1
Connection 4-4: 0 0 0 0 0
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Connection 4-5: 0 0 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 4-6: 0 0 0 0 0
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Connection 5-1: 0 0 0 0 0 0 0
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Connection 5-2: 0 0 0 0 0 0
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Connection 5-3: 0 0 0 0 0 0 0
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Connection 5-4: 0 0 0 0 0
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Connection 5-5: 0 0 0 0 0 0 0 0
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Connection 5-6: 0 0 0 0 0 0
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1 1 1 1 1 1 1
Connection 6-1: 0 0 0 0 0 0 0
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Connection 6-2: 0 0 0 0 0 0 0 0
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0 0 0 1 1 1 1
Connection 6-3: 1 1 1 1 1 1 1 1 1 1
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                                        1 1 1 1
1 1 1 1 1 1 1
Connection 6-4: 0 0 0 0 0 0 0 0
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0 0 0 0 0 0
Connection 6-5: 0 0 0 0 0 0 1
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1 1 1 1 1 1 1
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	
2	4	1
2	5	1
2	6	1
2	6	Τ
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
2 2 2 2 2 3 3 3 3 4 4 4 4 5 5 5 5 6 6 6 6 6 6	1 3 4 5 6 1 2 4 5 6 1 2 3 5 1 2 3 4 6 1 2 3 4 5 5 1 2 3 4 5 5 1 2 3 4 5 5 1 2 3 4 5 5 7 5 7 5 7 5 7 5 7 5 7 5 7 5 7	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
6	3	1
6	4	1
6	5	1

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