

```

1 /Users/alaa/PycharmProjects/pythonProject1/.venv/bin/python /Users/alaa/
  PycharmProjects/pythonProject1/.venv/rlConfig-loops.py
2 loops number = 44
3 Loop indexes: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22,
  23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44]
4 Loop sequences:
5 [0, 1, 9, 17, 25, 33, 41, 49, 57, 56, 48, 40, 32, 24, 16, 8]
6 [7, 15, 23, 31, 39, 47, 55, 63, 62, 54, 46, 38, 30, 22, 14, 6]
7 [0, 1, 2, 10, 18, 26, 34, 42, 50, 58, 57, 56, 48, 40, 32, 24, 16, 8]
8 [7, 15, 23, 31, 39, 47, 55, 63, 62, 61, 53, 45, 37, 29, 21, 13, 5, 6]
9 [0, 1, 2, 3, 11, 19, 27, 35, 43, 51, 59, 58, 57, 56, 48, 40, 32, 24, 16, 8]
10 [7, 15, 23, 31, 39, 47, 55, 63, 62, 61, 60, 52, 44, 36, 28, 20, 12, 4, 5, 6]
11 [0, 1, 2, 3, 4, 12, 20, 28, 36, 44, 52, 60, 59, 58, 57, 56, 48, 40, 32, 24, 16, 8]
12 [7, 15, 23, 31, 39, 47, 55, 63, 62, 61, 60, 59, 51, 43, 35, 27, 19, 11, 3, 4, 5, 6]
13 [0, 1, 2, 3, 4, 5, 13, 21, 29, 37, 45, 53, 61, 60, 59, 58, 57, 56, 48, 40, 32, 24, 16, 8]
14 [7, 15, 23, 31, 39, 47, 55, 63, 62, 61, 60, 59, 58, 50, 42, 34, 26, 18, 10, 2, 3, 4, 5, 6]
15 [0, 1, 2, 3, 4, 5, 6, 14, 22, 30, 38, 46, 54, 62, 61, 60, 59, 58, 57, 56, 48, 40, 32, 24, 16,
  8]
16 [7, 15, 23, 31, 39, 47, 55, 63, 62, 61, 60, 59, 58, 57, 49, 41, 33, 25, 17, 9, 1, 2, 3, 4, 5,
  6]
17 [0, 8, 16, 24, 32, 40, 48, 56, 57, 58, 59, 60, 61, 62, 63, 55, 47, 39, 31, 23, 15, 7, 6, 5, 4
  , 3, 2, 1]
18 [0, 1, 2, 3, 4, 5, 6, 7, 15, 14, 13, 12, 11, 10, 9, 8]
19 [8, 9, 10, 11, 12, 13, 14, 15, 23, 22, 21, 20, 19, 18, 17, 16]
20 [16, 17, 18, 19, 20, 21, 22, 23, 31, 30, 29, 28, 27, 26, 25, 24]
21 [24, 25, 26, 27, 28, 29, 30, 31, 39, 38, 37, 36, 35, 34, 33, 32]
22 [32, 33, 34, 35, 36, 37, 38, 39, 47, 46, 45, 44, 43, 42, 41, 40]
23 [40, 41, 42, 43, 44, 45, 46, 47, 55, 54, 53, 52, 51, 50, 49, 48]
24 [48, 49, 50, 51, 52, 53, 54, 55, 63, 62, 61, 60, 59, 58, 57, 56]
25 [9, 17, 18, 19, 20, 21, 22, 14, 13, 12, 11, 10]
26 [49, 50, 51, 52, 53, 54, 46, 45, 44, 43, 42, 41]
27 [9, 17, 25, 26, 27, 28, 29, 30, 22, 14, 13, 12, 11, 10]
28 [49, 50, 51, 52, 53, 54, 46, 38, 37, 36, 35, 34, 33, 41]
29 [9, 17, 25, 33, 34, 35, 36, 37, 38, 30, 22, 14, 13, 12, 11, 10]
30 [49, 50, 51, 52, 53, 54, 46, 38, 30, 29, 28, 27, 26, 25, 33, 41]
31 [9, 17, 25, 33, 41, 42, 43, 44, 45, 46, 38, 30, 22, 14, 13, 12, 11, 10]
32 [49, 50, 51, 52, 53, 54, 46, 38, 30, 22, 21, 20, 19, 18, 17, 25, 33, 41]
33 [9, 10, 11, 12, 13, 14, 22, 30, 38, 46, 54, 53, 52, 51, 50, 49, 41, 33, 25, 17]
34 [9, 17, 25, 33, 41, 49, 50, 42, 34, 26, 18, 10]
35 [10, 18, 26, 34, 42, 50, 51, 43, 35, 27, 19, 11]
36 [11, 19, 27, 35, 43, 51, 52, 44, 36, 28, 20, 12]
37 [12, 20, 28, 36, 44, 52, 53, 45, 37, 29, 21, 13]
38 [13, 21, 29, 37, 45, 53, 54, 46, 38, 30, 22, 14]
39 [18, 19, 27, 35, 43, 42, 34, 26]
40 [21, 29, 37, 45, 44, 36, 28, 20]
41 [18, 19, 20, 28, 36, 44, 43, 42, 34, 26]
42 [21, 29, 37, 45, 44, 43, 35, 27, 19, 20]
43 [18, 26, 34, 42, 43, 44, 45, 37, 29, 21, 20, 19]
44 [18, 19, 20, 21, 29, 28, 27, 26]
45 [26, 27, 28, 29, 37, 36, 35, 34]
46 [34, 35, 36, 37, 45, 44, 43, 42]

```

```

47 [27, 28, 36, 35]
48 [27, 35, 36, 28]
49
50 Min Node Index: 0
51 Max Node Index: 63
52 NxN Size: 64
53 NxN Configuration: 8x8
54
55 Main Layer:
56 [0, 1, 2, 3, 4, 5, 6, 7]
57 [8, 9, 10, 11, 12, 13, 14, 15]
58 [16, 17, 18, 19, 20, 21, 22, 23]
59 [24, 25, 26, 27, 28, 29, 30, 31]
60 [32, 33, 34, 35, 36, 37, 38, 39]
61 [40, 41, 42, 43, 44, 45, 46, 47]
62 [48, 49, 50, 51, 52, 53, 54, 55]
63 [56, 57, 58, 59, 60, 61, 62, 63]
64
65 Inner Layer 1 (Configuration 6x6):
66 [9, 10, 11, 12, 13, 14]
67 [17, 18, 19, 20, 21, 22]
68 [25, 26, 27, 28, 29, 30]
69 [33, 34, 35, 36, 37, 38]
70 [41, 42, 43, 44, 45, 46]
71 [49, 50, 51, 52, 53, 54]
72
73 Inner Layer 2 (Configuration 4x4):
74 [18, 19, 20, 21]
75 [26, 27, 28, 29]
76 [34, 35, 36, 37]
77 [42, 43, 44, 45]
78
79 Inner Layer 3 (Configuration 2x2):
80 [27, 28]
81 [35, 36]
82
83 Main Layer Loops:
84 Loop 1: [0, 1, 9, 17, 25, 33, 41, 49, 57, 56, 48, 40, 32, 24, 16, 8]
85 Loop 2: [7, 15, 23, 31, 39, 47, 55, 63, 62, 54, 46, 38, 30, 22, 14, 6]
86 Loop 3: [0, 1, 2, 10, 18, 26, 34, 42, 50, 58, 57, 56, 48, 40, 32, 24, 16, 8]
87 Loop 4: [7, 15, 23, 31, 39, 47, 55, 63, 62, 61, 53, 45, 37, 29, 21, 13, 5, 6]
88 Loop 5: [0, 1, 2, 3, 11, 19, 27, 35, 43, 51, 59, 58, 57, 56, 48, 40, 32, 24, 16, 8]
89 Loop 6: [7, 15, 23, 31, 39, 47, 55, 63, 62, 61, 60, 52, 44, 36, 28, 20, 12, 4, 5, 6]
90 Loop 7: [0, 1, 2, 3, 4, 12, 20, 28, 36, 44, 52, 60, 59, 58, 57, 56, 48, 40, 32, 24, 16, 8]
91 Loop 8: [7, 15, 23, 31, 39, 47, 55, 63, 62, 61, 60, 59, 51, 43, 35, 27, 19, 11, 3, 4, 5, 6]
92 Loop 9: [0, 1, 2, 3, 4, 5, 13, 21, 29, 37, 45, 53, 61, 60, 59, 58, 57, 56, 48, 40, 32, 24, 16, 8]
93 Loop 10: [7, 15, 23, 31, 39, 47, 55, 63, 62, 61, 60, 59, 58, 50, 42, 34, 26, 18, 10, 2, 3, 4, 5, 6]
94 Loop 11: [0, 1, 2, 3, 4, 5, 6, 14, 22, 30, 38, 46, 54, 62, 61, 60, 59, 58, 57, 56, 48, 40, 32, 24, 16, 8]

```

```

95 Loop 12: [7, 15, 23, 31, 39, 47, 55, 63, 62, 61, 60, 59, 58, 57, 49, 41, 33, 25, 17, 9, 1,
    2, 3, 4, 5, 6]
96 Loop 13: [0, 8, 16, 24, 32, 40, 48, 56, 57, 58, 59, 60, 61, 62, 63, 55, 47, 39, 31, 23, 15
    , 7, 6, 5, 4, 3, 2, 1]
97 Loop 14: [0, 1, 2, 3, 4, 5, 6, 7, 15, 14, 13, 12, 11, 10, 9, 8]
98 Loop 15: [8, 9, 10, 11, 12, 13, 14, 15, 23, 22, 21, 20, 19, 18, 17, 16]
99 Loop 16: [16, 17, 18, 19, 20, 21, 22, 23, 31, 30, 29, 28, 27, 26, 25, 24]
100 Loop 17: [24, 25, 26, 27, 28, 29, 30, 31, 39, 38, 37, 36, 35, 34, 33, 32]
101 Loop 18: [32, 33, 34, 35, 36, 37, 38, 39, 47, 46, 45, 44, 43, 42, 41, 40]
102 Loop 19: [40, 41, 42, 43, 44, 45, 46, 47, 55, 54, 53, 52, 51, 50, 49, 48]
103 Loop 20: [48, 49, 50, 51, 52, 53, 54, 55, 63, 62, 61, 60, 59, 58, 57, 56]
104 Loop 21: [9, 17, 18, 19, 20, 21, 22, 14, 13, 12, 11, 10]
105 Loop 22: [49, 50, 51, 52, 53, 54, 46, 45, 44, 43, 42, 41]
106 Loop 23: [9, 17, 25, 26, 27, 28, 29, 30, 22, 14, 13, 12, 11, 10]
107 Loop 24: [49, 50, 51, 52, 53, 54, 46, 38, 37, 36, 35, 34, 33, 41]
108 Loop 25: [9, 17, 25, 33, 34, 35, 36, 37, 38, 30, 22, 14, 13, 12, 11, 10]
109 Loop 26: [49, 50, 51, 52, 53, 54, 46, 38, 30, 29, 28, 27, 26, 25, 33, 41]
110 Loop 27: [9, 17, 25, 33, 41, 42, 43, 44, 45, 46, 38, 30, 22, 14, 13, 12, 11, 10]
111 Loop 28: [49, 50, 51, 52, 53, 54, 46, 38, 30, 22, 21, 20, 19, 18, 17, 25, 33, 41]
112 Loop 29: [9, 10, 11, 12, 13, 14, 22, 30, 38, 46, 54, 53, 52, 51, 50, 49, 41, 33, 25, 17]
113 Loop 30: [9, 17, 25, 33, 41, 49, 50, 42, 34, 26, 18, 10]
114 Loop 31: [10, 18, 26, 34, 42, 50, 51, 43, 35, 27, 19, 11]
115 Loop 32: [11, 19, 27, 35, 43, 51, 52, 44, 36, 28, 20, 12]
116 Loop 33: [12, 20, 28, 36, 44, 52, 53, 45, 37, 29, 21, 13]
117 Loop 34: [13, 21, 29, 37, 45, 53, 54, 46, 38, 30, 22, 14]
118 Loop 35: [18, 19, 27, 35, 43, 42, 34, 26]
119 Loop 36: [21, 29, 37, 45, 44, 36, 28, 20]
120 Loop 37: [18, 19, 20, 28, 36, 44, 43, 42, 34, 26]
121 Loop 38: [21, 29, 37, 45, 44, 43, 35, 27, 19, 20]
122 Loop 39: [18, 26, 34, 42, 43, 44, 45, 37, 29, 21, 20, 19]
123 Loop 40: [18, 19, 20, 21, 29, 28, 27, 26]
124 Loop 41: [26, 27, 28, 29, 37, 36, 35, 34]
125 Loop 42: [34, 35, 36, 37, 45, 44, 43, 42]
126 Loop 43: [27, 28, 36, 35]
127 Loop 44: [27, 35, 36, 28]
128
129 Inner Layer 1 (Configuration 6x6) Loops:
130 Loop 29: [9, 10, 11, 12, 13, 14, 22, 30, 38, 46, 54, 53, 52, 51, 50, 49, 41, 33, 25, 17]
131
132 Inner Layer 2 (Configuration 4x4) Loops:
133 Loop 39: [18, 26, 34, 42, 43, 44, 45, 37, 29, 21, 20, 19]
134
135 Inner Layer 3 (Configuration 2x2) Loops:
136 Loop 43: [27, 28, 36, 35]
137 Loop 44: [27, 35, 36, 28]
138
139 Process finished with exit code 0
140

```