```matlab
1 % NAME: ADITYA BARMAN
2 % ROLL: 002320601024
3 % PROBLEM 13. Spearman's Rank Correlation with Perfect disagreement
4
5
6 clc, clearvars, close all
7
8 math_x = [43 77 64 96 48 35 86 71];
9 beng_y = [79 49 65 36 68 82 41 50];
10 math_x_cp = math_x;
11 beng_y_cp = beng_y;
12 n = length(math_x);
13
14 R_x = zeros(1, n);
15 R_y = zeros(1, n);
16
17 for i = 1:n
18     [valx, idx] = max(math_x);
19     math_x(idx) = -Inf;
20     R_x(idx) = i;
21
22     [valy, idx] = max(beng_y);
23     beng_y(idx) = -Inf;
24     R_y(idx) = i;
25 end
26
27 d_sq = (R_x - R_y) .^ 2;
28 d_sq_sum = sum(d_sq);
29
30 sp_num = 6 * d_sq_sum;
31 sp_denom = n * ((n ^ 2) - 1);
32
33 sp = 1 - (sp_num / sp_denom);
34 table_t = zeros(8,5);
35 table_t(1:8, 1) = math_x_cp;
36 table_t(1:8, 2) = beng_y_cp;
37 table_t(1:8, 3) = R_x;
38 table_t(1:8, 4) = R_y;
39 table_t(1:8, 5) = d_sq;
40 disp(table_t)
41 fprintf('The Spearman Rank Correlation is %.4f\n', sp);
```

```
42
43
44
45 % ================= OUTPUT =================
46
47 %     43     79     7     2     25
48 %     77     49     3     6      9
49 %     64     65     5     4      1
50 %     96     36     1     8     49
51 %     48     68     6     3      9
52 %     35     82     8     1     49
53 %     86     41     2     7     25
54 %     71     50     4     5      1
55
56 % The Spearman Rank Correlation is -1.0000
57
58
59 % =========================================
60
```