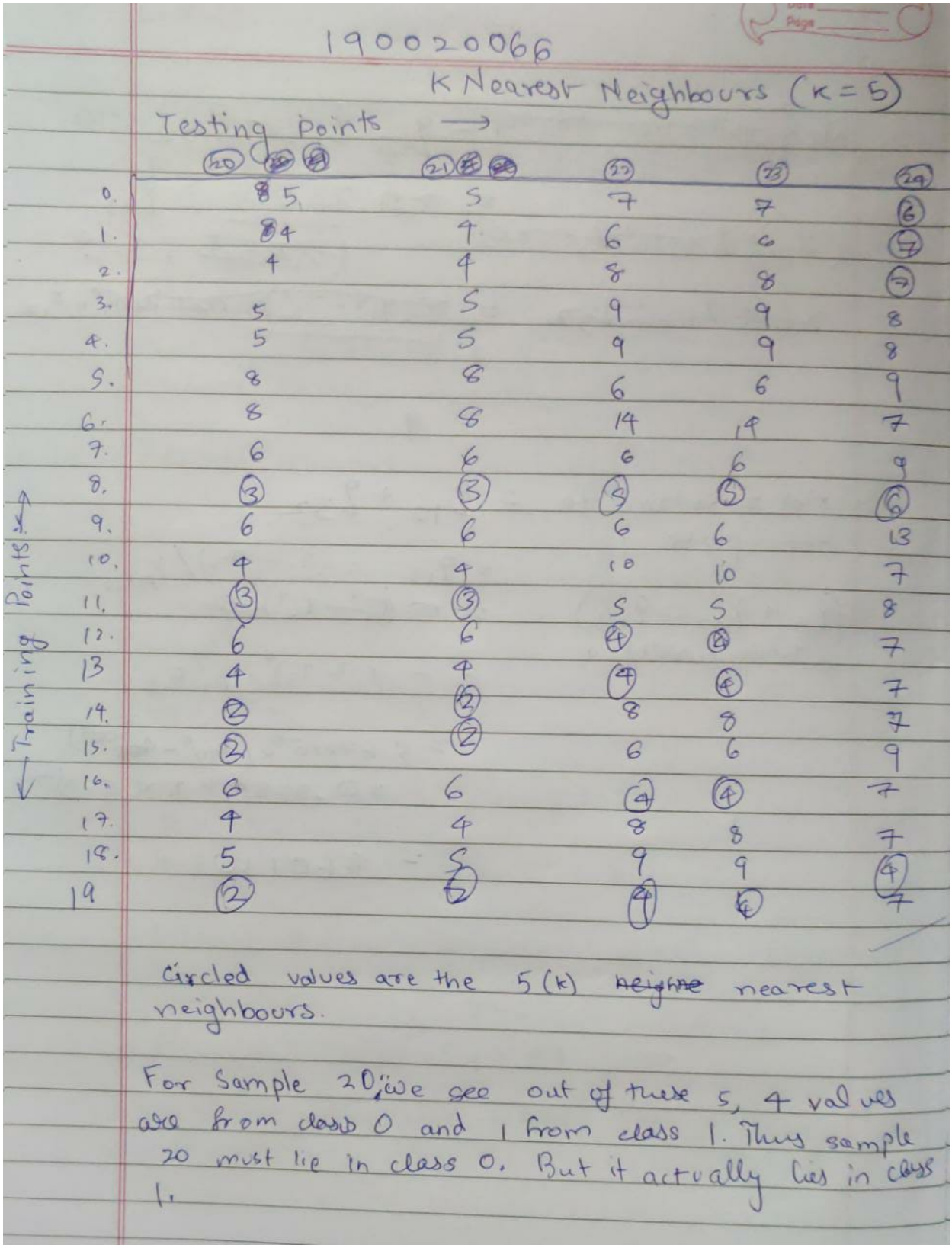
dataset: Somerville Happiness Survey Data Set
model: K-Nearest Neighbours

D = decision attribute (D) with values 0 (unhappy) and 1 (happy)
Attributes X1 to X6 have values 1 to 5.
X1 = the availability of information about the city services
X2 = the cost of housing
X3 = the overall quality of public schools
X4 = your trust in the local police
X5 = the maintenance of streets and sidewalks
X6 = the availability of social community events

Sample Data: Training: 0 to 19, Testing: 20 to 24

	D	X1	X2	X3	X4	X5	X6
0	0	3	3	3	4	2	4
1	0	3	2	3	5	4	3
2	1	5	3	3	3	3	5
3	0	5	4	3	3	3	5
4	0	5	4	3	3	3	5
5	1	5	5	3	5	5	5
6	0	3	1	2	2	1	3
7	1	5	4	4	4	4	5
8	0	4	1	4	4	4	4
9	0	4	4	4	2	5	5
10	0	3	2	3	3	2	3
11	0	4	4	3	4	4	4
12	1	5	2	4	5	5	5
13	0	4	2	4	5	4	3
14	0	4	1	3	3	4	3
15	1	3	2	4	3	4	4
16	0	5	3	4	5	4	5
17	1	5	1	4	3	4	5
18	0	5	1	2	4	4	5
19	0	4	2	4	4	4	4
20	1	4	2	3	3	4	4
21	1	4	2	3	3	4	4
22	0	4	3	5	5	5	4
23	0	4	3	5	5	5	4
24	1	5	1	2	5	2	4



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K Nearest Neighbours (K = 5)

Training Points ↓	Testing Points → (20)	(21)	(22)	(23)	(24)
0.	8 5	5	7	7	(6)
1.	8 4	4	6	6	(7)
2.	4	4	8	8	(7)
3.	5	5	9	9	8
4.	5	5	9	9	8
5.	8	8	6	6	9
6.	8	8	14	14	7
7.	6	6	6	6	9
8.	(3)	(3)	(5)	(5)	(6)
9.	6	6	6	6	13
10.	4	4	10	10	7
11.	(3)	(3)	5	5	8
12.	6	6	(4)	(4)	7
13	4	4	(4)	(4)	7
14.	(2)	(2)	8	8	7
15.	(2)	(2)	6	6	9
16.	6	6	(4)	(4)	7
17.	4	4	8	8	7
18.	5	(5)	9	9	(4)
19	(2)	(2)	(4)	(4)	7

Circled values are the 5 (k) ~~neighbe~~ nearest neighbours.

For sample 20, we see out of these 5, 4 values are from class 0 and 1 from class 1. Thus sample 20 must lie in class 0. But it actually lies in class 1.

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similarly sample 21 must lie in class 0, sample 22 in class 0, sample

Similarly:

Sample	Our output	Actual output class (1)
21	0	1
22	0	0
23	0	0
24	0	1

Thus we obtain an accuracy of 40%.

~~Upon comparing to the Github codes, we~~ The github (SK learn) classifier also gives us an accuracy of 40% for k=5.

For distance, I have used

$$|X| = \sum_{i=1}^{n} |x_i|$$ (n = no of features)

Train dataset : 0 to 19 (20 total)
Test dataset : 20 to 24. (5 total)

I haven't scaled the values because all features lie in 0 to 5.