MACHINE LEARNING-ASSINGMENT - 6

1) Single link proximity:

In single link proximity, The distance between two clusters is minimum distance between members of the two clusters. So, here we consider the minimum cluster Values

	P_1	P_2	P_3	P_4	P_5	P_6
P_1	0	0.2357	0.2218	0.3688	0.3421	0.2347
P_2	0.2357	0	0.1483	0.2042	0.1388	0.254
P_3	0.2218	0.1483	0	0.1513	0.2843	0.11
P_4	0.3688	0.2042	0.1513	0	0.2932	0.2216
P_5	0.3421	0.1388	0.2843	0.2932	0	0.3921
P_6	0.2347	0.254	**0.11**	0.2216	0.3921	0.

→ The smallest distance here is 0.11. As we are clustering here we cluster p3 and p6 forms as first cluster

	P_1	P_2	P_{36}	P_4	P_5
P_1	0	0.2357	0.2218	0.3688	0.3421
P_2	0.2357	0	0.1483	0.2042	0.1388
P_{36}	0.2218	0.1483	0	0.1513	0.2843
P_4	0.3688	0.2042	0.1513	0	0.2932
P_5	0.3421	**0.1388**	0.2843	0.2932	0

→ Here, The smallest distance is 0.1388. So, we cluster P_2 & P_5 forms as second cluster

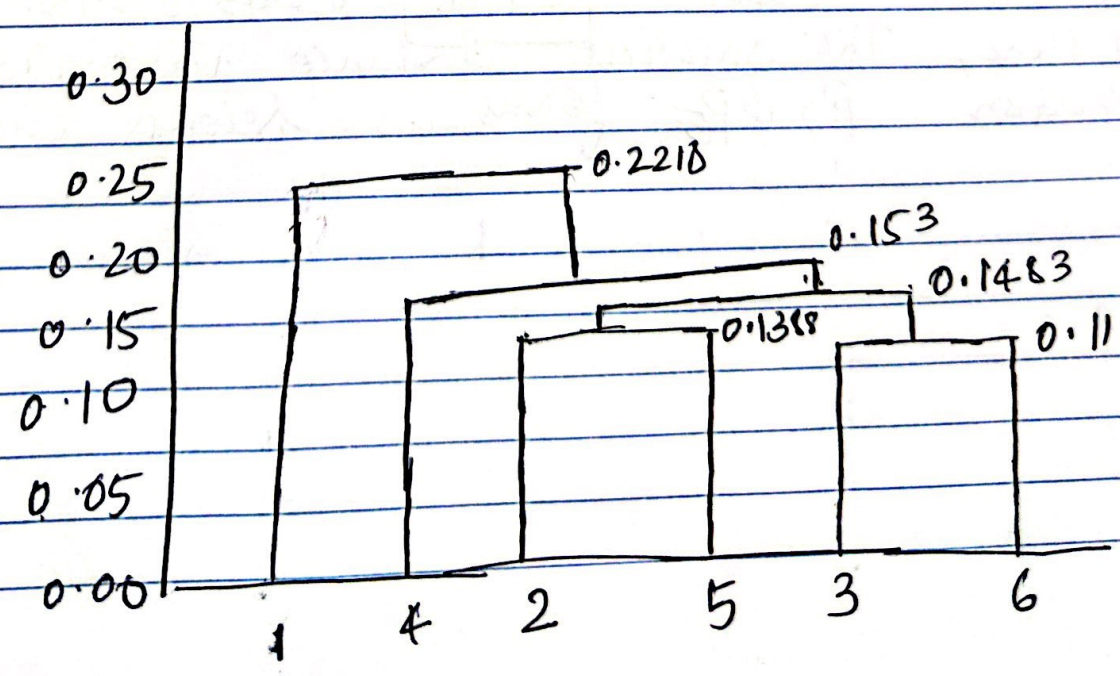
	P_1	P_{25}	P_{36}	P_4
P_1	0	0·2357	0·2218	0·3688
P_{25}	0·2357	0	0·1483	0·2042
P_{36}	0·2218	**0·1483**	0	0·1513
P_4	0·388	0·2042	0·1513	0

Here, Smallest distance is 0.1483. So, we cluster P36 and p25 forms as third cluster

	P_1	$P_{(25)(36)}$	P_4
P_1	0	0·2218	0·3688
$P_{(25)(36)}$	0·2218	0	0·1513
P_4	0·3688	**0·1513**	0.

Here, the Smallest distance is 0·153. So, we cluster $P_{(25)(36)}$ and p_4 which forms as fourth.

	P_1	$P_{4(25)(36)}$
P_1	0	0·2218
$P_{4(25)(36)}$	0·2218	0.



complete link proximity:

In complete link proximity, the distance between two clusters is the maximum distance between members of the two clusters.

	P_1	P_2	P_3	P_4	P_5	P_6
P_1	0	0.2357	0.2216	0.3688	0.3421	0.2347
P_2	0.2357	0	0.1483	0.2042	0.1388	0.254
P_3	0.2218	0.1483	0	0.1513	0.2843	0.11
P_4	0.3688	0.2042	0.1513	0	0.2932	0.2216
P_5	0.3421	0.1388	0.2843	0.2932	0	0.3921
P_6	0.2347	0.254	[0.11]	0.2216	0.3921	0

→ Here, the smallest distance is 0.11. So, P3 and P6 form first cluster

	P_1	P_2	P_{36}	P_4	P_5
P_1	0	0.2357	0.2347	0.3688	0.3421
P_2	0.2357	0	0.254	0.2042	0.1388
P_{36}	0.2347	0.254	0	0.2216	0.3921
P_4	0.3688	0.2042	0.2216	0	0.2932
P_5	0.3421	[0.1388]	0.3921	0.2932	0

→ Here, the smallest distance is 0.1388. So, P2 and P5 form second cluster

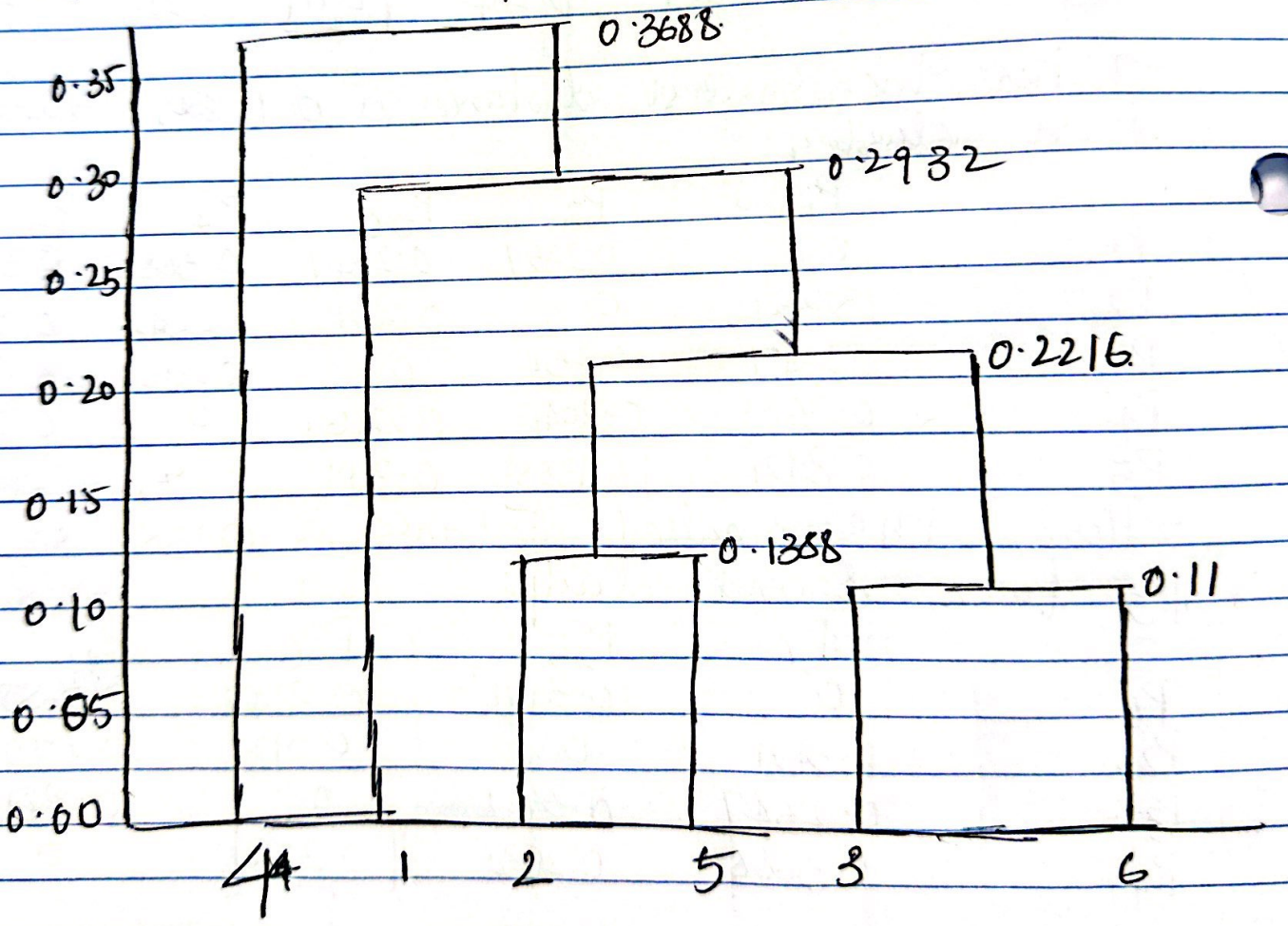
	P_1	P_{25}	P_{36}	P_4
P_1	0	0.3421	0.2347	0.3688
P_{25}	0.3421	0	0.3921	0.2932
P_{36}	0.2347	0.3921	0	0.2216
P_4	0.3688	0.2932	[0.2216]	0

→ Here, the smallest distance is 0.2216. So, P25 and P36 forms third cluster

	P_1	$P(25)(36)$	P_4
P_1	0	0.3421	0.3688
$P(25)(36)$	0.3421	0	0.2932
P_4	0.3688	0.2932	0

Here, the smallest distance is 0.2932. So, P(25)(36) and p_1 forms fourth cluster

	$P_1(25)(36)$	P_4
$P_1(25)(36)$	0	0.1483
P_4	0.3688	0



Average Link proximity:

In Average link proximity, the distance between two clusters is the average of all distance between members of the two clusters

	P_1	P_2	P_3	P_4	P_5	P_6
P_1	0	0.2357	0.2218	0.3688	0.3421	0.2347
P_2	0.2357	0	0.1483	0.2042	0.1388	0.254
P_3	0.2218	0.1483	0	0.1513	0.2843	0.11
P_4	0.3688	0.2042	0.1513	0	0.2932	0.2216
P_5	0.3421	0.1388	0.2843	0.2932	0	0.3921
P_6	0.2347	0.254	0.11	0.2216	0.3921	0.

→ Here, the Smallest distance is 0.11. So, P3 & P6 forms first cluster

	P_1	P_2	P_{36}	P_4	P_5
P_1	0	0.2357	0.22825	0.3688	0.3421
P_2	0.2357	0	0.20115	0.2042	0.1388
P_{36}	0.22825	0.20115	0	0.18645	0.3382
P_4	0.3688	0.2042	0.18645	0	0.2932
P_5	0.3421	0.1388	0.3382	0.2932	0

→ Here, the Smalled distance is 0.18645. So, P25 and P36 form Second cluster

	P_1	P_{25}	P_{36}	P_4
P_1	0	0.2889	0.2347	0.3688
P_{25}	0.2889	0	0.269675	0.2487
P_{36}	0.2347	0.269675	0	0.18645
P_4	0.3688	0.2487	**0.18645**	0

Here, the smallest distance is 0.18645. So, P_{25} and P_{36} form third cluster.

	P_1	$P(25)(36)$	P_4
P_1	0	0.2618	0.3688
$P(25)(36)$	0.2618	0	0.217575
P_4	0.3688	**0.217575**	0

Here, the smallest distance is 0.217575.

	$P1(25)(36)$	P_4
$P1(25)(36)$	0	0.3153
P_4	**0.3153**	0