Supplementary material for the article "Geomorphic Imprints of Active Tectonics of the Bikaner-Nagaur Petroliferous Rift Basin and its Surroundings (Western Rajasthan, India)" by Mery Biswas, Adrija Raha, Soumyajit Mukherjee and Vinit Shailesh Kotak. Jour. Geol. Soc. India, 2024, v.100 (3), pp.377-390

Repository 1

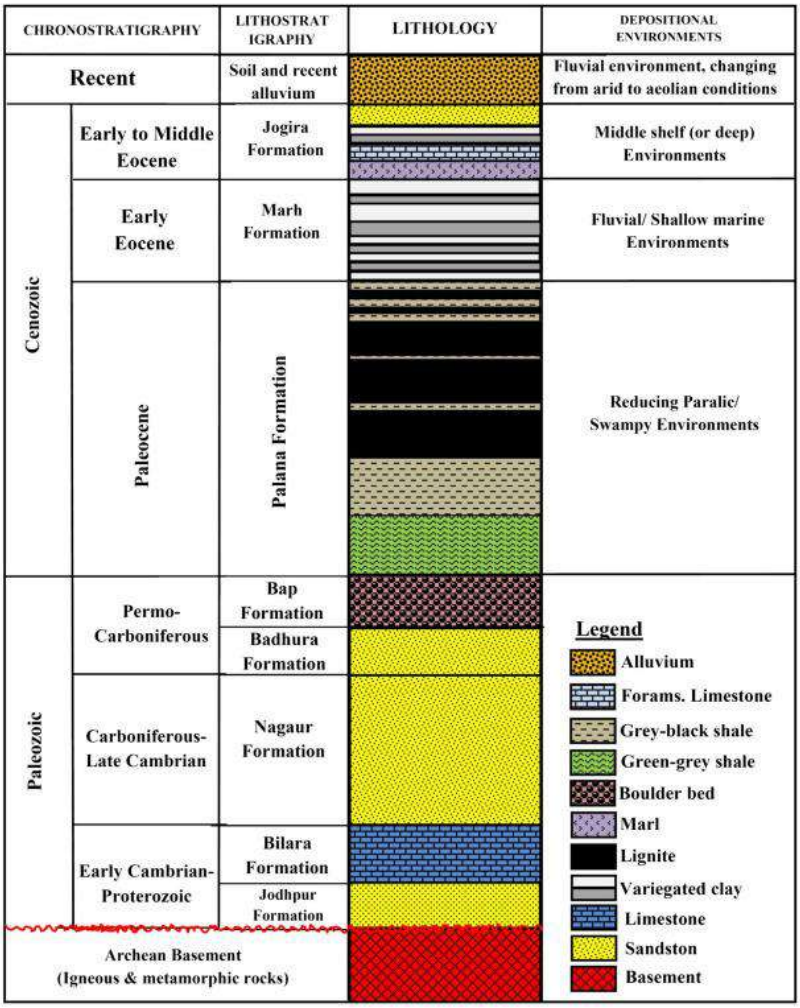

Fig. 1. Generalized lithostratigraphic succession of the Bikaner Nagaur Basin, north-western India **(**after Singh et al., 2020**).**

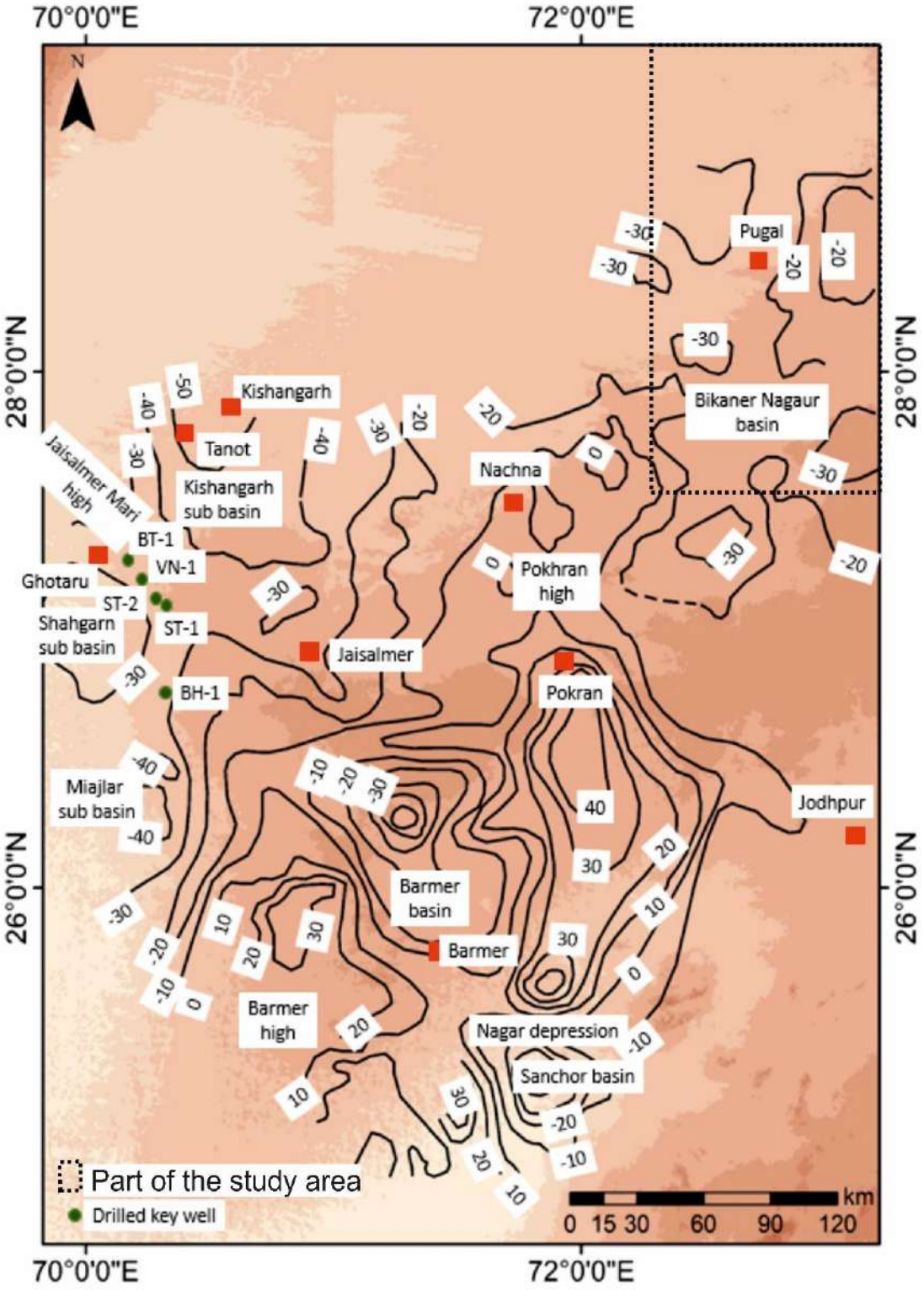

Fig.2. The Bouguer anomaly. Taken from Zutchi and Panwar (1997)

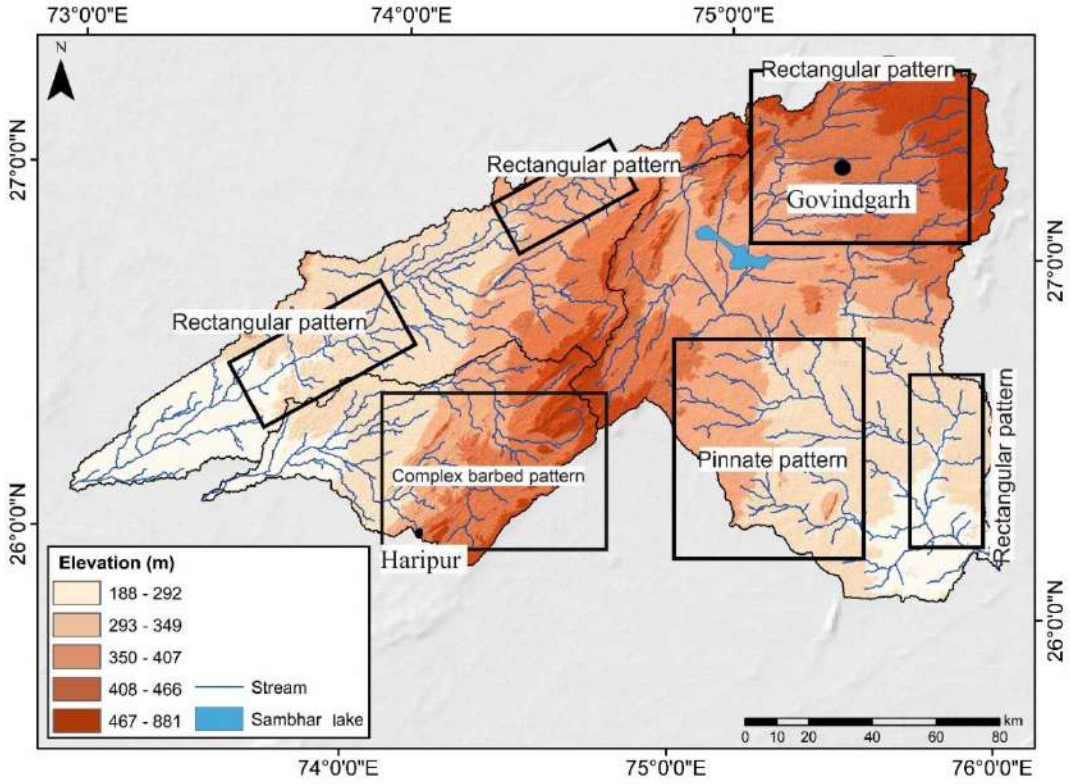

Fig. 3. Details of different drainage patterns as rectangular, pinnate and complex barbed in watershed 1-3.

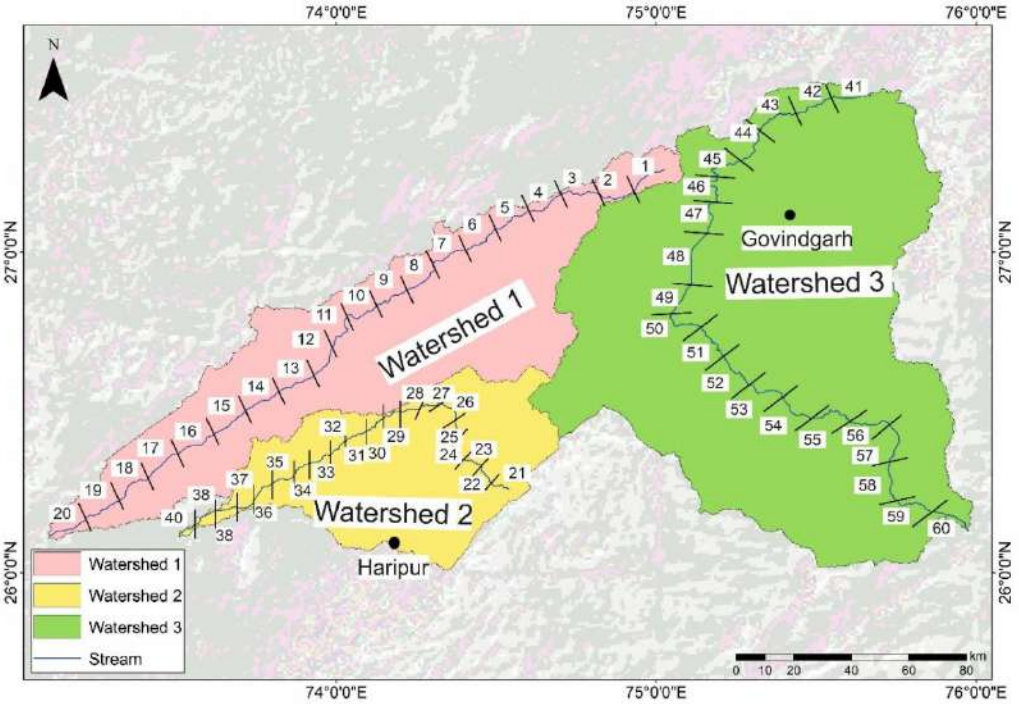

Fig. 4. 1-60 segments of the three watersheds.

References

Singh, A.K., Hakimi, M.H., Kumar, A., Ahmed, A., Abidin, N.S.Z., Kinawy, M., Mahdy, O.E. and Lashin, A.: Geochemical and organic petrographic characteristics of high bituminous shales from Gurha mine in Rajasthan, NW India. Sci. Rep, 10(1), 1-19, 2020.

Zutshi PL, Panwar MS.: Geology of Petroliferous basins of India. KDMIPE, ONGC, Dehradun, 1997.

Repository 2

Stratigraphy

The Neoproterozoic to Recent stratigraphic rock succession of the BNB (**Repository 1**, **Fig. 1)** lies over the Precambrian basement. This basin's rock exposures demonstrate progressive younging towards west. Overlooking the Middle Neoproterozoic Malani Igneous Suite is the Marwar Supergroup (**Prasad et al., 2010**). From the south of Nagaur to the north of Pokhran in the west, this Supergroup creates a notable geomorphic relief. As per **Prasad et al. (2010)**, the basin was tectonically unstable when the Marwar Supergroup was deposited. In ascending order of deposition, the Jodhpur Group, Bilara Group-Hanseran Evaporite Group and the Nagaur Group are farther separated from the Marwar Supergroup. The rocks in the Jodhpur group dip westward with < 5° dip (**Mandal et al., 2021**).

According to **Chauhan et al. (2004)**, the Jodhpur Group of rocks deposited at the shallow NNW-SSE trending intracratonic sag basin. The Bilara Group-Hanseran Evaporite Group consists of limestone-dolomite evaporites with thin clay-shale bands. The presence of carbonate

sediments, the lack of primary sedimentary structures, various forms of stromatolites and sharp bedding surfaces suggest that the Bilara Group of sediments deposited in shallow, low to moderately high energy marine water with poor circulation in a protected basin. The Nagaur Group starts with the Khichan conglomerate and consists of arenaceous and argillaceous facies.

The Marwar Supergroup unconformably overlies the Badhura and Bap Formations, a Permo-carboniferous marine group of rocks composed of glacial drift deposits (**Pandey and Bahadur, 2009; Pandey et al., 2014**). The Badhura and Bap Formations also contain erratic rock deposits such as boulders and cobbles. Late Palaeocene–Middle Eocene sediments from the Marh and Jogira Formations are deposited on top of the Palana Formation. The Marh Formation, which is composed of clays interbedded with poorly sorted, coarse-grained, ferruginous sandstones, succeeds the Palana Formation through gradational contact. This formation was deposited in fluvial to shallow marine settings. The Jogira Formation is a representative of the uppermost Tertiary marine facies. Marl, yellow shales, siltstone, fuller's earth, and foraminiferal limestone are all altered in the Jogira Formation.

Regionally, the thickness of the Group varies, and it thins at the central-eastern part of the basin, with a range of thicknesses between 300-400 m (**Mandal et al., 2021**). The thickness of the rocks in the Jodhpur Group varies geographically, reaching a maximum thickness of around 350 m in the northern portion of the basin and becoming thinner toward the southwest. Upper Proterozoic-Lower Palaeozoic deposits of the Marwar Supergroup cover the basin with a maximum thickness of 1500 m (**Kumar et al., 2005**) and are overlain by a thin cover of Mesozoic and Tertiary sediments (**Vyas et al., 2015; Mandal et al., 2021**). Sandstones and limestones are interbedded across the Jodhpur Group, which is predominantly constituted of sandstones.

References

Chauhan, D.S., Ram, B. and Ram, N.: Jodhpur Sandstone: a gift of ancient beaches to western Rajasthan. J. Geol. Soc. India, 78, 64(3), 265-276, 2004.

Kumar, V., Chandra, R. and Rastogi, S.: Geology and evolution of Nagaur-Ganganagar Basin with special reference to salt and potash mineralization. Geological Survey of India Special Publication, 62, 1-151, 2005.

Mandal, A., Saha, D. and Kumar, A., Structural analysis and seismic stratigraphy for delineation of Neoproterozoic-Cambrian petroleum system in central and eastern part of Bikaner–Nagaur basin, India. J Pet Explor Prod Technol, 1-17, 2021.

Prasad, B., Asher, R. and Borgohai, B.: Late Neoproterozoic (Ediacaran)-Early Paleozoic (Cambrian) Acritarchs from the Marwar Supergroup, Bikaner-Nagaur Basin, Rajasthan. J. Geol. Soc. India, 75(2), 415-431, 2010.

Pandey, D.K. and Bahadur, T.: A review of the stratigraphy of Marwar Supergroup of west-central Rajasthan. J. Geol. Soc. India, 73(6), pp.747-758, 2009.

Pandey, D.K., Uchman, A., Kumar, V. and Shekhawat, R.S.: Cambrian trace fossils of the Cruziana ichnofacies from the Bikaner-Nagaur Basin, north western Indian Craton. J. Asian Earth Sci, 81, 129-141, 2014.

Vyas, A., Mittal, G.S. and Gaur, C.P.: Lignite deposits of the Bikaner-Nagaur basin, around Matasukh-Kasnau in Nagaur district of Rajasthan J. Geol. Soc, 86(6), 742-746, 2015.

Repository 3

Important lineaments in Rajasthan.

- Pisangan-Vadnagar lineament **(Fig. 3)**

The 320 km long NNE-SSW trending Pisangan- Vadnagar lineament runs between Vadnagar (23°47': 72°41') in the south and Pisangan (26°40': 74°25') in the north. It is a deeply buried

lineament that, most likely, controlled the emplacement of the ophiolite suite of rocks between Pisangan and Sadri. The western margin of the Aravalli range is bound by this lineament. The Pisangan- Vadnagar lineament marks the contact between the Degana low gravity zone in the northwest and the Delhi metasediments high gravity zone in the southeast lineaments (**Bakliwal and Ramasamy, 1987; Kumar and Pandit, 2020**).

- Ajmer-Sandia lineament **(Fig. 3)**

The Ajmer- Sandia lineament is a 550 km long NW-SE trending lineament running between Ajmer (26°26': 74º40') in the northwest and Sandia (22°45': 76°20') in the southeast. It runs perpendicular to the regional trend from the monotonous Deccan Trap in the southeast, cuts over the Vindhyan plateau, crosses the pre-Aravalli pediplain, and eventually cuts the Delhi hill ranges. Between Bundi and Ajmer, it manifests itself as a simple linear feature in the pre-Aravalli granitic and gneissic terrain. On either side of this lineament in Ajmer, where it cuts into Delhi, different lithologies can be found.

- Tonk lineament **(Fig. 3)**

Raisinghnagar-Tonk lineament is a NW-SE trending lineament between Raisinghnagar and Tonk. The geologic and tectonic importance of this 400 km long lineament is unknown due to its location in the desert region. There are two alignments of Tonk lineament , one NNW-SSE **(Fig.3, No.19)** and another one SSW-NNE(**Fig. 3, No.19**). It marks the boundary between Jaipur's dune-invaded pre-Aravalli pediplain and Bhilwara's dune-free territory (**Bhu et al., 2014**).

Major salt lake like Sambhar is restricted within a narrow belt bounded by the Sakhi-Khatu-Kishangarh-Bundi lineament in the south and the NW-SE trending Raisingnagar-Tonk lineament in the north. It is reasonable to assume that the persistent salinity of these lakes is linked to the

subsurface halite-bearing Hanseran Evaporite Sequences in the Bikaner-Nagaur-Ganganagar (BKG) basin, which is geologically correlated to the Marwar Supergroup via tectonic lineaments/shears. Isolated sag ponds in Rajasthan also formed Tertiary lignite deposition centres (**Singh et al., 2016; Singh et al., 2018; Rajak et al., 2022**).

References

Bakliwal, P.C. and Ramasamy, S.M.; Lineament Fabric of Rajasthan and Gujarat, India.Rec. Geol. Surv. India (Jaipur), 113(7), 54-64, 1987.

Bhu, H., Purohit, R., Ram, J., Sharma, P. and Jakhar, S.R.: Neotectonic activity and parity in movements of Udaipur block of the Aravalli Craton and Indian Plate. Journal of Earth System Science, 123(2), 343-350. 2014.

Kumar, H. and Pandit, M.: Recurrent seismicity in Rajasthan State in the tectonically table NW Indian Craton. Iranian Journal of Earth Sciences, 12(1), 1-9, 2020.

Rajak, P. K., Singh, V. K., Kumar, A., Singh, V., Rai, A., Rai, S., Singh, K. N., Sharma, M., Naik, A. S., Mathur, N., & Singh, P. K.: Study of hydrocarbon source potential of Kapurdi Lignites of Barmer Basin, Rajasthan, western India. Journal of the Geological Society of India, 97(8), 836–842. https://doi.org/10.1007/s12594-021-1782-3, 2021.

Singh, P.K., Rajak, P.K., Singh, V.K., Singh, M.P., Naik, A.S. and Raju, S.V.: Studies on thermal maturity and hydrocarbon potential of lignites of Bikaner–Nagaur basin, Energy Explor. Exploit, 34(1), 140-157, 2016. .

Singh, A.K. and Kumar, A.: Organic geochemical characteristics of Nagaur lignites, Rajasthan, India, and their implication on thermal maturity and paleoenvironment. Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 40(15), 1842-1851, 2018.

Repository 4

Repository 4

Table 1. Similarity matrix / Proximity Matrix

Correlation between Vectors of Values

Case	1:Cas	2:Cas	3:Cas	4:Cas	5:Cas	6:Cas	7:Cas	8:Cas	9:Cas	10:Ca	11:Ca	12:Ca	13:Ca	14:Ca	15:Ca	16:Ca	17:Ca	18:Ca	19:Ca	20:Ca	21:Ca	22:Ca	23:Ca	24:Ca	25:Ca	26:Ca	27:Ca	28:Ca	29:Ca	30:Ca	31:Ca	32:Ca	33:Ca	34:Ca	35:Ca	36:Ca	37:Ca	38:Ca	39:Ca	40:Ca	41:Ca	42:Ca	43:Ca	44:Ca	45:Ca	46:Ca	47:Ca	48:Ca	49:Ca	50:Ca	51:Ca	52:Ca	53:Ca	54:Ca	55:Ca	56:Ca	57:Ca	58:Ca	59:Ca	60:Case
1:Case 1	1	1	1	1	1	0.7	0.9	0.9	0.7	1	0.9	1	0.2	-0.3	-0.3	-0.3	-0.3	-0.1	-0.3	-0.2	0.7	0.6	0.8	-0.8	0.6	-0.3	0.7	0.2	0.8	0.8	-0.9	-0.9	-0.4	-0.5	-1	-0.8	0.8	-0.7	-0.9	-0.3	0.1	0.1	-0.3	-0	0.7	0.8	0.1	-0.7	-0.7	0.2	-0.9	-0.8	-0.7	-0.4	-0.7	-0.7	-1	-1	-1	-0.817
2:Case 2	1	1	1	1	1	0.7	0.9	0.8	0.8	1	0.9	1	0.1	-0.3	-0.3	-0.3	-0.4	-0.2	-0.4	-0.3	0.7	0.6	0.8	-0.8	0.7	-0.1	0.8	0.4	0.8	0.8	-0.9	-0.9	-0.5	-0.4	-1	-0.8	0.7	-0.8	-0.9	-0.4	0.1	0.2	-0.2	0	0.8	0.8	0.1	-0.8	-0.7	0.1	-0.8	-0.8	-0.7	-0.2	-0.6	-0.7	-1	-1	-1	-0.827
3:Case 3	1	1	1	1	1	0.8	0.9	0.9	0.8	1	0.9	1	0.2	-0.2	-0.2	-0.2	-0.3	-0.1	-0.2	-0.2	0.6	0.5	0.8	-0.8	0.6	-0.1	0.7	0.3	0.7	0.7	-0.9	-0.9	-0.4	-0.5	-1	-0.9	0.7	-0.7	-0.9	-0.3	0	0.1	-0.3	-0.1	0.7	0.7	0	-0.8	-0.8	0.1	-0.8	-0.9	-0.8	-0.3	-0.7	-0.7	-1	-1	-1	-0.871
4:Case 4	1	1	1	1	1	0.8	0.9	0.9	0.8	1	0.9	1	0.3	-0.2	-0.2	-0.2	-0.2	-0	-0.2	-0.1	0.6	0.5	0.7	-0.8	0.6	-0.2	0.7	0.2	0.7	0.7	-0.8	-0.9	-0.3	-0.5	-1	-0.9	0.8	-0.7	-0.9	-0.3	0	0	-0.4	-0.1	0.6	0.7	-0	-0.8	-0.8	0.1	-0.8	-0.9	-0.8	-0.4	-0.7	-0.8	-0.9	-1	-1	-0.878
5:Case 5	1	1	1	1	1	0.9	1	0.9	0.9	0.9	1	1	0.4	-0	-0	-0	-0.1	0.1	-0.1	0	0.5	0.3	0.6	-0.9	0.4	-0.2	0.6	0.2	0.6	0.6	-0.7	-0.8	-0.3	-0.5	-1	-0.9	0.7	-0.5	-0.8	-0.2	-0.1	-0.1	-0.5	-0.3	0.5	0.6	-0.2	-0.9	-0.9	-0.1	-0.7	-0.9	-0.9	-0.4	-0.8	-0.9	-0.9	-1	-0.9	-0.945
6:Case 6	0.7	0.7	0.8	0.8	0.9	1	0.9	1	1	0.6	0.9	0.8	0.8	0.5	0.5	0.5	0.4	0.6	0.4	0.5	-0	-0.2	0.1	-1	-0.1	-0.3	0.1	-0.1	0.1	0.1	-0.3	-0.4	0.2	-0.6	-0.8	-1	0.6	-0	-0.4	0.3	-0.6	-0.6	-0.9	-0.7	0	0.1	-0.6	-0.9	-1	-0.5	-0.4	-1	-1	-0.6	-1	-1	-0.5	-0.8	-0.6	-0.968
7:Case 7	0.9	0.9	0.9	0.9	1	0.9	1	0.9	1	0.9	1	1	0.5	0.1	0.1	0.1	-0	0.2	-0	0	0.4	0.2	0.5	-1	0.3	0	0.5	0.3	0.5	0.5	-0.6	-0.6	-0.3	-0.3	-0.9	-1	0.5	-0.5	-0.6	-0.2	-0.3	-0.2	-0.5	-0.3	0.5	0.5	-0.2	-1	-0.9	-0.3	-0.6	-0.9	-0.8	-0.3	-0.8	-0.9	-0.8	-1	-0.9	-0.967
8:Case 8	0.9	0.8	0.9	0.9	0.9	1	0.9	1	0.9	0.8	1	0.9	0.6	0.2	0.2	0.3	0.2	0.4	0.3	0.3	0.2	0.1	0.4	-0.9	0.2	-0.5	0.3	-0.2	0.3	0.3	-0.5	-0.6	0.1	-0.8	-0.9	-0.9	0.8	-0.3	-0.6	0.2	-0.4	-0.4	-0.7	-0.5	0.2	0.3	-0.5	-0.9	-0.9	-0.2	-0.6	-1	-1	-0.7	-1	-0.9	-0.7	-0.8	-0.8	-0.943
9:Case 9	0.7	0.8	0.8	0.8	0.9	1	1	0.9	1	0.7	1	0.9	0.7	0.3	0.4	0.4	0.3	0.5	0.2	0.3	0.1	-0.1	0.3	-1	0.1	-0	0.2	0.2	0.2	0.2	-0.4	-0.4	-0.1	-0.4	-0.8	-1	0.4	-0.2	-0.4	0.1	-0.5	-0.5	-0.7	-0.6	0.2	0.3	-0.4	-1	-1	-0.5	-0.4	-0.9	-0.9	-0.4	-0.9	-1	-0.6	-0.8	-0.7	-0.989
10:Case 10	1	1	1	1	0.9	0.6	0.9	0.8	0.7	1	0.8	1	0.1	-0.4	-0.4	-0.4	-0.4	-0.2	-0.4	-0.4	0.8	0.6	0.9	-0.7	0.7	-0	0.8	0.4	0.8	0.8	-0.9	-0.9	-0.6	-0.3	-1	-0.8	0.7	-0.8	-0.9	-0.5	0.2	0.2	-0.1	0.1	0.8	0.8	0.2	-0.7	-0.6	0.2	-0.9	-0.8	-0.6	-0.2	-0.6	-0.6	-1	-1	-1	-0.774
11:Case 11	0.9	0.9	0.9	0.9	1	0.9	1	1	1	0.8	1	1	0.6	0.2	0.2	0.2	0.1	0.3	0.1	0.2	0.3	0.1	0.5	-1	0.2	-0.2	0.4	0.1	0.4	0.4	-0.6	-0.6	-0.1	-0.5	-0.9	-1	0.6	-0.4	-0.6	0	-0.4	-0.3	-0.6	-0.5	0.4	0.4	-0.3	-1	-1	-0.3	-0.6	-1	-0.9	-0.5	-0.9	-0.9	-0.8	-0.9	-0.9	-0.994
12:Case 12	1	1	1	1	1	0.8	1	0.9	0.9	1	1	1	0.4	-0.1	-0.1	-0.1	-0.1	0.1	-0.1	-0.1	0.5	0.4	0.7	-0.9	0.5	-0.1	0.6	0.3	0.6	0.6	-0.8	-0.8	-0.4	-0.4	-1	-0.9	0.7	-0.6	-0.8	-0.2	-0.1	-0.1	-0.4	-0.2	0.6	0.6	-0.1	-0.9	-0.8	-0.1	-0.7	-0.9	-0.8	-0.3	-0.8	-0.8	-0.9	-1	-1	-0.934
13:Case 13	0.2	0.1	0.2	0.3	0.4	0.8	0.5	0.6	0.7	0.1	0.6	0.4	1	0.9	0.9	0.9	0.9	1	0.8	0.9	-0.6	-0.7	-0.4	-0.7	-0.6	-0.2	-0.5	-0.3	-0.5	-0.5	0.3	0.2	0.6	-0.5	-0.3	-0.7	0.1	0.5	0.3	0.7	-1	-1	-1	-1	-0.5	-0.5	-0.9	-0.7	-0.8	-0.8	0.2	-0.7	-0.8	-0.5	-0.8	-0.8	0	-0.3	-0.1	-0.675
14:Case 14	-0.3	-0.3	-0.2	-0.2	-0	0.5	0.1	0.2	0.3	-0.4	0.2	-0.1	0.9	1	1	1	1	1	1	1	-0.9	-1	-0.8	-0.3	-0.9	-0.2	-0.8	-0.5	-0.8	-0.8	0.7	0.6	0.8	-0.3	0.2	-0.3	-0.2	0.9	0.6	0.9	-1	-1	-0.9	-1	-0.9	-0.8	-1	-0.3	-0.5	-0.8	0.6	-0.3	-0.4	-0.4	-0.5	-0.5	0.5	0.2	0.4	-0.27
15:Case 15	-0.3	-0.3	-0.2	-0.2	-0	0.5	0.1	0.2	0.4	-0.4	0.2	-0.1	0.9	1	1	1	1	1	1	1	-0.9	-1	-0.8	-0.4	-0.9	-0.2	-0.8	-0.5	-0.8	-0.8	0.7	0.6	0.8	-0.3	0.2	-0.3	-0.2	0.9	0.6	0.9	-1	-1	-0.8	-1	-0.8	-0.8	-1	-0.3	-0.5	-0.8	0.6	-0.3	-0.4	-0.4	-0.5	-0.5	0.5	0.2	0.4	-0.284
16:Case 16	-0.3	-0.3	-0.2	-0.2	-0	0.5	0.1	0.3	0.4	-0.4	0.2	-0.1	0.9	1	1	1	1	1	1	1	-0.9	-0.9	-0.8	-0.4	-0.9	-0.2	-0.8	-0.5	-0.8	-0.8	0.7	0.6	0.8	-0.3	0.1	-0.3	-0.1	0.8	0.6	0.9	-1	-1	-0.9	-1	-0.8	-0.8	-1	-0.3	-0.5	-0.8	0.6	-0.3	-0.5	-0.4	-0.5	-0.5	0.5	0.2	0.3	-0.296
17:Case 17	-0.3	-0.4	-0.3	-0.2	-0.1	0.4	-0	0.2	0.3	-0.4	0.1	-0.1	0.9	1	1	1	1	1	1	1	-0.9	-1	-0.8	-0.3	-0.9	-0.3	-0.9	-0.6	-0.9	-0.9	0.7	0.6	0.9	-0.3	0.2	-0.2	-0.2	0.9	0.6	0.9	-1	-1	-0.8	-0.9	-0.9	-0.9	-1	-0.2	-0.4	-0.7	0.6	-0.2	-0.4	-0.5	-0.5	-0.4	0.5	0.3	0.4	-0.213
18:Case 18	-0.1	-0.2	-0.1	-0	0.1	0.6	0.2	0.4	0.5	-0.2	0.3	0.1	1	1	1	1	1	1	1	1	-0.8	-0.9	-0.7	-0.5	-0.8	-0.2	-0.7	-0.5	-0.7	-0.7	0.6	0.5	0.7	-0.4	0	-0.4	-0.1	0.8	0.5	0.9	-1	-1	-0.9	-1	-0.8	-0.7	-1	-0.4	-0.6	-0.8	0.5	-0.4	-0.6	-0.4	-0.6	-0.6	0.3	0.1	0.2	-0.419
19:Case 19	-0.3	-0.4	-0.2	-0.2	-0.1	0.4	-0	0.3	0.2	-0.4	0.1	-0.1	0.8	1	1	1	1	1	1	1	-0.9	-0.9	-0.8	-0.3	-0.9	-0.4	-0.9	-0.7	-0.8	-0.8	0.7	0.5	0.9	-0.5	0.2	-0.2	-0.1	0.8	0.6	1	-0.9	-1	-0.8	-0.9	-0.9	-0.8	-1	-0.2	-0.4	-0.6	0.5	-0.3	-0.4	-0.6	-0.5	-0.4	0.5	0.3	0.4	-0.215
20:Case 20	-0.2	-0.3	-0.2	-0.1	0	0.5	0	0.3	0.3	-0.4	0.2	-0.1	0.9	1	1	1	1	1	1	1	-0.8	-0.9	-0.8	-0.3	-0.9	-0.4	-0.8	-0.7	-0.8	-0.8	0.6	0.5	0.9	-0.5	0.1	-0.3	0	0.8	0.5	1	-0.9	-1	-0.9	-0.9	-0.8	-0.8	-1	-0.2	-0.5	-0.6	0.5	-0.3	-0.5	-0.6	-0.6	-0.5	0.4	0.2	0.3	-0.281
21:Case 21	0.7	0.7	0.6	0.6	0.5	-0	0.4	0.2	0.1	0.8	0.3	0.5	-0.6	-0.9	-0.9	-0.9	-0.9	-0.8	-0.9	-0.8	1	1	1	-0.1	1	0	1	0.5	1	1	-0.9	-0.9	-0.8	-0	-0.6	-0.2	0.5	-1	-0.9	-0.8	0.8	0.8	0.5	0.7	1	1	0.8	-0.2	0	0.7	-0.9	-0.2	-0	0.1	0.1	0	-0.8	-0.6	-0.7	-0.184
22:Case 22	0.6	0.6	0.5	0.5	0.3	-0.2	0.2	0.1	-0.1	0.6	0.1	0.4	-0.7	-1	-1	-0.9	-1	-0.9	-0.9	-0.9	1	1	0.9	0.1	1	0.1	1	0.5	1	1	-0.9	-0.8	-0.8	0.1	-0.4	-0	0.4	-1	-0.8	-0.9	0.9	0.9	0.7	0.8	1	0.9	0.9	0	0.2	0.8	-0.8	-0	0.1	0.2	0.2	0.2	-0.7	-0.5	-0.6	-0.012
23:Case 23	0.8	0.8	0.8	0.7	0.6	0.1	0.5	0.4	0.3	0.9	0.5	0.7	-0.4	-0.8	-0.8	-0.8	-0.8	-0.7	-0.8	-0.8	1	0.9	1	-0.3	1	0.1	1	0.5	1	1	-1	-0.9	-0.8	-0.1	-0.7	-0.4	0.6	-1	-0.9	-0.8	0.7	0.7	0.4	0.6	1	1	0.7	-0.3	-0.2	0.6	-0.9	-0.3	-0.2	0.1	-0.1	-0.1	-0.9	-0.8	-0.9	-0.36
24:Case 24	-0.8	-0.8	-0.8	-0.8	-0.9	-1	-1	-0.9	-1	-0.7	-1	-0.9	-0.7	-0.3	-0.4	-0.4	-0.3	-0.5	-0.3	-0.3	-0.1	0.1	-0.3	1	-0.1	0.1	-0.2	-0.1	-0.2	-0.2	0.4	0.4	0	0.5	0.9	1	-0.5	0.2	0.4	-0.1	0.5	0.5	0.8	0.6	-0.2	-0.3	0.5	1	1	0.5	0.4	1	0.9	0.4	0.9	1	0.7	0.8	0.7	0.997
25:Case 25	0.6	0.7	0.6	0.6	0.4	-0.1	0.3	0.2	0.1	0.7	0.2	0.5	-0.6	-0.9	-0.9	-0.9	-0.9	-0.8	-0.9	-0.9	1	1	1	-0.1	1	0.1	1	0.5	1	1	-0.9	-0.8	-0.8	0.1	-0.5	-0.1	0.5	-1	-0.9	-0.9	0.8	0.8	0.6	0.8	1	1	0.8	-0.1	0.1	0.7	-0.8	-0.1	0	0.2	0.1	0.1	-0.8	-0.6	-0.7	-0.129
26:Case 26	-0.3	-0.1	-0.1	-0.2	-0.2	-0.3	0	-0.5	-0	-0	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	-0.2	-0.4	-0.4	0	0.1	0.1	0.1	0.1	1	0.1	0.9	0.1	0.1	0.1	0.3	-0.6	0.9	0.2	0.1	-0.7	-0.1	0.3	-0.5	0.2	0.2	0.4	0.3	0.2	0.2	0.4	-0.1	0.2	-0.4	0.4	0.4	0.4	0.9	0.5	0.3	0.1	0.1	0	0.149
27:Case 27	0.7	0.8	0.7	0.7	0.6	0.1	0.5	0.3	0.2	0.8	0.4	0.6	-0.5	-0.8	-0.8	-0.8	-0.9	-0.7	-0.9	-0.8	1	1	1	-0.2	1	0.1	1	0.6	1	1	-1	-0.9	-0.9	0	-0.7	-0.3	0.5	-1	-0.9	-0.9	0.7	0.7	0.5	0.6	1	1	0.7	-0.3	-0.1	0.6	-0.8	-0.3	-0.1	0.2	-0	-0.1	-0.9	-0.7	-0.8	-0.292
28:Case 28	0.2	0.4	0.3	0.2	0.2	-0.1	0.3	-0.2	0.2	0.4	0.1	0.3	-0.3	-0.5	-0.5	-0.5	-0.6	-0.5	-0.7	-0.7	0.5	0.5	0.5	-0.1	0.5	0.9	0.6	1	0.6	0.5	-0.4	-0.1	-0.9	0.7	-0.2	-0.1	-0.3	-0.5	-0.2	-0.8	0.4	0.5	0.4	0.5	0.6	0.6	0.6	-0.3	-0	-0.1	-0.1	0.1	0.2	0.8	0.3	0.1	-0.4	-0.3	-0.4	-0.105
29:Case 29	0.8	0.8	0.7	0.7	0.6	0.1	0.5	0.3	0.2	0.8	0.4	0.6	-0.5	-0.8	-0.8	-0.8	-0.9	-0.7	-0.8	-0.8	1	1	1	-0.2	1	0.1	1	0.6	1	1	-1	-0.9	-0.8	-0	-0.7	-0.3	0.5	-1	-0.9	-0.8	0.7	0.7	0.4	0.6	1	1	0.7	-0.3	-0.1	0.6	-0.9	-0.3	-0.1	0.1	-0	-0.1	-0.9	-0.7	-0.8	-0.293
30:Case 30	0.8	0.8	0.7	0.7	0.6	0.1	0.5	0.3	0.2	0.8	0.4	0.6	-0.5	-0.8	-0.8	-0.8	-0.9	-0.7	-0.8	-0.8	1	1	1	-0.2	1	0.1	1	0.5	1	1	-1	-0.9	-0.8	-0	-0.7	-0.3	0.5	-1	-0.9	-0.8	0.7	0.7	0.4	0.6	1	1	0.7	-0.3	-0.1	0.6	-0.9	-0.3	-0.1	0.1	-0	-0.1	-0.9	-0.7	-0.8	-0.305
31:Case 31	-0.9	-0.9	-0.9	-0.8	-0.7	-0.3	-0.6	-0.5	-0.4	-0.9	-0.6	-0.8	0.3	0.7	0.7	0.7	0.7	0.6	0.7	0.6	-0.9	-0.9	-1	0.4	-0.9	0.1	-1	-0.4	-1	-1	1	1	0.7	0.2	0.8	0.5	-0.7	1	1	0.7	-0.6	-0.6	-0.2	-0.4	-1	-1	-0.5	0.4	0.3	-0.5	0.9	0.5	0.3	0.1	0.3	0.3	1	0.8	0.9	0.49
32:Case 32	-0.9	-0.9	-0.9	-0.9	-0.8	-0.4	-0.6	-0.6	-0.4	-0.9	-0.6	-0.8	0.2	0.6	0.6	0.6	0.6	0.5	0.5	0.5	-0.9	-0.8	-0.9	0.4	-0.8	0.3	-0.9	-0.1	-0.9	-0.9	1	1	0.5	0.5	0.8	0.5	-0.9	0.9	1	0.5	-0.5	-0.5	-0.1	-0.3	-0.8	-0.9	-0.4	0.4	0.3	-0.6	1	0.6	0.5	0.4	0.4	0.4	0.9	0.8	0.9	0.512
33:Case 33	-0.4	-0.5	-0.4	-0.3	-0.3	0.2	-0.3	0.1	-0.1	-0.6	-0.1	-0.4	0.6	0.8	0.8	0.8	0.9	0.7	0.9	0.9	-0.8	-0.8	-0.8	0	-0.8	-0.6	-0.9	-0.9	-0.8	-0.8	0.7	0.5	1	-0.5	0.4	0.1	0	0.8	0.5	1	-0.7	-0.8	-0.6	-0.7	-0.9	-0.9	-0.8	0.2	-0.1	-0.3	0.5	-0.1	-0.2	-0.6	-0.3	-0.2	0.6	0.5	0.6	0.071
34:Case 34	-0.5	-0.4	-0.5	-0.5	-0.5	-0.6	-0.3	-0.8	-0.4	-0.3	-0.5	-0.4	-0.5	-0.3	-0.3	-0.3	-0.3	-0.4	-0.5	-0.5	-0	0.1	-0.1	0.5	0.1	0.9	0	0.7	-0	-0	0.2	0.5	-0.5	1	0.5	0.5	-0.9	0	0.4	-0.5	0.3	0.4	0.6	0.5	0.1	0	0.5	0.3	0.5	-0.2	0.5	0.7	0.7	1	0.8	0.6	0.3	0.4	0.3	0.514
35:Case 35	-1	-1	-1	-1	-1	-0.8	-0.9	-0.9	-0.8	-1	-0.9	-1	-0.3	0.2	0.2	0.1	0.2	0	0.2	0.1	-0.6	-0.4	-0.7	0.9	-0.5	0.2	-0.7	-0.2	-0.7	-0.7	0.8	0.8	0.4	0.5	1	0.9	-0.8	0.7	0.8	0.3	0	-0	0.4	0.1	-0.6	-0.7	0	0.8	0.8	-0	0.8	0.9	0.8	0.4	0.7	0.8	0.9	1	1	0.894
36:Case 36	-0.8	-0.8	-0.9	-0.9	-0.9	-1	-1	-0.9	-1	-0.8	-1	-0.9	-0.7	-0.3	-0.3	-0.3	-0.2	-0.4	-0.2	-0.3	-0.2	-0	-0.4	1	-0.1	0.1	-0.3	-0.1	-0.3	-0.3	0.5	0.5	0.1	0.5	0.9	1	-0.6	0.3	0.5	-0.1	0.4	0.4	0.7	0.5	-0.3	-0.3	0.4	1	1	0.4	0.5	1	0.9	0.4	0.9	1	0.7	0.9	0.8	1
37:Case 37	0.8	0.7	0.7	0.8	0.7	0.6	0.5	0.8	0.4	0.7	0.6	0.7	0.1	-0.2	-0.2	-0.1	-0.2	-0.1	-0.1	0	0.5	0.4	0.6	-0.5	0.5	-0.7	0.5	-0.3	0.5	0.5	-0.7	-0.9	0	-0.9	-0.8	-0.6	1	-0.5	-0.8	0	0.1	0.1	-0.3	-0.1	0.5	0.5	-0.1	-0.4	-0.5	0.5	-0.9	-0.7	-0.7	-0.8	-0.7	-0.5	-0.7	-0.7	-0.7	-0.577
38:Case 38	-0.7	-0.8	-0.7	-0.7	-0.5	-0	-0.5	-0.3	-0.2	-0.8	-0.4	-0.6	0.5	0.9	0.9	0.8	0.9	0.8	0.8	0.8	-1	-1	-1	0.2	-1	-0.1	-1	-0.5	-1	-1	1	0.9	0.8	0	0.7	0.3	-0.5	1	0.9	0.8	-0.7	-0.8	-0.5	-0.7	-1	-1	-0.7	0.2	0.1	-0.6	0.9	0.3	0.1	-0.1	0	0	0.9	0.7	0.8	0.261
39:Case 39	-0.9	-0.9	-0.9	-0.9	-0.8	-0.4	-0.6	-0.6	-0.4	-0.9	-0.6	-0.8	0.3	0.6	0.6	0.6	0.6	0.5	0.6	0.5	-0.9	-0.8	-0.9	0.4	-0.9	0.3	-0.9	-0.2	-0.9	-0.9	1	1	0.5	0.4	0.8	0.5	-0.8	0.9	1	0.5	-0.5	-0.5	-0.1	-0.4	-0.9	-0.9	-0.4	0.4	0.3	-0.6	1	0.6	0.4	0.3	0.4	0.3	0.9	0.8	0.9	0.498
40:Case 40	-0.3	-0.4	-0.3	-0.3	-0.2	0.3	-0.2	0.2	0.1	-0.5	0	-0.2	0.7	0.9	0.9	0.9	0.9	0.9	1	1	-0.8	-0.9	-0.8	-0.1	-0.9	-0.5	-0.9	-0.8	-0.8	-0.8	0.7	0.5	1	-0.5	0.3	-0.1	0	0.8	0.5	1	-0.8	-0.9	-0.7	-0.8	-0.9	-0.9	-0.9	-0	-0.3	-0.5	0.5	-0.2	-0.3	-0.6	-0.4	-0.3	0.5	0.3	0.5	-0.084
41:Case 41	0.1	0.1	0	0	-0.1	-0.6	-0.3	-0.4	-0.5	0.2	-0.4	-0.1	-1	-1	-1	-1	-1	-1	-0.9	-0.9	0.8	0.9	0.7	0.5	0.8	0.2	0.7	0.4	0.7	0.7	-0.6	-0.5	-0.7	0.3	0	0.4	0.1	-0.7	-0.5	-0.8	1	1	0.9	1	0.7	0.7	1	0.5	0.6	0.8	-0.5	0.4	0.6	0.4	0.6	0.6	-0.3	-0	-0.2	0.449
42:Case 42	0.1	0.2	0.1	0	-0.1	-0.6	-0.2	-0.4	-0.5	0.2	-0.3	-0.1	-1	-1	-1	-1	-1	-1	-1	-1	0.8	0.9	0.7	0.5	0.8	0.2	0.7	0.5	0.7	0.7	-0.6	-0.5	-0.8	0.4	-0	0.4	0.1	-0.8	-0.5	-0.9	1	1	0.9	1	0.8	0.7	1	0.4	0.6	0.8	-0.5	0.4	0.6	0.5	0.6	0.6	-0.3	-0.1	-0.2	0.425
43:Case 43	-0.3	-0.2	-0.3	-0.4	-0.5	-0.9	-0.5	-0.7	-0.7	-0.1	-0.6	-0.4	-1	-0.9	-0.8	-0.9	-0.8	-0.9	-0.8	-0.9	0.5	0.7	0.4	0.8	0.6	0.4	0.5	0.4	0.4	0.4	-0.2	-0.1	-0.6	0.6	0.4	0.7	-0.3	-0.5	-0.1	-0.7	0.9	0.9	1	1	0.5	0.4	0.9	0.7	0.8	0.7	-0.1	0.7	0.8	0.7	0.9	0.9	0	0.3	0.2	0.712
44:Case 44	-0	0	-0.1	-0.1	-0.3	-0.7	-0.3	-0.5	-0.6	0.1	-0.5	-0.2	-1	-1	-1	-1	-0.9	-1	-0.9	-0.9	0.7	0.8	0.6	0.6	0.8	0.3	0.6	0.5	0.6	0.6	-0.4	-0.3	-0.7	0.5	0.1	0.5	-0.1	-0.7	-0.4	-0.8	1	1	1	1	0.7	0.6	1	0.5	0.7	0.8	-0.3	0.6	0.7	0.5	0.7	0.7	-0.2	0.1	-0.1	0.542
45:Case 45	0.7	0.8	0.7	0.6	0.5	0	0.5	0.2	0.2	0.8	0.4	0.6	-0.5	-0.9	-0.8	-0.8	-0.9	-0.8	-0.9	-0.8	1	1	1	-0.2	1	0.2	1	0.6	1	1	-1	-0.8	-0.9	0.1	-0.6	-0.3	0.5	-1	-0.9	-0.9	0.7	0.8	0.5	0.7	1	1	0.8	-0.3	-0.1	0.6	-0.8	-0.2	-0.1	0.2	0	-0	-0.9	-0.7	-0.8	-0.258
46:Case 46	0.8	0.8	0.7	0.7	0.6	0.1	0.5	0.3	0.3	0.8	0.4	0.6	-0.5	-0.8	-0.8	-0.8	-0.9	-0.7	-0.8	-0.8	1	0.9	1	-0.3	1	0.2	1	0.6	1	1	-1	-0.9	-0.9	0	-0.7	-0.3	0.5	-1	-0.9	-0.9	0.7	0.7	0.4	0.6	1	1	0.7	-0.3	-0.1	0.5	-0.8	-0.3	-0.1	0.2	-0	-0.1	-0.9	-0.7	-0.8	-0.331
47:Case 47	0.1	0.1	0	-0	-0.2	-0.6	-0.2	-0.5	-0.4	0.2	-0.3	-0.1	-0.9	-1	-1	-1	-1	-1	-1	-1	0.8	0.9	0.7	0.5	0.8	0.4	0.7	0.6	0.7	0.7	-0.5	-0.4	-0.8	0.5	0	0.4	-0.1	-0.7	-0.4	-0.9	1	1	0.9	1	0.8	0.7	1	0.4	0.6	0.7	-0.4	0.5	0.6	0.6	0.7	0.6	-0.3	-0	-0.2	0.423
48:Case 48	-0.7	-0.8	-0.8	-0.8	-0.9	-0.9	-1	-0.9	-1	-0.7	-1	-0.9	-0.7	-0.3	-0.3	-0.3	-0.2	-0.4	-0.2	-0.2	-0.2	0	-0.3	1	-0.1	-0.1	-0.3	-0.3	-0.3	-0.3	0.4	0.4	0.2	0.3	0.8	1	-0.4	0.2	0.4	-0	0.5	0.4	0.7	0.5	-0.3	-0.3	0.4	1	1	0.5	0.4	0.9	0.9	0.3	0.8	0.9	0.7	0.9	0.8	0.978
49:Case 49	-0.7	-0.7	-0.8	-0.8	-0.9	-1	-0.9	-0.9	-1	-0.6	-1	-0.8	-0.8	-0.5	-0.5	-0.5	-0.4	-0.6	-0.4	-0.5	0	0.2	-0.2	1	0.1	0.2	-0.1	-0	-0.1	-0.1	0.3	0.3	-0.1	0.5	0.8	1	-0.5	0.1	0.3	-0.3	0.6	0.6	0.8	0.7	-0.1	-0.1	0.6	1	1	0.5	0.3	0.9	1	0.5	0.9	1	0.6	0.8	0.7	0.979
50:Case 50	0.2	0.1	0.1	0.1	-0.1	-0.5	-0.3	-0.2	-0.5	0.2	-0.3	-0.1	-0.8	-0.8	-0.8	-0.8	-0.7	-0.8	-0.6	-0.6	0.7	0.8	0.6	0.5	0.7	-0.4	0.6	-0.1	0.6	0.6	-0.5	-0.6	-0.3	-0.2	-0	0.4	0.5	-0.6	-0.6	-0.5	0.8	0.8	0.7	0.8	0.6	0.5	0.7	0.5	0.5	1	-0.6	0.2	0.3	-0.1	0.3	0.5	-0.3	-0	-0.1	0.38
51:Case 51	-0.9	-0.8	-0.8	-0.8	-0.7	-0.4	-0.6	-0.6	-0.4	-0.9	-0.6	-0.7	0.2	0.6	0.6	0.6	0.6	0.5	0.5	0.5	-0.9	-0.8	-0.9	0.4	-0.8	0.4	-0.8	-0.1	-0.9	-0.9	0.9	1	0.5	0.5	0.8	0.5	-0.9	0.9	1	0.5	-0.5	-0.5	-0.1	-0.3	-0.8	-0.8	-0.4	0.4	0.3	-0.6	1	0.6	0.4	0.4	0.4	0.3	0.9	0.8	0.8	0.484
52:Case 52	-0.8	-0.8	-0.9	-0.9	-0.9	-1	-0.9	-1	-0.9	-0.8	-1	-0.9	-0.7	-0.3	-0.3	-0.3	-0.2	-0.4	-0.3	-0.3	-0.2	-0	-0.3	1	-0.1	0.4	-0.3	0.1	-0.3	-0.3	0.5	0.6	-0.1	0.7	0.9	1	-0.7	0.3	0.6	-0.2	0.4	0.4	0.7	0.6	-0.2	-0.3	0.5	0.9	0.9	0.2	0.6	1	1	0.7	1	1	0.7	0.9	0.8	0.969
53:Case 53	-0.7	-0.7	-0.8	-0.8	-0.9	-1	-0.8	-1	-0.9	-0.6	-0.9	-0.8	-0.8	-0.4	-0.4	-0.5	-0.4	-0.6	-0.4	-0.5	-0	0.1	-0.2	0.9	0	0.4	-0.1	0.2	-0.1	-0.1	0.3	0.5	-0.2	0.7	0.8	0.9	-0.7	0.1	0.4	-0.3	0.6	0.6	0.8	0.7	-0.1	-0.1	0.6	0.9	1	0.3	0.4	1	1	0.7	1	1	0.6	0.8	0.6	0.948
54:Case 54	-0.4	-0.2	-0.3	-0.4	-0.4	-0.6	-0.3	-0.7	-0.4	-0.2	-0.5	-0.3	-0.5	-0.4	-0.4	-0.4	-0.5	-0.4	-0.6	-0.6	0.1	0.2	0.1	0.4	0.2	0.9	0.2	0.8	0.1	0.1	0.1	0.4	-0.6	1	0.4	0.4	-0.8	-0.1	0.3	-0.6	0.4	0.5	0.7	0.5	0.2	0.2	0.6	0.3	0.5	-0.1	0.4	0.7	0.7	1	0.8	0.6	0.2	0.3	0.2	0.452
55:Case 55	-0.7	-0.6	-0.7	-0.7	-0.8	-1	-0.8	-1	-0.9	-0.6	-0.9	-0.8	-0.8	-0.5	-0.5	-0.5	-0.5	-0.6	-0.5	-0.6	0.1	0.2	-0.1	0.9	0.1	0.5	-0	0.3	-0	-0	0.3	0.4	-0.3	0.8	0.7	0.9	-0.7	0	0.4	-0.4	0.6	0.6	0.9	0.7	0	-0	0.7	0.8	0.9	0.3	0.4	1	1	0.8	1	1	0.5	0.7	0.6	0.908
56:Case 56	-0.7	-0.7	-0.7	-0.8	-0.9	-1	-0.9	-0.9	-1	-0.6	-0.9	-0.8	-0.8	-0.5	-0.5	-0.5	-0.4	-0.6	-0.4	-0.5	0	0.2	-0.1	1	0.1	0.3	-0.1	0.1	-0.1	-0.1	0.3	0.4	-0.2	0.6	0.8	1	-0.5	0	0.3	-0.3	0.6	0.6	0.9	0.7	-0	-0.1	0.6	0.9	1	0.5	0.3	1	1	0.6	1	1	0.5	0.8	0.6	0.97
57:Case 57	-1	-1	-1	-0.9	-0.9	-0.5	-0.8	-0.7	-0.6	-1	-0.8	-0.9	0	0.5	0.5	0.5	0.5	0.3	0.5	0.4	-0.8	-0.7	-0.9	0.7	-0.8	0.1	-0.9	-0.4	-0.9	-0.9	1	0.9	0.6	0.3	0.9	0.7	-0.7	0.9	0.9	0.5	-0.3	-0.3	0	-0.2	-0.9	-0.9	-0.3	0.7	0.6	-0.3	0.9	0.7	0.6	0.2	0.5	0.5	1	1	1	0.713
58:Case 58	-1	-1	-1	-1	-1	-0.8	-1	-0.8	-0.8	-1	-0.9	-1	-0.3	0.2	0.2	0.2	0.3	0.1	0.3	0.2	-0.6	-0.5	-0.8	0.8	-0.6	0.1	-0.7	-0.3	-0.7	-0.7	0.8	0.8	0.5	0.4	1	0.9	-0.7	0.7	0.8	0.3	-0	-0.1	0.3	0.1	-0.7	-0.7	-0	0.9	0.8	-0	0.8	0.9	0.8	0.3	0.7	0.8	1	1	1	0.883
59:Case 59	-1	-1	-1	-1	-0.9	-0.6	-0.9	-0.8	-0.7	-1	-0.9	-1	-0.1	0.4	0.4	0.3	0.4	0.2	0.4	0.3	-0.7	-0.6	-0.9	0.7	-0.7	0	-0.8	-0.4	-0.8	-0.8	0.9	0.9	0.6	0.3	1	0.8	-0.7	0.8	0.9	0.5	-0.2	-0.2	0.2	-0.1	-0.8	-0.8	-0.2	0.8	0.7	-0.1	0.8	0.8	0.6	0.2	0.6	0.6	1	1	1	0.793
60:Case 60	-0.8	-0.8	-0.9	-0.9	-0.9	-1	-1	-0.9	-1	-0.8	-1	-0.9	-0.7	-0.3	-0.3	-0.3	-0.2	-0.4	-0.2	-0.3	-0.2	-0	-0.4	1	-0.1	0.1	-0.3	-0.1	-0.3	-0.3	0.5	0.5	0.1	0.5	0.9	1	-0.6	0.3	0.5	-0.1	0.4	0.4	0.7	0.5	-0.3	-0.3	0.4	1	1	0.4	0.5	1	0.9	0.5	0.9	1	0.7	0.9	0.8	1