**Cluster analysis of the distribution of sanitation and curative facilities of Iran provinces**

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*Abstract*— Since sanitation and curative plays a very important role in enjoying social welfare, one of the main goals of policy makers should be to facilitate people's access to health services in society. Therefore, the distribution of sanitation and curative facilities is one of the most important factors in the development of a country. In this regard, this paper has tried to discuss how to distribute of these facilities throughout the country and identify provinces that are similar in terms of sanitation and curative facilities. It also discusses the provinces that have the most, average and minimum of these facilities. For this purpose, the k-mean method and visualization methods such as Chernoff face and hierarchical clustering have been used. By using these methods, Tehran province has the most sanitation and curative facilities with a significant difference. The provinces of Khorasan Razavi, Isfahan, Fars, East Azerbaijan, Khuzestan and Mazandaran have the most sanitation and curative facilities after Tehran and are similar in terms of having the mentioned facilities.

Keywords— Chernoff face, clustering, hierarchical, k-means, sanitation and curative facilities.

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