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## Image clustering of complex balinese character with DBSCAN algorithm

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**TLDR** DBSCAN algorithm is very good for conducting Complex Balinese Handwriting Process because it builds high-density areas into clusters and finds clusters of any kind in a spatial database containing noise inside.

**Abstract** Introduction, The Balinese writing is unique in its almost identical form, and some writings are distinguished by a single line stroke. The Balinese writing is complex, in the form of a combination of several characters in a syllable group with the position of surrounding the main character in Balinese script called the sound usage. The main characters generally have a combination of follower characters in front, behind, above and / or under the main characters; even in each position can contain combinations of more than one character, thus forming a model that is much more complex than the Latin script. Methodology: DBSCAN (DensityBased Spatial Clustering of Application with Noise) algorithm is suitable for clustering process. DBSCAN has an algorithm that builds high-density areas into clusters and finds clusters of any kind in a spatial database containing noise inside. The clustering process is as an early stage in Balinese Optical Character recognition (OCR) System on Kakawin Books into poetry in Latin Letters. Trials using a sample image of Balinese script are taken from Kakawin Ramayana Book. The process begins with binary, followed by cropping automatically to get rows per line of writing. After that they are processed with Clustering Process to get the character objects. Variations in minimum point value (minpts) and epsilon (eps) values. The results obtained by DBSCAN Algorithm with the minimum value of points 2 and 3, epsilon = sqrt (2) and sqrt (3) succeeded in clustering with error percentage below 3%. Conclusion: DBSCAN algorithm is very good for conducting Complex Balinese Handwriting Process.

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