

# Different Approaches to Decision-Making Utilizing Hesitant Fuzzy Soft Sets

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## ABSTRACT

In the dynamic field of decision-making (DM), uncertainty casts obstacles and ambiguity. This study presents a DM framework that utilizes the notion of Hesitant Fuzzy Soft Sets (HFSS) to capture the intricacies of uncertain environments effectively, as HFSS is more effective than the classical tools. This study aims to enhance DM strategies by integrating distance measures to evaluate the similarities and dissimilarities among HFSS, enabling decision-makers to articulate their preferences, hesitations, and priorities. The primary investigation focuses on incorporating distance measures to determine levels of similarity and dissimilarity between apprehensive, fuzzy soft sets. A structured framework is developed by augmenting the algorithms with similarity measures, extending classical to HFSS. This framework uses the HFSS method to orchestrate a systematic DM process, allowing decision-makers to articulate their preferences, hesitations, and priorities more effectively. The study reveals the impact of different distance measures on DM processes, offering a comparative study and the algorithm's effectiveness is provided using example.

**Keywords:** Decision Making, Fuzzy Soft Sets, HFSS

## How to Cite

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