OntoFusionCrop: An Ontology Centric Approach for Crop Recommendation Based on Bagging and Semantic Alignment

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ABSTRACT ORIGINAL

Agriculture is a crucial source of livelihood. There are many farmers who take up farming as their main source of income. The major difficulty present among farmers is that their crop selection is not based on the soil and weather conditions. Thus, it is essential for farmers to know the necessary information regarding the different facets of crop production, best agricultural practices, suitable crops for a specific soil type to be grown in a particular weather, etc. A crop recommender system, which has accurate and precise information, serves as a means for the farmers to farm appropriate crops and get the best yield. This paper proposes an ontology-based recommender system to provide the appropriate details regarding crops and other information associated with them. The proposed OntoFusionCrop uses ontology cluster that includes soil ontology, crop ontology, geographical ontology and agricultural ontology. This strategy uses the crop recommendation dataset from Kaggle which is classified using bagging. The classified instances along with the ontology cluster are semantically aligned using spider monkey optimization algorithm from which we get facts after suitable verification. The query is asked by the user and the recommender system gives the output. The proposed model achieved 93.87% accuracy and A minimum of 0.05 FDR compared to the existing models.