Diversification Application for Portfolio Management in India

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Abstract*: Porttolio Diversification (i.e. possessing shares of not one but many companies) is considered as an important task in the investors' community to minimize investment risks. Classification of companies (belonging to various Industrial Sectors) into different categories and assign ratings on the basis of their performance is a critical step for Portfolio Diversification. In this paper we present a machine learning approach to identify different categories of companies on the basis of their annual balance sheets. We employed C4.5, a decision tree based machine learning algorithm to first learn and understand the classification rules generated for companies of each industrial sector and then predicting the category of uncategorized companies (companies without much research) within their respective sector, The results were impressive and shows that using this approach portfolios can be discretely diversitied effectively with less time and effort involved into profit making and non-vital assets, paving a way for less risks higher returns on investments. The methodology works well for non-experts of finance too. We compared our results with the categories of these companies as suggested by ICICIDIRECT service (a renowned financial service company). The comparison shows the applicability and usability of decision tree approach as an important tool for taking investment decisions in respect to Indian share market.*

Keywords: Portfolio Diversification, Decision Trees, C4.5, Industrial Sectors