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Artificial Neural Networks have a long history of being used as computational tools in various fields of sciences because of their machine learning and pattern recognition capability. In the recent decade, there has been a large scale increase in the collection of data of cosmic entities such as galaxies and stars, and of high energy physics. In addition to this, the difficulty associated with mining the large amounts of data led the astronomical community to begin implementing Artificial Neural Networks to perform various tasks ranging from classification of gamma-ray bursts to classification of galaxies to identifying a star from a galaxy and the like. In this talk, we discuss the various ANN techniques used in data mining. (Received September 15, 2014)