Educational Data Mining (EDM) is a developing research field that involves many techniques to explore data in an educational background. EDM can analyze and resolve educational data with computational methods to study educational questions. Similar to EDM, neural networks have been utilized in widespread and successful data mining applications. This paper aims to explore if neural networks and some statistical methods can predict student performance in the context of EDM. Firstly, it introduces EDM and some relative works have been accomplished previously in this field along with their datasets and computational results. Then, it analyzes varieties of attributes information from the dataset and delivers valuable visualization results to determine which analyze approaches that are the most suitable. After experimenting on the data with decision tree classifiers and neural networks methodologies, it concludes by comparing the effectiveness of both approaches in terms of the model evaluation performance as well as discussing some of the most promising future work of this research.