The cross-selling has become a selling philosophy in current era. Most of the industrial sectors are using this method to increase their profit. This makes the study of this phenomenon very important. Previous research in this era has shown that there are so many methods to study the problem of cross-selling. But as the right predictions are very important for the maximization of sales and profits, it is essential to study the nature of the different methods and their comparison. In this paper two very important approaches to study the problem of cross-selling is compared. The Logistic regression model and the Artificial Neural Network model. The data is collected from the University of California, Machine Learning Repository. Both the model has been performed and the different measures of performances are computed. The model are compared on the basis of the performance measures such as sensitivity, specificity, area under the ROC curve. The final results have shown that both the models produce very similar results. ANN is marginally better than the logistic regression model. But if we use the information from both the models the results get significantly better. The paper concludes that both the models should be used simultaneously for better results.