**Abstract**

 Diabetes mellitus, simply referred to as diabetes, is a group of metabolic diseases.There exists more than one type of diabetes, with each type having its own risks.Diabetes is ascribed to the acute conditions under which the production and consumption of insulin is disturbed in the body which consequently leads to the increase of glucose level in the blood. Bayesian networks are considered as helpful methods for the diagnosis of many diseases. They, in fact, are probable models which have been proved useful in displaying complex systems and showing the relationships between variables in a graphic way. The advantage of this model is that it can take into account the uncertainty and can get the scenarios of the system change for the evaluation of diagnosis procedures. In this study, decision tree and Bayesian models have been compared. The results indicated that the Bayesian model is much more accurate in diabetes diagnosis.