The paper presents a reliability prediction model that predicts the reliability of the developing software using fuzzy inference system. The focus of the study is on the reliability prediction prior to the coding phase so that the developers use this information for optimally performing resource planning and quality assessment of the software under development. Requirements and object-oriented design level product measures have participated for early reliability prediction. The paper has also utilized the strengths of fuzzy logic to deal with the uncertainties and vagueness involved in the early stage measures. The model has also been statistically validated through the data set obtained through twenty real software projects. The values of the Pearson's correlation coefficient along with the predictive accuracy measures are quite encouraging, and support that the developed model is a better and improved reliability prediction model.


**Index Terms**

Computer Science  
Software Engineering

**Keywords**

Software Reliability, Early Stage Prediction, Fuzzy Logic, Software Defects, Software Metrics, Software Reliability Model.