



## CHAPTER I INTRODUCTION

### Background

Among the four types of existing data models, namely, relational, hierachical, inverted list, and network models, the relational data model has been extensively studied and most widely used. However, this model usually deals with well-defined and unambiguous data. In the real world, there exist fuzzy data and fuzzy relations which cannot or need not be precisely defined. In order to handle fuzzy data and fuzzy relations, various fuzzy relational data models have been developed. Most of them, however, concentrate on query or manipulation languages for the purpose of development of more natural man-machine interaction. There have been very few studies on the theoretical aspects of these models. This study explores some theoretical properties of fuzzy relational data models.

### Objective of the Study

The objective of this study is to investigate the properties of multivalued dependencies in fuzzy relational data models and their applications in database design.

### Scope of the Study

There exist various data dependencies. This study emphasises multivalued dependency, as well as investigates its inference rules and the problem of lossless join decomposition of fuzzy relation for a given set of fuzzy multivalued dependencies.