Flexible Attribute Classification for MDS Points

Final Year Project Thesis

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ABSTRACT

Multidimensional Scaling (MDS) is usually presents similarity of a survey in multidimensional data. In order to simplify the multidimensional data, 2D representation has been used. But MDS representation is limited to a single shape and without any colors. The MDS output with a lot of cases and attributes lead to difficult interpretation since most of the points look alike. The objective of this project are to group any classes of information for MDS output and to develop a prototype for classifying any classes of information using different colors (easier analysis purpose). This project enables users to analyze MDS output based on classes (e.g. class: "gender", attribute: "male", "female"). These classes will be presented with different colors for better visualization to analyze a survey result. In order to group the classes, an algorithm for finding shortest distance involving multiple points is applied. As a case study, visualization on MDS output for multiple response on color preferences is implemented. This prototype allows flexibilities on grouping survey attributes into classes on the MDS output. It helps users to analyze the output in a better way by using a variety of colors. According to the usability testing that has been done, 95 percent respondent agree with the prototype's flexibility and 90 percent prefer the MDS points with color applied on graph.

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CHAPTER 1

INTRODUCTION

This chapter discussed the background and rationale for the study. It also provides the issues and problems that lead to this research.

1.0   Background

Multidimensional scaling (MDS) is a statistical technique for displaying similarities or dissimilarities between objects (attributes), as if they were points on a map, or in a 3-dimensional space and thus provide a visual representation of the pattern of proximities (i.e., similarities or distances). The greater the distance, the more different the objects are, and the smaller the distance, the more similar the objects are. MDS allow the researcher to observed clearly the pattern between the objects.
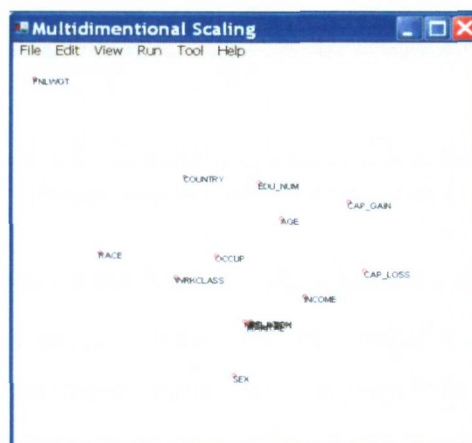

Figure 1.1 : Multidimensional Scaling
(image source : Nazareth et al. 2007)