Data mining in early education

Task 1

Asmaa Ali Mohammed Meligy

1- A study of children's musical preference: A Data Mining Approach.

In this paper, the musical preference of children was studied using the data mining method, the study was done using the SOM (Self Organising Maps) application based on the clustering technique.

Data were collected through the participation of 228 children aged 4-5 years and their parents in this study.

The children participated through an integrated interview questionnaire that contains both open-ended and closed-ended questions about four sections of music: listening - singing - playing musical instruments - dancing.

The result showed that playing musical instruments and dancing were the most prominent in the activities of music preference.

Advantages

1- Highlighting the use of data mining in early education.

2- Clarify the impact of using data mining and its applications on knowledge of hidden data.

3- Attempting to bridge the research gaps in this early education stage.

2- Development and Implementation path of kindergarten stem educational activities based on data mining.

In this research, the development and application of STEM educational activities for kindergarten based on data mining was studied.

The aim of this study is to investigate the path of development and implementation of STEM educational activities using data mining, to analyze how the monitoring of STEM educational system was developed and improved using data mining algorithms, and to define a function path and mode of data mining algorithms in the STEM educational system.

Four models were made in this research

1- Data mining model.
2- Distribution of educational data mining applications.
3- Stem educational research model.
4- Implementation of route information system operation scheme.

Data mining has been used by clustering analysis techniques and the ant colony algorithm.

It was implemented through four activities (1- visit the big tree 2- color kingdom 3- the kingdom of paper 4- hello friend) during two semesters.

Advantages

1- Highlighting the use of data mining in early education.

Defects

Lack of clarity on how to use data mining in the study in detail.

3- Towards the Analysis and Prediction of Early Childhood Development Using Data Mining Classification Techniques.

In this research, a comprehensive study was conducted and different classification techniques were compared and their degree of accuracy for the early childhood data set.

The researchers used data mining by comparing classifiers (J48 – naïve Bayes – random forest – SVM – k-NN) using a performance measure like kappa statistic, ROC, RMSE and MAE and using a data mining analysis tool called WEKA.

The results showed that classifier J48 has better classification accuracy and predictive degree than other algorithms.

Defects

There are no details on how the study was implemented and how the classifiers were applied to the dataset.

4- Empirical study of data mining techniques in education system.

In this study, students' learning outcomes are researched based on data mining.
Data mining applications dealing with student learning performance assessments.

In this study, the educational data mining tasks were identified in the following points:

1- Organization of syllabus.
2- Predicting the registration of student in an educational program.
3- Predicting student performance.
4- Detecting cheating in online examination.
5- Identifying abnormal / erroneous values.