

Development of Active Learning and Training Using SQL Operations

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ABSTRACT

Now a days Active learning and training system becomes easier and stronger. Normally online tutors provide the material in a theoretical manner or video based learning. But it can't be a practical learning system. This proposed system provides automated active learning and training for SQL queries. It is used to create good practical environment for learning SQL queries. This proposed online tutor can retrieve tables from our own database, so it helps to work with our own database tables.

While working with automated online tutoring system, users will get some errors. The proposed system will give useful understandable recommendation to correct the errors, providing correct syntax for the particular query, and give the feedback and examples for users to improve their performance. the automated active learning system gives classified recommendation for particular user practice by introducing splitting techniques and classifying methods.

Index Terms—SQL, exception handling, SQL syntax's, dynamic learning.

INTRODUCTION

In this busy world human tutor not available every time, at that same time currently e-learning system also growing well. E-learning System provides theoretical and video learning materials only. In the software world computer languages are playing main role. Before this paper e-learning system can't provide computer language practical learning environment. This paper provides web based SQL practical environment system. Use of automated active learning and training system learners can work with their own database and tables when they facing the errors in that environment they can get instant help from Automated Active learning and system. Basically the system can provide the

- Its gives the Error message that can be understandable by Human
- Provides correct syntax for particular error detected query
- The system will gives useful recommendations that are helps to correct their errors.
- It will give example SQL queries that

queries relevant to the user query.

1

This is the way of learning the SQL queries in the web environment. It's one of the best effective learning System's in the web environment. Normally what all are the helps excepting from the human tutor that all helps learners will gets from the web tutor also (i.e. syntax for the query, recommendation, error message, examples). For giving recommendation and syntax, SQL query need to be split and classified. Because each every user queries may be contain different operations and different syntax, so SQL queries need to be classified.

In this query environment user can only type the query that depends upon system question, But in this paper providing automated active learning system, its dynamic learning system. I.e. user can work with their own database and tables, and they can type their own queries without any limited question answer. The previous papers cannot provide this features, that system is limited question answer section only.

Normally previous papers are providing templates for select, from, where, order by, group by, etc., so we have no need to type the keywords in the query environment, its normally easier way to type the SQL queries, but it can't give right space to learning the keywords, with this method user has no need to type the keywords, so they is no need to learn the keywords also, so it's affecting the user effective

learning system.

EXISTING SYSTEM

1. Interactive Correction and Recommendation for Computer Language Learning and Training

Get distinct colour and city for non-Paris parts with weight greater than 10

```
select distinct pname, city from p where city = 'Paris' and weight > 10
```

Your Query

Submit Query

Clear Form

Return to Query Index

The result of your sql statement:

PNAME	CITY
Bolt	Paris

Sorry, incorrect answer

Hint

- There was an error in the select clause

1. Existing method

- In this existing system also providing automated active learning system, but it is a static query analyzer system. That mean already system having some SQL set of questions, users can answer for that questions only. User can't work and learn for their needs and new queries. They only

practice fixed number of questions from the website.

- Main disadvantage of this system is users are limited to work with SQL queries, they're not have chance to establish their queries.

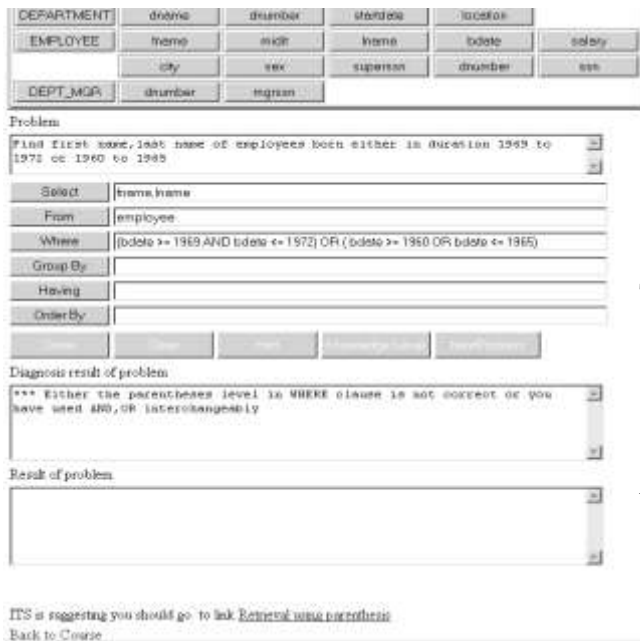
Users cannot have chance to work with

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their own database. So user must need to know the table names and attribute names.

- This system like a testing environment, it does not feel better like practical environment.
- In this existing system won't provide syntax to correct user errors.

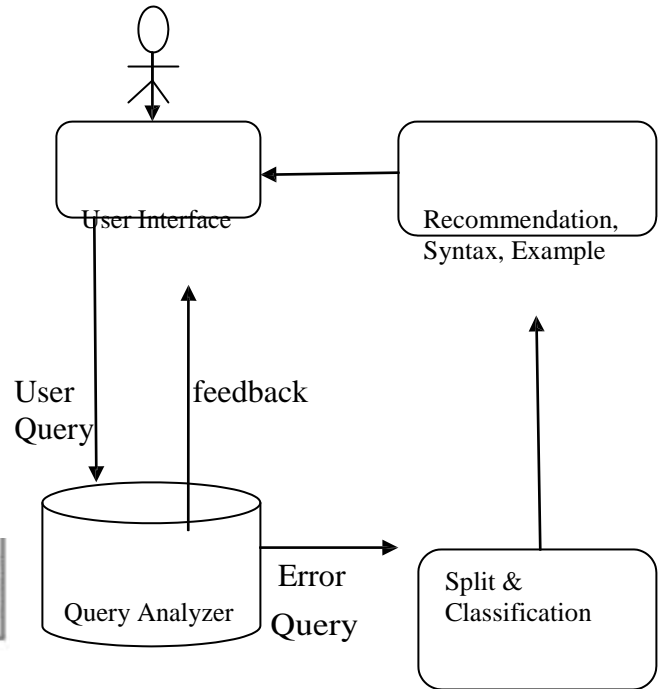
2) Acharya: An Intelligent Tutoring Environment for Learning SQL



2.existing method

In this acharya also providing active learning system, but it's not efficient learning system, because in the working environment the system providing templates for select, from, where, group by, having and order by. So users don't have chance to practice with keywords like select, from, where, etc., they only practice with

INFORMATION AND SYSTEM ARCHITECTURE



This is our proposed automated active learning and training module.

In this paper three various modules there

External module:

- User module attributes.

- Admin module
- SQL practice module
- User information module
- Recommendation, syntax module
- classification module

Internal module:

➤ **User Information**

This user module can provide more information about each and every users. It's generates student report card. So its help's to improve student there performance.

Example:

Name: XXX

Sex: male

Date of birth: 24 Jun 1988

Last exam Mark: 9/10

Overall performance: 7.5

WHERE salary<5000

(retrieving data with condition)

4

➤ **Recommendation**

Normally when users facing the errors in practice environment it will gives different level of recommendations

Example:

User query with error:

SELECT * FRM employee;

Recommendation:

Error Message: error near to FRM;

Syntax:

SELECT <ALL||DISTNCT><Attributes> FROM
<tabelname> WHERE<condition>;

Example:

- SELECT * FROM Users;(retrieving data)
- SELECT * FROM Users

- `SELECT * FROM Users` `IF(part[0] == INSERT)`
`WHERE salary<5000`
`ORDER BY firstname;`
(retrieving data with condition and specific order)

This is effective way of recommendation giving by proposed automated active learning and Training System.

➤ **Classification Module**

This is the technique for classifying error message and recommendation.

Splitting technique:

User query : `SELECT username FROM emp;`

Split parts(Using Space bar)

It can split the query as

Part[0]={,,SELECT“}

Part[1]={,,Username“}

Part[2]={,,FROM“}

Part[3]={,,emp“}

FOR giving CONDITION

`IF(part[0]==SELECT)`

{

Give the syntax Start with `SELECT`

`SELECT <ALL||DISTNCT><Attributes> FROM`

`<tablename> WHERE<condition>;`

}


```
{  
Give the syntax for insertion operation      student model and feedback generation and  
INSERT          INTO          <tablename>  we introduce the recommendation feature.  
VALUES(<name>,<sex>);  
}
```

It's like that it will give the syntax for delete, update, modify, etc.,

Using splitting technique the System will give the Error message, Syntax and Level of examples.

LEARNER AND INTERACTION

The correction technique provides immediate synchronous feedback to learners for their submissions to the SQL tutoring system. Learning and training are, however, continuous processes over a number of individual interactions. Supporting the student individually through observation and personalized feedback and recommendation is one of the most important benefits of computer-enhanced learning. Feedback can be global or local, which we address through synchronous local feedback as part of corrections and global guidance and recommendations based on the student's overall performance.

We revisit correction but from the interaction perspective under consideration of the

Personalization

Individual problems in the SQL environment are given in a suggested order. While personalization often addresses the navigation infrastructure (e.g., path selection) between these problems, our personalization focus is on content-based interaction in the form of feedback.

Students can, if desired, choose feedback levels for the correction and recommendation features. However, the system also provides a personalized feedback that considers the subject competency of the student. Feedback levels are increased if the student has difficulties; feedback is faded out if the student becomes self-reliant and

competent. The system automatically provides personalization. Although this can be overruled, the majority of students use the recommended automated feedback levels.

CORRECTION

The correction feature provides interactive synchronous feedback. The aim is to support formative and immediate learner assessment. We distinguish a number of predefined feedback levels that are part of the learner preferences.

- Essentially, the quantity of feedback is determined where more feedback also means a better quality.

- The standard setting provides hints, i.e., does not reveal the solution, but aims to help the student to reassess her/his answer. Hints are weighted to reflect the different severities of individual errors.

accuracy can be hampered by two factors that is i) splitting method ii)classification technique

DISCUSSION

We have introduced feedback techniques for correction and recommendation for a learning and training system that provides immediate and accumulative feedback to students who learn a computer language.

A number of questions arise in this context:

- . What are the difficulties of implementing such a system?
- . Is the system effective?
- . Can the correction and the diagnosis be used to support other tasks such as grading?
- . Can the approach be transferred to other computer languages?

To facing this type questions , its helps to solve more unsolved features of the system.

ACCURACY

Accuracy is the crucial property of a correction system whether it is used for feedback only or for grading. The degree of

➤ ***Splitting and classification method***

- This splitting method depends first word of user SQL query. Based on first word it will classify give the syntax and example for that query.
- Supposed users made error in first word itself, the classification of error more complex that time system will give general recommendations only. It's may not accurate recommendation.

CONCLUSION

Automated tutoring has become an accepted method of instruction. Students reach a higher level of understanding when being actively engaged in learning and training processes. Our automated tutoring system provides a

realistic training environment for database programming. Automated tutoring is time and location independent. While generally a beneficial characteristic, scaffolding here is a necessary feature for automated tutoring in this context.

These are the main tasks it's aimed to give good practical SQL Query learning environment from that learners can work with 24X7 with the help of web tutor, without help of human tutor. When the student working with the SQL environment they may be get errors, for that error system will give understandable error message, syntax for error message, useful examples that helps to correct the error. This is the effective learning system. Normally what all

are the helps student excepting from the human tutor that all helps learners will gets from our proposed system.

Finally we conclude the system provide Good Online SQL learning environment for SQL learners.

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7