iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 3 **Issue:** VII **Month of publication:** July 2015

DOI:

www.ijraset.com

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)

Knowledge Discovery Tutor System: A Recommendation Process

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***Abstract*— Now a days web based learning environments has become very popular and efficient. By using these learning strategies, e-learning plays a vital role. "The semantic recommendation in programming language :A web mining content approach", depicts a content mining approach for a student, which could be an important activity that includes student registration, selecting different programming courses for those who would like to study, then taking periodic tests. The performance analysis is done for the student and different study materials are recommended if the performance of the student is considerably less in some specific course. In this paper we have used the recommendation engine which plays vital role and it is one of the most powerful tools that helps to increase the performance of the student. This learning platform has been tested and has received positive feedback from student and teacher community.**
***Keywords*— Learning, Semantic Recommendation, Evaluation, Performance, Results**

I. INTRODUCTION

This course aims to provide students with an understanding of the role computation can play in solving problems. It also aims to help students, regardless of their major, to feel justifiably confident of their ability to write small programs that allow them to accomplish useful goals. The course uses the Java programming language and J2EE. Learner gets to learn any programming language from the scratch. Periodic tests are compulsorily taken to measure the knowledge gained by the learner. Based on the performance in tests the study materials which he/she has to next study are recommended. Recommendation is done by implementing an efficient web content mining algorithm. The proposed system contains all the features that include programming language concepts. This system provides the learners to take course in the important subjects namely Java Programming Language, OOPS and Computer Programming concepts.

II. BACKGROUND

Many researchers have been focused around applying semantic web advances to different parts of e-learning .Most of the developed systems use ontologies just for representation of concepts, knowledge or learners information. A wide variety of educational programming software that executes ontology based parts has been produced in recent period, however the a large portion of these frameworks use ontologies just for representation of ideas, learning or learners information.(Fernandez-Breis et al., 2012; Gascuena et al., 2006; Hee Lee, Hyun Seu, & Evens, 2002; Jia et al., 2011).The prototype system named SMARTIES is an absolutely ontology aware system framework which completely uses the characteristics of ontology, computationally and thoughtfully (Mizoguchi, Hayashi, & Bourdeau, 2007). In this moment, the ontology concentrates just on the abstract design of learning contents and has not been yet identified with area information or learning items to concretize the abstract design.The Personal Reader (Dolog & Nejdl, 2007) is another important result in the e-learning field. The Personal Reader gives a structure to designing, actualizing and keeping up Web content readers, which give customized enhancement of Web content for every individual user. This framework utilizes the Semantic web to customize and enhance e-learning content. It displays an administration structural engineering depending on RDF (Resource Description Framework) and ontologies to trade data about learning assets, the area, and learners. Learning assets are depicted by method for shared ontologies (Dublin Core and Learning Objects Metadata), while thinking and adjustment are acknowledged by utilizing TRIPLE, a principle based question dialect for the Semantic web. Construction modeling for customized e-learning in light of Semantic web advances was proposed in Henze et al. (2004). The creators propose use of a few ontologies for building versatile instructive hypermedia frameworks. In the construction modeling, this framework incorporates personalization administrations, for example, a proposal and a connection era and consequently gives a customized access to learning assets. Notwithstanding, their metaphysics does not speak to the educating methodology's usefulness of an asset. Another approach to perform effective personalization highly based on Semantic web technologies performed in new version of the system, named Protus 2.0. This comprises the use of an ontology and adaptation rules

for knowledge representation and inference engines for reasoning. Functionality, structure and implementation of a Protus 2.0 ontology as well as syntax of SWRL rules implemented for on-the-fly personalization will be presented in this paper. We are going to enhance this work by efficient web content retrieval algorithm in semantic recommendation in programming language: A web mining content approach.

III.PREREQUISITES FOR LEARNING COURESES

A. Courses

This course expects to furnish understudies with a comprehension of the part calculation can play in taking care of issues. It additionally means to help understudies, paying little heed to their major, to feel reasonably sure of their capacity to compose little projects that permit them to perform valuable objectives. The course utilizes the Java programming.

B. Prerequisites

These courses are gone for understudies with next to earlier programming knowledge, experience and comprehend computational ways to deal with critical thinking. Since PC programming includes computational methods of considering, it will help to have some scientific and intelligent fitness.

C. Programming In Java

This course is a prologue to programming building, utilizing the Java programming dialect. It covers ideas helpful to 6.005 Elements of Software Construction. Understudies will take in the essentials of Java. The emphasis is on growing top notch, working programming that takes care of genuine issues.

1) Prerequisites For Java: Designed for students with some programming experience.

2) *Programming In C And Cpp***:** This course gives a quick paced prologue to the C and C++ programming dialects. You will take in the obliged foundation information, including memory administration, pointers, preprocessor macros, item situated programming, and how to discover bugs when you inescapably utilize any of those erroneously.

3) Prerequisites For Programming In C And Cpp: Designed for students with some programming experience. Course description.

4) Learning And Recommendation Process In Proposed System: Result analysis and web page recommendation strategy in programming language in particular course has been done by the following .technique.

Input: Set of questions *Q*, set of answers *Q(A)*, Set of user selected answers *S(A)*,number of questions n

Output: Result analysis

1. *Initialize* Correct and Wrong to 0.
2. *for each q belongs Q*
3. *if Q(A) is equal to S(A)*
4. Correct++
5. *else*
6. Wrong++
7. *Until* all questions are checked
8. Percentage$= \frac{\text{Correct}}{n} * 100$
9. *if* Percentage *is greater than* 40
10. Result=”Pass”
11. *else*
12. Result=”Fail”
13. *If* Result is “Pass”
14. *display* Results
15. *else*
16. go to *Recommendations*

Input: Set of questions answered wrong *Q*, set of chapters in the phase *C*.

Output: Recommendations

1. *for each q belongs Q*

Volume 3 Issue VII, July 2015
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

2. ***Initialize*** **chapter_name with *C(Q)***
3. **Recommendations=*googlesearch_api*(chapter_name)**
4. ***display*** **Recommendations**
5. ***Until*** **all questions in *Q* are processed.**

IV. ARCHITECTURE

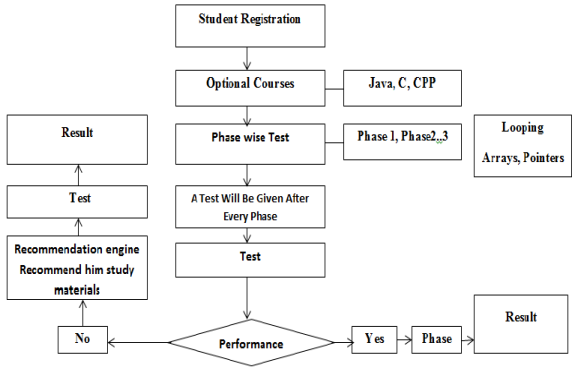

Fig 1 Data Flow Diagram Of Knowledge discovery tutor system: A Recommendation process

The SWRL(Semantic Recommendation in Programming Language) is designed to support learning process in different courses and domain. Here all widely used programming languages have been taken namely Java, C and CPP and both Java and CPP are clear examples of object orientation. Both Java and CPP are suitable for the instructing of the ideas of object orientation. The learning process in SWRL consists several units and each unit performs several tasks. Firstly learner will register in to course

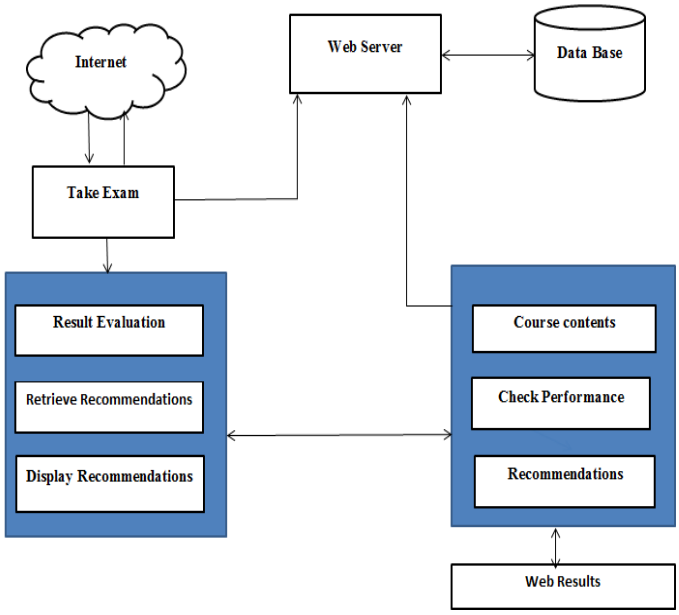

Fig 2 System Architecture of Knowledge discovery tutor system: A Recommendation process

in order to take exam. If already user has been already registered then he can directly sign up. While registering user can choose one of the optional courses. The courses are namely Java, C and CPP programming languages .Each courses contain three phases Phase 1, Phase 2, Phase 3 respectively and the test will be given after every phase. Each Phase contains Phase and chapters wise descriptions, and test both theory questions and programming aspects. Each programming test course contains storage of all essential materials for student community.

Volume 3 Issue VII, July 2015
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

V. RESULTS AND DISCUSSIONS

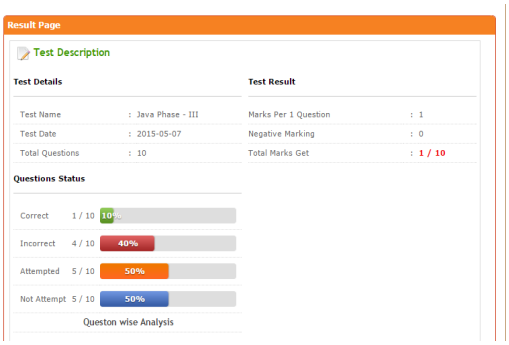

Fig 3 Result Analysis Process Of Knowledge discovery tutor system: A Recommendation process

Above figure represents Result analysis process of SWRL. User's test result will be displayed. So that user can view his test performance and total attempted questions, total not attempted questions, total correct answers and total wrong answers.

Recommendations

You are weak in: Method (computer programming) - Wikipedia, the free encyclopedia
URL: http://en.wikipedia.org/wiki/Method_(computer_programming)
You are weak in: Classes, Objects, and Methods - The Caml language
URL: http://caml.inria.fr/pub/docs/oreilly-book/html/book-ora140.html
You are weak in: Abstract Methods and Classes - Oracle Documentation
URL: https://docs.oracle.com/javase/tutorial/java/IandI/abstract.html
You are weak in: Chapter 14: Classes and methods - Green Tea Press
URL: http://www.greenteapress.com/thinkpython/thinkCSpy/html/chap14.html
You are weak in: Java - Packages - TutorialsPoint
URL: http://www.tutorialspoint.com/java/java_packages.htm
You are weak in: Packages organize classes and interfaces | JavaWorld
URL: http://www.javaworld.com/javaworld/jw-09-2002/jw-0906-java101.html
You are weak in: java packages and interfaces - Stack Overflow
URL: http://stackoverflow.com/questions/21958273/java-packages-and-interfaces
You are weak in: W3C Library Packages and Interfaces
URL: http://www.w3.org/Library/User/Guide/
You are weak in: Inheritance - Wikipedia, the free encyclopedia
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URL: http://www.merriam-webster.com/dictionary/inheritance
You are weak in: Amazon.com: Inheritance (The Inheritance Cycle) (9780375846311 ...
URL: http://www.amazon.com/Inheritance-The-Cycle-Christopher-Paolini/dp/037584631X

Fig 4 Recommendation Process Of Knowledge discovery tutor system: A Recommendation process

Above figure represents recommendation process in SWRL system. User is recommended by the further study materials if he is week in particular concepts or if he unable to clear tests. So that user can study recommended study materials and he can retake the test. If he will clear taken test then he can move the next phase. The same process will continue if user unable to clear the test.

VI. CONCLUSION

We have attempted this task with a target of taking in the advancement of web application and upgrading its proficiency utilizing web mining methods. In general the whole venture is a simple to work, easy to use, financially valued online application that is

resolved to meet all the prerequisites of the tenderfoot who wishes to exceed expectations in programming dialects. This can be utilized as an associate showing site in a specific school with a couple of alterations. A turnkey and savvy arrangement customized to the novices willing to exceed expectations in programming dialects. This can further be reached out to different apparatuses like HTML, PHP which are excluded in scholarly syllabus but rather are fundamental in usage stage.

VII. ACKNOWLEDGMENT

The authors would like to thank Chandrasekhar Katagi of Ventures Wings Group, Dharwad Karnataka for their assistance with the project. The authors would also like to thank Dr.S.R.Biradar for reviewing the manuscript draft. The author also would like to thank the anonymous reviewers for their efforts in improving the content.

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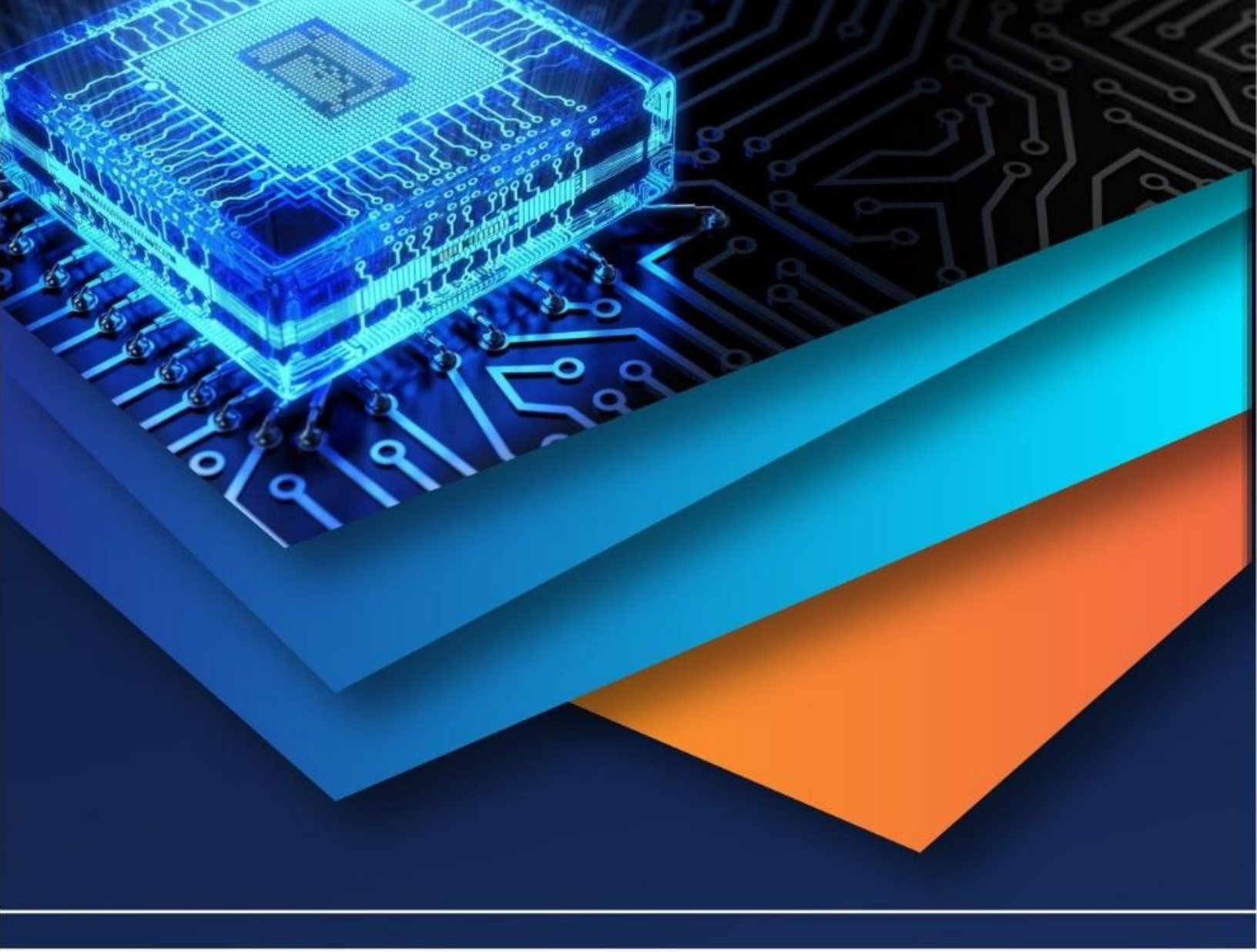

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