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Web Based Training and Recommendation System

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Abstract:
Presently online learning situation has turn out to extremely prominent and effective. By utilizing these learning systems, e-learning assumes a key part. This paper describes a content mining approach for a student, which could be an vital movement that incorporates student registration, selecting different programming courses for the individuals who might want to study, then taking periodic tests. The performance analysis is done for the student and various study materials are recommended if the performance is considerably less in some specific course. In this task we have utilized the recommendation engine which is fundamental part and helps to increase performance

Keywords: Learning, Recommendation, Performance, Results

1. INTRODUCTION

Recommendation systems are typically employed to assist users with the discovery of programming courses that may be of interest. Students get to learn any program from the scratch .Periodic tests are compulsorily taken to measure the knowledge gained by the learner The course uses the Php programming language . 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 students to take course in the important subjects namely Aptitude, C and CPP Programming Languages and Computer Programming concepts. Subjects namely OOPS and Computer Programming concepts.

2. BACKGROUND

Numerous specialists have been engaged around applying semantic web advances to various parts of e-adapting .Most of the created frameworks utilize ontologies only for portrayal of ideas, information or students data. A wide assortment of instructive programming that executes philosophy based parts has been delivered in late period, however the a huge bit of these structures utilize ontologies only for portrayal of thoughts, learning or students information.(Fernandez-Breis et al., 2012; Gascuena etal., 2006; Hee Lee, Hyun Seu, and Evens, 2002; Jia et al., 2011).The model framework named SMARTIES is a totally cosmology mindful framework system which totally utilizes the attributes of metaphysics, computationally and astutely (Mizoguchi, Hayashi, and Bourdeau, 2007). At this time, the philosophy focuses just on the unique plan of learning substance and has not been related to zone data or learning things to concretize the dynamic design.The Personal Reader (Dolog and Nejdl, 2007) is another imperative outcome in the e-learning field. The Personal Reader gives a structure to outlining, realizing and keeping up Web content per users, which give modified upgrade of Web content for each individual client. This structure uses the Semantic web to redo and improve e-learning content. It shows an organization basic building relying upon RDF (Resource Description Framework) and ontologies to exchange information about learning resource the zone, and students. Learning resources are delineated by strategy for shared ontologies (Dublin Core and Learning Objects Metadata), while considering and alteration are recognized by using TRIPLE, a guideline based inquiry lingo for the Semantic web. Development displaying for altered e-learning in light of Semantic web propels was proposed in Henze et al. (2004). The makers propose utilization of a couple of ontologies for building flexible informative hypermedia systems. In the development displaying, this system fuses personalization organizations, for instance, a proposition and an association period and therefore gives a modified access to learning resources. In any case, their power does not address the teaching philosophy's convenience of a benefit.

3. PREREQUISITES FOR LEARNING COURESES

3.1. Courses

In this course student will learn the basic concept of aptitude, c and c++. This course is intended to anyone who is new to our website. 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.

3.2. Prerequisites

Before attending this course, students must have ability to use computer to start programs, ability to understand logical concepts. These courses are gone for understudies with next earlier programming knowledge and comprehend computational ways to deal with the critical thinking. It will help to have some scientific and intelligent fitness.

3.3. Aptitude

An aptitude is component of a competence. Outstanding aptitude can consider as talent or skill. An aptitude may be physical or mental. Aptitude and ability test are designed to access your logical reasoning or thinking performance. An aptitude test is a systematic means of testing students abilities

to perform specific task. The test each have standardized method of administration and scoring with result qualified..

3.3.2. Programming in C and CPP

C is one of the most widely used programming language across the world. The c course is intended for beginners who have idea of programming. C++ is a high level programming language it has imperative, object oriented and generic programming features. 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..

1. **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***
2. *Initialize* **chapter_name** with ***C(Q)***
3. Recommendations=*googlesearch_api*(**chapter_name**)
4. *display* Recommendations
5. *Until* all questions in ***Q*** are processed.

3.4 Figures and Tables

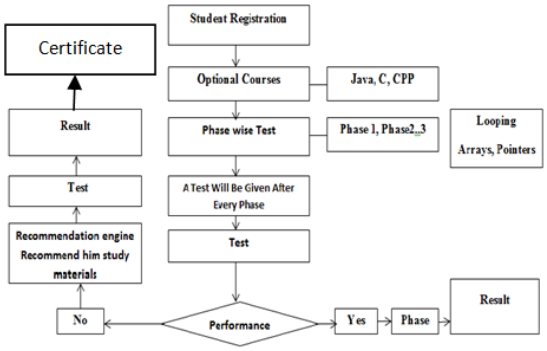

Figure.1. Data Flow Diagram of Web Based Training and Recommendation

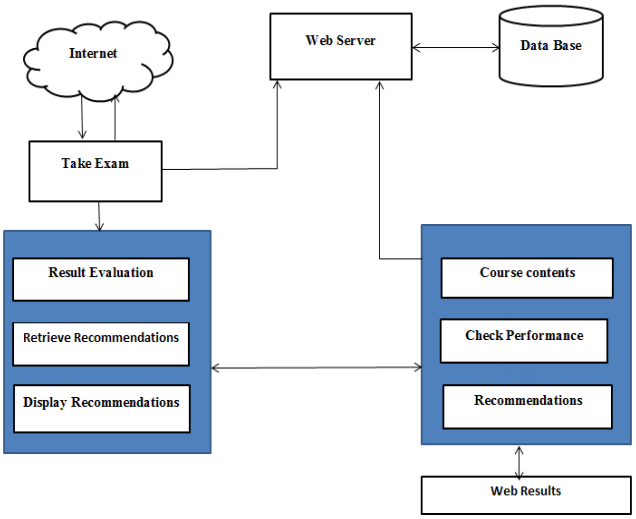

Figure.2. System Architecture

Web based training is a tutoring system designed to help learners in learning essentials of programming languages. In spite of the fact that this system is designed and implemented as a general tutoring system for different programming languages, the first completely implemented and tested version was for an introductory c++ programming course . c++ was chosen because it is a clear example of an object oriented language and therefore suitable for teaching the concepts of object-orientation. The main purpose of the web based training system is to recommend useful and interesting materials to e-learners based on their different backgrounds, preferences, learning purposes and other meaningful attributes]. This system consists of five functional components: domain module, learner model, application module, adaptation module and session monitor. The adaptation module provides personalization based on recommender systems. The proposed framework for building automatic recommendations is composed of three modules.A learner-system interaction module A learner-system interaction module pre-processes data to build learner models. The data about learners’ activities (like sequential patterns, visited pages, test results and grades earned) are collected within this module. The pages for learners’ registration, theory sessions, tutorials, examples and tests are extended with background processing of the input data. An off-line module An off-line module uses learner models on the fly to recognize learners’ goals and content profiles. The first time that learners use the this, system asks them to fill the questionnaire that contain the index of learning styles questions to calculate their own learning styles []. After appropriate learning style is determined for each learner, learning content is filtered, depending on the status of the course and learner’s affiliation. A recommendation engine A recommendation engine produces a list of recommended resources and actions. This list contains resources that should be presented to learner and recommended options that should be annotated for current learner (communication, testing, navigation, etc.). The list of recommendations is sent to alter learner–system interaction within a new session. Recommendations cannot be made for the whole pool of learners, because even for learners with similar learning interests, their ability to solve a task can vary due to variations in their knowledge level. In our approach, we perform a data clustering technique as a first step to cluster learners based on their learning styles. These clusters are used to identify coherent choices of learning activities. Then, a recommendation list can be created according to the learners’ and experts’ tags for each generated cluster based on the user-

centric tag model which produces more accurate recommendations then existing state-of-the-art algorithms. To create a tag in system, the learner simply enters arbitrary keywords in the appropriate text field for the current resources. To evaluate our system, we plan to carry out some experiments on an educational dataset on 1st year undergraduate learners. Involved learners will be programming beginners that successfully passed the basic computer literacy course at previous semester. The research will be focused on appropriate selection of collaborative tagging techniques that could lead to applying the best results in terms of increasing motivation in learning process and understanding of the learning content. Personalized and the most likely preferred recommendations can be estimated to an active learner as a result. This recommendation will be in accordance with the learner's interests, his/her learning style and previously acquired knowledge

4. RESULTS AND DISCUSSIONS

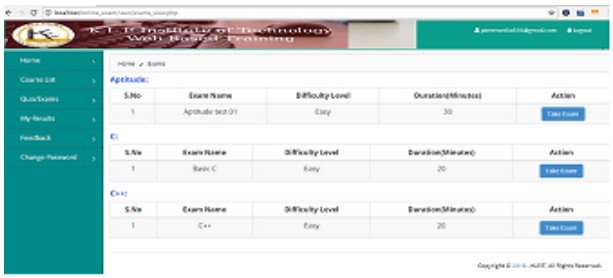

Figure.3.Diffrent Levels of Exam

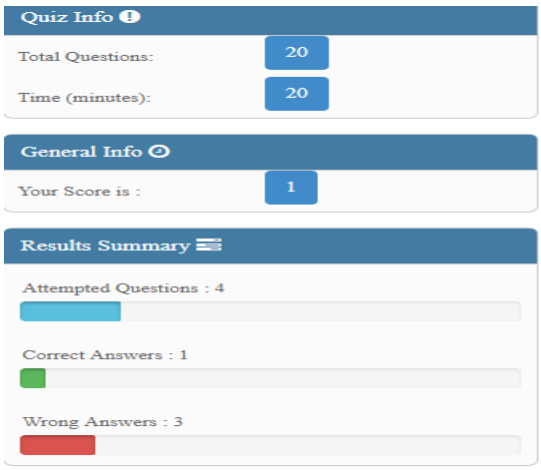

Figure.4. Result summary and quiz information

Above figure represents Result summary and quiz information. student's test result will be displayed. So that student can view his test performance and attempted questions(which is represented in blue color),not attempted questions(which is represented in yellow color),correct answers(which is represented in green color) and wrong answers(which is represented in red color).And also display the quiz information of student that have total question given in test and time limit.

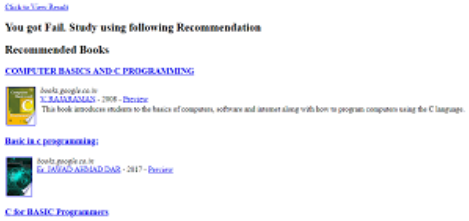

Figure.5. Recommendation process

Above figure represents recommendation process. Student is recommended by the further study materials if he or she is weak in particular concepts or if he unable to clear tests. So that student can study recommended study materials and he can retake the test. If he will clear taken test then he can move the next level. The same process will continue if student unable to clear the test. When student is able to complete all levels then a certificate is generated by saying that student have successfully completed the particular course.

Figure.6.Certificate Generation

5. CONCLUSION

In this paper, we proposed modified semantic web architecture for a tag-based recommender system implemented in intelligent web-based programming tutoring system that takes into account tags entered by the learner. The form of several modified ontologies has been introduced which correspond to the components of a tutorial system: Task Ontology, Learner Model Ontology and Teaching Strategy Ontology. For generating presentation structures, examples of learner interface have been introduced. This ontology-based approach allows adaptation of programming tutoring system to different requirements of the learners. An important part of future work will be the implementation of different and more complex technics for tag-based recommendation within web based training and recommendation system, as well as definition of appropriate SWRL adaptation rules that will make that recommendation possible. This work contributes to research on personalization of programming tutoring system. Although this paper shows an application in program.

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