Data Warehouse Model for Learning Management System

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Abstract—There are many applications where e learning is use and one of the main application is data mining. Now a day's e learning is useful for all students to learn easily with the help of web and the process of e learning is use proficiently utilizing the data warehouse. E learning is useful for students as well as employees to learn online course and get degree and to get online training accordingly. There are various tools for measuring the performance but there are no tools which measure learner’s performance. In this examination paper, some few systems use to improve e learning system. It provides the e learning structure to improve the learning method. E learning face some challenges in today’s scenario. This paper provides the solution for that.

Key words: Data mining, data warehouse, e-learning, Moodle

I. INTRODUCTION

Data warehouse and OLAP techniques are used to build any software applications. University of Cantabria design and execute the tool like MATEP which is observing and examination tool for e learning. It describe the data warehouse architecture for e learning which includes information and component model. Typically the choice making are put away in records and database. OLAP and data warehouse are useful of choice settling on or decision support system. Data warehouse build e-course reading, e-pursuing, computerized library etc. it includes online assessment and online test conducting sessions.

II. PROBLEM DEFINITION

In today’s scenario there is paper based system is going on. For that faculty and students are always communicate with each other when they are face to face. But after e learning is innovate they are communicate with each other via web from anywhere in the world.

There is some problems faced with learning system is to adapt knowledge, computer literacy, time management. It is very tedious to writing a notes in classroom so we use to record our addresses with e learning framework. With e learning system, computer knowledge is must. There are some basic computer software information is imperative so that students learnt some PC basics. There is no schedule planner for the offline system so that students cannot keep track of the assignment completion and given data stored.

Main issues in this is:
- There is no data warehouse model for that.
- There is time management issue for eg. offline system will take more time than online system.
- There is not proper online techniques and faculty available for that.
- Offline system needs continuous evaluation and it takes place only in classes.
- There is no proper track record of offline test and it needs every time to look into that.
- Only in the given time slot, learners can give exam so it is very difficult for them to do so.

III. LITERATURE REVIEW

E learning is research and development funding and commercial interest. It will reffered the articles, reports and web resources that provides report of practice and guidance for development of e learning experience. There are wide variety of topics which includes online communities, e assessment, judging text on screen, factors that influence the learner’s use of online learning, e learning dialogue and social dimensions of online learning. It is not clear that how learner perceive e learning environment.

IV. RESEARCH METHODOLOGY

The objectives of this research are to:
- Contribute to the literature on the student’s experience of e learning
- Surface the criteria utilized by understudies as a part of their assessment strategies.
- Provide perspectives on students learning process and habits in eLearning.
- The data collected and investigated is get from an understudy module assessment process associate with modules like successful information system.
- It will use survey based research technology.
- In this technology first we have to find what the trouble are in old structure and what upgrade is in e learning system.
- In new system it implemented online Moodle system in which there is a database. And in this we store all student’s details are stored and is utilized Moodle framework to communicate with different types of PCs.
- All PCs communicate with Moodle database and fetch values from database with the help of centralized Moodle system.
- There are some standards which is used by e learning system:
  - Metadata: it use to the labelling learning material and directory to maintain indexing, storage, detection, recovery of system
  - Content wrapping: it transport obviously content starting with one learning administration framework then onto the next learning framework. The certainties of substance are put away in different database which can be produced and got by information stockroom strategies.
  - User profile: it consist of personal information, learning plans, evaluation of data and commitment status in existing learning system.
  - Student registration: it identifies the available courses for learners.
Content communication: it gives interface between understudy information and past movement after substance began.

A. Structured Design

Structural design of e learning system contains two models:
- Information model
- Component model

![Component Model](Image)

It gives the practical model of the component of e learning for the consistency of the e learning development. LCMS (learning content administration system) is multi user environment in which the knowledge developer can create, reuse, manage, store and distribute digital content from central storehouse. LMS (learning administration system) needs to change any student profile and student registration information with other system.

Sharable content object model 3 main mechanism which is runtime environment, Meta data and content wrapping. It is used to content aggregation and resource for learning system. There are different components included in e learning component model. It is described as below:

1) PLE: personal learning edition

It describes that learning is going what's more, tries to give devices to backing that learning. It recognises the part of the person in adapting his or her own learning. Learning will take place in different courses and conditions and it is provided by a single learning provider.

2) Virtual or digital institute:

In this, this learning system is used by different institutes.

3) LMS/VLE:

LMS and VLE are different acronyms for the same concepts. LMS is the software that computerizes the learning of administration. The LMS registers clients, tracks courses in an inventory, records information from learners and gives reports to management. An LMS is normally designed to handle courses by different distributors and suppliers. It as a general rule does exclude its own particular composing capacities instead it focuses on managing courses created by variety of other sources. LMS features can be categorized into 4 main separate systems depicted in figure. Those separate systems are concerned with courses, exams, evaluations and collective components. LMS is the integration of four separate framework, each framework presents specific functionalities via specific tools.
– Group Browser: members can type the URLs in the location box, and sites are displayed to the entire group.
– Breakout sessions: Allows a subset of learners to enter a private visit region and use the virtual classroom tools.

7) Digital library: Digital libraries are libraries that contain digital materials. Its implementations might include digital data from academic institutions, public libraries, government agencies, and museums. It plays an important role in the learning process due to the tremendous amount of computerized information accessible by any of the LMS components anytime, and anywhere.

– My faculty is working as of now on a project to digitize the “graduation projects” as main source of information to fresh students and as a mean to convey backward and forward amongst instructors and students. This digital library will be available on-line so readers can read books published by faculties. In case they approve that of course, and review graduation project ideas, concepts and documentations.

8) It will enhance student’s graduation projects by providing students a digital library of their study work, and enhancing the faculty knowledge sharing and collaboration.

V. PROPOSED ARCHITECTURE

It is used object reference model. The architecture explain the fundamental of scattered e learning system means to communicate through messages via client to server. Service requester is the function that look for and calling and initialization the communication with the service. Discovery agency is a searchable set of administration clarification where administration suppliers issue their administration portrayal.

Fig. 3: Moodle System Architecture (Ref 2)

A. Representation: (Ref 3)

It represent the ratio of traditional learning and e learning.

VI. CHALLENGES AND THEIR SOLUTIONS (REF 1)

A. Challenge 1: Lack of awareness

One of the major difficulties of e learning is that employees or the learners are unaware of effectiveness of eLearning. They may feel that eLearning is not as viable as classroom training, so that the trainees would miss the opportunity of up close and personal interaction.

1) Solution

Promote eLearning: It could be an effective way to start an eLearning program. Mastermind the advancing effort and use for creating awareness among the audience. Other ways could be through publishing eBooks, web journal and hosting an event on eLearning.

Develop the communication: Develop effective communication could be another approach towards creating awareness. Your crowd would rapidly acknowledge once they get to know what eLearning is all about and how it could be helpful to them.

B. Challenge 2: Motivating Learners

Motivating learners is one of the common challenges confronted by the eLearning developers. When you convey the course and leave the learners to their gadgets, chances are that the learners may not take up the course feasible as they would in classroom preparing. Subsequently the test is – how can you persuade your learners and present a decent learning knowledge to them?

1) Solution

Stimulate learner’s curiosity: You need to spur your learners in the start of the course itself, so as to keep them drew in all through the course. For this, you may ask the learners some intriguing questions. Ask them to describe a situation or use some surprising proclamation that would help the learners take up the course with great zeal and enthusiasm.

Set clear objectives: Explain the learners in a word what they will realize in the way of taking after taking the course and how the course would helpful them. For example, you might clarify that after finishing of the module, they will be able to identify and react to different security threats that happen at the workplace.

Create a scenario or tell a story: Scenarios and stories are thought to be powerful tools in inspiring your learners because when the learners find something appropriate to their profession and experience, they would surely want to know and take up the course.
C. **Challenge 3: Course content**

Now, when the learner is on board with the eLearning course, it is time that the content of the course needs to be concentrate on. A well designed course depends upon the content of the course. Most of the time, the data received from the client is unstructured and difficult to comprehend. You may receive content which does not contain enough relevant data to be covered under a certain topic.

1) **Solution**

Involve the SME: One way to overcome this challenge is to involve the Subject Matter Experts in the eLearning project. A Subject Matter Expert is expertise in various subjects and guides on the content received. They ensure that the content is accurate and has no gaps. This way, the SMEs would help solve the problems faced regarding the content.

D. **Challenge 4: Evaluating effectiveness**

One of the common challenges could be to evaluate whether your course has the intended impact on the learners. How do you determine that your course is meeting the learning requirements of the employees or trainees?

1) **Solution**

This Challenge could be relieved by joining successful evaluations as quizzes and puzzles in courses. Publishing the course through an LMS keeps record of learner’s exercise and advance. It also provides the scores and results of the assessments taken by the learners.

E. **Challenge 5: Computer Literacy**

Although students are generally have technical knowledge, and thus able to manage computers well, lack of computer knowledge is a major issue among students today. A number of them can’t work essential projects, for example, Microsoft Word and PowerPoint and not able to handle properly. Furthermore, many students find fixing trouble in basic computer problems, as they have no knowledge in this area.

1) **Solution**

Technological expertise is a must for online courses, as it enables students to manage their assignments and courseware in an organized manner without facing problems. Basic courses in computer literacy enhance students’ knowledge in the particular field; having a crucial information of PC equipment would help them participate in online classes without interruptions and hindrances.

F. **Challenge 6: Time management**

Problem: It is a difficult task for e Learners, as online courses require a great deal of time and concentrated work. Besides, though it is mostly students who prefer web-based learning programs for their place and time flexibility, they don’t have the time to learn the courses due to their regular classes.

1) **Solution**

A regular schedule would be help to these learners, as they could even set reminders for their courses and assignments.

G. **Challenge 7: Technical Issues.**

Problem: Many students are not provided with the high bandwidth or the strong internet connection that online courses require, and in this way neglect to get up to speed with their virtual cohorts. Their powerless screens make it difficult to take after the Course Management Framework and their learning background gets to be risky. In addition, the vast majority of them live off grounds and think that it’s hard to keep tuned in to the specialized necessities of the picked course. Some of them don’t possess PCs and look for help in Learning Resource Centres for technical assistance. The only solution to this problem is some of them don’t have PCs and search for help in before enrolling in it, and also appropriately preparing themselves for the course’s effective consumption.

1) **Solution**

Provide strong internet connection for online course. As well as hardware device like computers and laptops are required for it.

H. **Challenge 8: Computer Literacy**

Despite the fact that understudies are by and large technically knowledgeable, and hence capable to manage computers well, lack of computer significant issue among understudies today. A considerable lot of them can’t do basic programs such as Microsoft Word and PowerPoint and are not ready to handle their records. Besides, many students find fixing basic PC issues troublesome, as they have no information in this area.

1) **Solution**

Technological proficiency is a must for following online courses, as it enables students to manage their assignments and courseware in a sorted out way without struggling. Basic courses in computer literacy enhance students’ knowledge in the field.

VII. **RESULT**

As result we found that there is one architecture which represents the data warehouse model to develop the online evaluation method for students to studies and save their time and do the continues evaluation for better result.

VIII. **CONCLUSION**

Analysis of content state of e learning standard is being explained. The model which is used for e learning is being drawn. The swapping of system workflow is also being explained in research paper. E learning standard gives interoperability between learning system and tools from the vendors. It is not trivial procedures of taking out helpful and previously unknown blueprint from the use of web. E-learning is the continues evaluation system for students so it will benefit the students.

IX. **FUTURE SCOPE**

E-education is explained by data warehouse techniques. E-learning is changeable process, safety service, encryption of messages and general facts to explain services and service access points in e-learning system environments. Several tools using data warehousing techniques to aid e-learning system are being developed. There is a need of more specialized logs from the application side to improve the already logged information.

REFERENCES