Learning pathway: Content Management and Identification of Student Behavior Through Online Learning Management in Java

Vinayak Hegde, Smruthi.G, Sahana Patil

Abstract: learning path in the online learning system refers to a series of objects which are structured to help students in improving their knowledge in a particular subject. Content is provided to the students and a proper path is set so there will not be any distraction or confusion while studying. In conventional way of teaching if the students would miss one session they will not be able to understand the next session and students will lose interest in the subject, the chances of failure will be more. By providing the content, students can understand the flow so they won’t miss any topic and understand the subject. The session is provided so that the students can be tracked and they wouldn’t miss any topic and score well. Admin will manage the content by adding or removing the content according to the technology and monitor the session time, teachers will get the information of students by admin and teachers will track the students, students will study the content. It is useful to identify the behaviour of the student through the tracking of the user session. Based on the time spent on the content the behavioural pattern of the students is predicted and analysed. The content is based on the behavioural patterns like time spent on the content, skipping of content and the session time. It is hypothesized that the students will be able to get knowledge deeper and can master the subject. It is a web-based java tutoring system which provides an online platform for students. It provides appropriate content for students to learn and understand the concepts clearly.

Index Terms: Students behavior, page session time, content management, and Education data mining.

I. INTRODUCTION

Learning Paths are beneficial, we provide the proper content to students concerning specific domain and they get full information and they get the right series of content. Maintaining content is a hard and up-to-date, delegating, and enhancing content material this is practically achieved via experimental content, likely imparting links that hyperlink textual content, pictures or links. The Web Content System management (WCM or WCMS) is a CMS designed for helping manipulate web pages content material. Most famous CMSs are WCMS. Web content material is a concern to text and text content material that interacts with customers and embedded photos, images, maps, video, images, and software code (e.g., for applications). Content control structures usually offer the subsequent functions: 1) Integrated and Online Help 2) Modularity and Extension three) User and Organization Capacity four) Tinplating guide for changing layouts.

The advantage of learning pathway is that if there is any query on a particular topic and the student’s searches that topic entire information will be given to the students in a sequenced way. While learning java students will directly start learning from inheritance without understanding the basics of java so there will not be a proper pathway for students before but in this project student will have a proper flow for understanding Java. By providing a pathway students will know from which topic they have to start and have a proper flow for studying so they understand the subject well. To make students understand the subject well the content is provided, content is put in a flow for better understanding for the students. Session is provided for each topic so to keep a track of students how many topics they have studied and how many they have not studied. In conventional way of teaching if the students would miss one session they will not be able to understand the next session and students will lose interest in the subject, the chances of failure will be more. Learning pathway provides a proper path for students so that they won’t miss any topic and understand the flow of the subject from the basics.

II. II. RELATED WORK

C. Romero et al, proposed the studies attempt to assist the administrations of universities, Through most people of the contrast and evaluative studies on LMSs, to achieve the technique of choosing the appropriate LMS in order to incorporate them. Further it highlights the lack of reliable research to evaluate LMS, but in the end, despite having 58 research or more, it is not sufficient to cover the prominent subject of e-learning as most of the research is not proficient enough, incomprehensible and fail to incorporate susceptible criteria. Hence we conclude that there is still a greater need for proficient research and metrics to able to achieve the comparisons effectively. [1] A. Klasnja-Milicevic et al, proposed an automated method in order to identify the mastering styles admired by the Felder-Silverman learning fashion version by means of inferring the knowledge gained on patterns of their behavior in the learning course they have opted on an online medium.
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The typical techniques utilized in e-mastering are developed for mastering management systems. This approach that is applicable for LMSs is well known. The most used functions in LMSs are appointed to be the idea for patterns. These functions consist: content items, outlines, examples, self-evaluation tests, sporting activities, and dialogue boards. Furthermore, the steersmanship behavior of college students in the path changed is taken into consideration. [2] Denoux et al, proposed the ontology-based technique for integrating interactive person modelling and learning content material management to address regular variation problems on the Semantic internet, such unreliability of person interplay for constructing conceptual UMs, and dynamics of a user’s expertise. Onto objectives for adaptive project guidelines and resource surfing at the Semantic net. Preliminary outcomes from person studies were mentioned. Areas of improving onto targets by way of including extra integration and edition capabilities, as suggested with the aid of the consumer studies. ultimately, we take into account research to (a) produce an excellent classification of users’ mismatches and patterns for clarification dialog (b) design effective understanding elicitation equipment proper for ontology engineers, however for customers with a huge range of studies, and (c) use Semantic web offerings for the dynamic allocation of getting to know resources that are then flexibly integrated in Onto objectives. [3] K. Elissa proposed the usage of e-getting to know environments to aid teaching and gaining knowledge of has had first-rate impact at the manner content material is evolved and managed. In maximum instances, each instructor and college students have needed to re-adapt the way they prepare, get admission to and have interaction with instructional be counted. The adjustment in human mechanisms for establishing and interacting with educational content has become necessary due to the remediation of established practices through the advent of software program—primarily based strategies to structure content material, as an example, using metadata. at the same time as metadata requirements offer effective pointers for establishing content material in net-based totally e-mastering environments, era-based totally total procedures to managing educational sources do now not absolutely cope with social-cultural and Pedagogical aspects of users within the context wherein coaching and mastering takes the region.

The paper provides an interest focused approach to abstracting contextually and pedagogically enriched metadata descriptions of instructional content material and interactions with mastering items. [4] D. Mwanza et al proposed the growing quick films may be an advantageous way to get college students to have interaction with the cloth before coming to elegance. College students indicated the videos helped them study the cloth. The professors who reduced their lecture time observed that scholars organized greater for sophistication not only in watching films, however additionally in doing the studying. These students desired shorter lectures and having more time to work on programming in elegance. Additionally, they did higher on the test (although the pattern size was not enough for this to be statistically giant). The motion pictures aren’t only helpful for an on-campus route, but setting them on YouTube may be a simple outreach on your university (we had a massive range of perspectives from 13-17 12 months old). [5]

### III. DESIGN

Fig. 1. Overall architecture

In this web application the students will read the content and based on how they have gone through content they will perform in the test. Whenever the technology changes the content can be modified, updated so the students are up-to-date with the technologies and admin will also get the track of the students for how much time they have spent on each page. By which they can analyses the student behavior and learning pattern. By this, the student may do well in the test as they acquire knowledge from the content.

The above UML diagram depicts the users and their role

![UML Diagram](image)

### IV. METHODOLOGY

Learning management system provides the proper pathway for students to understand the flow of the subject and have a proper structure for their learning. The topics covered and time allocated is provided in the following table:

<table>
<thead>
<tr>
<th>Sl.no</th>
<th>Topics Covered</th>
<th>Time allocated(minimum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>History of Java</td>
<td>30min</td>
</tr>
<tr>
<td>2</td>
<td>Data Types in Java</td>
<td>30min</td>
</tr>
<tr>
<td>3</td>
<td>Operators in Java</td>
<td>30min</td>
</tr>
</tbody>
</table>

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This table gives the proper way and flow for students to learn Java. From topic 8 to 11 are advanced topics, so the content is provided from different sources in one platform. To smoothen the flow of execution there are three users: 1) Admin – Admin will provide the content and change the content whenever the technologies are updating, session tracking of the student will be done by admin and the result of that will be sent to teachers.

2) Teachers – the teacher will get information about the student from admin, how much time the student has spent on the topic or skipped the topic the teacher will notify to the student 3) Student – student will study from the content and take the test. The session will be monitored for each topic how much the students have spent on the topic and students behavior is analyzed. Session is a periodic event of time in which the student state is maintained.

The above figure shows the content provided to the students. The content provided is in the order and related videos are given to the students so that they can get clarity in the content.

The above figure shows the editing page when the technology changes the content can be edited so that the student will get the updated version of the content and understand the technology.

Above figure depicts the session code in which each page will have the session time.

The above figure depicts the overall session process that the client request to the server for the connection and server will response for the request.
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Above figure depicts the data collection of the students who have spent time on the content which has been recorded.

Fig. 7. Session page.
The above figure shows the session time of the student. Which means the session is provided to each page and how many minutes the students has spent on that particular page

V. CONCLUSION
The learning path provides proper route approaches for learners and discover new thoughts and complements their talents. This path affords the proper route and steerage, which is clean to seize coaching deduction for university college students. For example, as an endeavor, the gamer performs an entire step, then freezes the publish-game degree. A similar concept is used inside the manner of getting to know for college youngsters. After finishing a particular difficulty disciple, Content control can set text, along with updating, deleting, and editing, which includes consistent content with the specificity of the faculty's content. Here we provide material for students, so students can have the right information to test and get the information from the content source. In each web page of the student's thesis we are expecting students overall performance environment, the disciples may skip or fail on that subject, so the failure rate may be reduced, so this assumption helps students to learn better thinking and better in testing.

APPENDIX
Fig1: Home Page

Fig 2: Registration Page

Fig 3: Login Page

Fig 4: Welcome Page

Fig 5: Table of Content Page

Fig 6: Session Result
REFERENCES

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