

VLEARN PERSONALIZED E-LEARNING RECOMMENDATION SYSTEM

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Abstract -The learning style speed or capabilities of all students are unique. Is it viable to customize coaching as per the want of the student. E-studying makes it viable, all student can't be wonderful in look at or in all topics. Few students can also take more time to understand the situation or topic. It is a widely known fact that scholar very effortlessly analyzes thru audio, video visual content material than getting to know thru classroom teaching or analyzing it. In e-getting to know scholar can watch content material everywhere each time 24/7, three hundred and sixty-five days, he/she will pause replay rapid ahead as in line with his potential to apprehend the particular subject matter. Hence, the exact learning gadget will only suggest his preference based principles on the information level but also additionally give the type of studying fabric to assist the scholar to analyze or accumulate a talent within a nice manner. V-learn can tune student's progress and display their susceptible regions. This will supply a clear photograph to instructors about the regions which need improvement and what exactly to attention on.

Key Words: e-learning, V-learn, Customer Relationship Management, K-Nearest Neighbors.

1. INTRODUCTION

1.1 Fundamental

THE LEARNING TECHNIQUES: For all the possible instructions of studying fashion, a prediction model is obtained which examine the below cited machine variable that is powerful in predicting the student learning style or techniques. By using this technique, systems will no longer handiest caters the intellectual with the endorsed content information, also it will let them stretch and occupied special kinds of content materials which is beneficial to the student, ultimately helping the model to study from dissimilar behaviours. Collaborative filtering is a technique that could separate objects which a consumer may like on the idea of response by identical customers. The job is to look at big institutions of humans and also locating a few set of

customers with similar interests just like a selected person, incorporating the applicable criteria that comply with.[3]

1.2 Objective

1. To make an E-mastering portal that is effortlessly available and relevant.

2. To make the training smooth and exciting as well, So it's far less difficult for scholars to study the topics easily however in a creative way.

3. To make certain college students get to study every and everything approximately the specific subject.

1.3 Scope

The learning portal is evolved by way of maintaining in consideration of latest tendencies that advocate that intellectuals select e-learning as compared to conventional classroom education. The dynamic capabilities of the internet-web page were encoded in Java and PHP language. Every academic is widely considered beneath the class of gaining knowledge of fashion. This portal recognizes the learners getting to know the technique and therefore offers fabric and customizes the User Interface (UI) based on that learning style [2]. It will enhance the knowledge of the students. The scholar generally does not have the duration to browse through all types of material for a specific subject matter, therefore the portal will personalize and also provide the handiest of those materials that can beautify the getting to know to enjoy of the student. In destiny, the version can be examined for distinctive guides and more quantity of rookies.[1]

2. LITERATURE SURVEY

1. Aleksandra Klasnja-Milicevic "Enhancing e-learning systems with personalized recommendation based on collaborative tagging techniques" (2018).

In this paper Focuses on the selection of collaborative tagging techniques to that increases the motivation of learners. They analyze the integration of recommender systems and collaborative tagging in a web-based system. A learning approach implemented in Protus to quickly identify the most

suitable material for the student. Protus allow learners to learn with personalized learning material prepared within appropriate course and to test the acquired knowledge. The paper includes clustering techniques, FSLSM algorithm and Adaption modules. In user-based collaborative learning style determination is done by the index of learning style. This paper reduces the execution time and decreases memory requirements, while same time quality of them will be guaranteed. It uses the intelligent tutoring system and semantic analysis.

2.Sucheta V.Kolekar, Radhika M Pai, ManoharaPai“Adaptive User Interface for Moodle based E-learning System using Learning Styles” Karnataka, India (2018).

In this paper Focuses on the selection of collaborative tagging techniques that increase the motivation of learners. They analyze the integration of recommender systems and collaborative tagging in a web-based system. A learning approach implemented in Protus to quickly identify the most suitable material for the student. Protus allow learners to learn with personalized learning material prepared within appropriate course and to test the acquired knowledge. Paper includes clustering techniques, FSLSM algorithm and Adaption modules. In user-based collaborative learning style determination is done by index of learning style. This paper reduces the execution time and decreases memory requirements, while same time quality of them will be guaranteed. It uses an intelligent tutoring system and semantic analysis.

3.Content-based Recommender Systems: Ayush Sharma “A Proposed E-Learning System Facilitating Recommendation Using Content Tagging and Student Learning Styles”[3] Nagpur, India 2017 IEEE.

Every e-learning system is designed with a goal to help the student to establish his/her goals and help them when needed. But, the learning style of each student is different, consequently, learning progression and pattern varies among students. A learning style is a characteristic of the psychological and cognitive behaviour of a user under a learning phase. Hence, a good e-learning system is one which not only recommends concepts based on knowledge level but also recommends the type of learning material which will help the student to learn or acquire a skill in the best way. This paper proposes the foundation and operation of an e-learning system which suggests educational concepts and type of learning materials to enrolled students, based on their performance, learning style and learning progression in the system.

4.Mohammed M.Alhawiti Yasser Abdelhamid “A Personalized e-learning Framework”University of Tabuk, Saudi Arabia (2017).

In this paper, E-learning has changed the traditional way of learning which was "one instructor, many learner" to a new way which is "a particular or many approaches, one learner. This number of technology and tools available which provides these personalized learning experiences like ontology, semantic web, learning objects and content management tools. To continue this technique, we have proposed a personalized e-learning framework. This framework will match with the design needs of an individual through e-learning platforms to suit their learning process. This process will seek out those design requirement's characteristics. The machine built into these terms, data and process will help with the matching. Even if the task seems quite challenging, it is believed to be achieved with the help of the current technology.

3. OVERVIEW

3.1Proposed Methodology and System

Collaborative filtering: The initial essential mission confronted by means of student established totally on collaborative filtering technique is the difficulty of scalable and as it is able to exist proven while scanning for the nearest learner if our strategy includes a totally massive wide variety of inexperienced persons and courses. To avoid the hassle it comprises clustering of the learner and parallelizing our paintings. The presented Collaborative Filtering method is established completely on optimized for the user likeness, A balancing component is enhanced to the traditional cosine likeness algorithm, which can be utilized to evaluate the task score scale variations among one of a kind users.

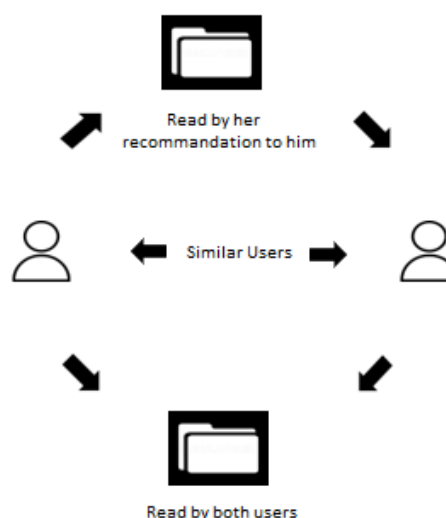


Fig-1: Collaborative Filtering

The primary idea of collaborative filtering is very simple to think we've consumer X2 whom do you want to make guidelines what we're going to do is have been going to discover an organization of other users whose likes and dislikes are similar to person X for example assume you are doing movie suggestions now the group of customers you realize just like the identical films that X likes and dislike the same movie that X dislikes we call this set of users the neighbourhood of consumer X as soon as we discover the set N of users or the community of user similar to consumer X we find other movies which are favoured by means of a whole lot of users inside the set N and suggest those objects to the user X so that is the basic concept behind collaborative filtering the important thing trick is to locate the set of users which are just like user X the neighbourhood of user X and to do this we need to define a belief of similarity among users. This technique can handle the conventional issues of recommendation systems like bloodless begin trouble, sparsity, and scalability, the patterns of the students and the likeness.

3.2 Implementation Details

In the diag. below, the matrix is diminished into two matrices. The m users are the one on the left which is the user matrix, and n items one on top is the item matrix. The rating 4 is decreased or factored in:

An m user vector (2, -1)

An n item vector (2.5, 1)

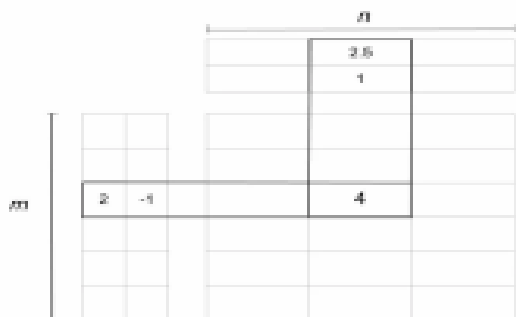


Fig-2: Matrix Factorization

The 2 row inside the item matrix and the 2 columns within the item matrix are known as latent factors and that is an example of hidden traits approximately the consumers and the items. A feasible.

Variation of the factorization may want to seems to be:

Determine (u, v) that during a person vector, v denotes how a great deal they prefer the Romance genre and u denotes how a great deal consumer prefers the Horror style,

The person vector (2, -1) as a consequence depicts a consumer who prefers horror films and rates them undoubtedly and despises movies which have Romance genre and fees them negatively.

Think that (i, j) in an item vector, i indicates how tons a movie associates with the Horror genre, and j indicates how a fair deal that movie relates to the Romance style.

(2.5, 1) the movie has a Horror rating of two. A Romance rating of 1 and 5. Let's Multiply it through the person vector using matrix multiplication regulations gives us $(2 * 2.5) + (-1 * 1) = 4$.

Therefore, the movie referred to the Horror style, and the consumer may have rated it five, however, the insignificant inclusion of Romance precipitated by the very last grade to lower to 4.

The aspect matrix could offer such stimuli approximately customers and gadgets, but in fact there can be commonly plenty extra complicated than the justification provided above.

The number of such elements may be anything from one to hundreds or maybe lots. This amount is one of the matters that expect to be optimized for the interval of the schooling of the norm.

In the example, you kept latent factors for the movie genres, however, in certain scenarios, these latent elements require no longer be examined extensively. These prevail styles inside the statistics so that it will manipulate their component robotically whether we decipher the underlying which means or not.

The range of latent factors impacts the tips in an expression wherein additional the more variety of things, the additional customized the suggestions come to be. However, too many aspects can result in overfitting in the model.

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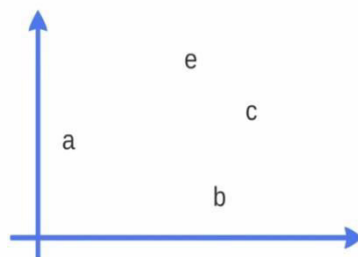
3.2.1 ALGORITHM

K-Nearest Neighbors (ok-NN) is the algorithm used. It is a very simple algorithm, and give N schooling vectors, think we've some of these 'o' and 'a' words as training vectors in

this dimensional segment space, the KNN algorithm recognizes the ok immediate buddies of 'c', 'c' is another function vector that we need to estimate its class. This situation recognizes the immediate neighbours no matter the labels. So, assume this situation we've got k same to three, and we've got the training 'a' and 'o' and the objective of the set of rules is to locate the magnificence for 'c'. If ok is 3 we must discover the three closest pals of 'c'. So, we are able to detect that during this scenario the three nearest friends of 'c' are those three factors here. We keep one closest neighbor of sophistication 'a', we've got two elements of the class 'o' which might be close to 'c'. We have 2 votes for 'o' and 1 vote for 'a'. In this situation, the magnificence of the detail 'c' goes to be 'o'. This is quite simple how the set of rules ok nearest acquaintances works.

precise areas. This is belonging to the KNN set of rules while ok is the same as 1. We define areas 1,2,3 and four, based totally on the nearest neighbor rule.

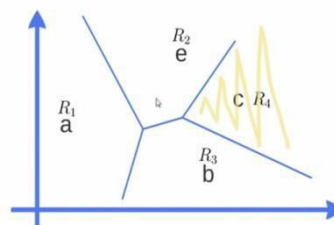
When $k = 1$, each training vector defines a region in space, defining a *Voronoi* partition of the space



$$R_i = \{x : d(x, x_i) < d(x, x_j), i \neq j\}$$

Fig-5: Voronoi partition

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Fig-6: Voronoi partition

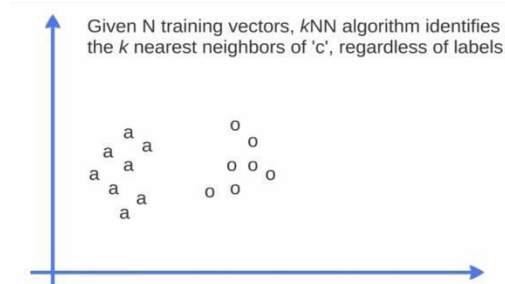


Fig-3: KNN graph

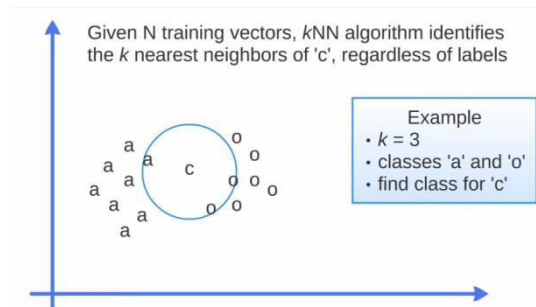


Fig-4: KNN graph

Now, this is an important case of the KNN set of rules is that after k is similar to one. So, we expect to try and discover the closest neighbor of the detail so that it will outline the class and to illustrate this selection space, every schooling vector will outline a location in this option area here and belonging that we've got is that place is described through this equation. We include a length between each detail x and x_i , that should be less than the similar length for each other detail. In this example, it would outline a Voronoi partition of the distance, and maybe defined, for example, this detail 'c' and these elements 'b', 'e' and 'a' will define those areas, very

Each detail this is interior region 1 vicinity may be classified as 'a', as well as each detail in region 4 vicinities will be classified as 'c' and the identical for the area 2 and place 3 for instructions 'e' and 'b' as properly. Now we've got a few remarks about KNN we need to pick out an extraordinary fee of k when you have 2-magnificence trouble. This takes place due to the fact when we have a 2-class and if set k proportional to two, for instance, we have a kite. What will be the magnificence? The bulk magnificence within the nearest friends? So, we've often to set extraordinary values for a 2-elegance hassle and additionally the cost of k need to not be a couple of the variety of classes, it's also to keep away from ties and we must keep in mind that the principal downside of this algorithm is the complexness in scanning the closest

neighbors for each pattern. The complexity is vast due to the fact we've lots of factors, inside the case of a big dataset we can have lots of factors and we will pursue the gap between each detail that we need to categories. So, for a large dataset, this may be a difficulty anyhow, this KNN algorithm produces the right results.

4. HARDWARE SOFTWARE

The hardware required through the gadget to be developed is given below. The fundamental reminiscence required is 512MB and above so that the whole application can reside at an equal reminiscence immediately. This will keep away from the requirement to switch the memory contents of the device.

Hard disk pressure is needed to store the program permanently on tin garage in order that the lack of energy will now not have an effect on the availability of the program. Processor is needed to procedure the statistics quickly on the gadget. The general input and output devices are required to take the input from the consumer and display the output to the consumer. Other than this the hardware tool required with the aid of the machine will be a Computer or computer. A Computer/Laptop is needed to permit the consumer to interact. With the machine even as on the move.

The software requirements of the machine are described beneath. The working structures used could be home windows XP and android OS. Windows XP or above model of the operating system may be required by using the system to set up a server. The server for this reason may be working on windows platform. Microsoft visual studio may be required to execute the machine.[3]

5. SUMMERY

In this paper, the Recommendation machine helps customers to find facts with the assist of personalized suggestions. Personalization specializes in enhancing the p son wishes, pursuits and options of each consumer. It also includes advice, filtering and predicting techniques. Collaborative filtering is also some other algorithm wherein you can expect users hobbies by accumulating options or information from many customers i.E collaborating. Depending on the alternatives you are making, you become with a type of collaborative filtering method.

6. FUTURE SCOPE

Many extensions can be accomplished using this idea. We can replace time-to-time based on trendy technology to be appropriate for college kids getting to know style. More publications may be delivered. One can efficiently utilize the resources wing their productiveness. The proposed version is the unmarried globe model which understands the

achievement and improvement of all the learner As the goal is to design a customized learning machine, this technique needs to be non-public as nicely i.e. gaining knowledge of/remodeling/predicting for every learner.

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