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In Higher Educational Institutions Making Strategic Decision by using Machine Learning

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Abstract
At the Strategic level decisions effect policies, strategies, and actions. Due to the stakeholder disengagement leads to 1)decision takes long time 2)data necessary is not involved. Machine learning is an important field of artificial intelligence using algorithms. This projectuses three algorithms to predict graduation rates about under graduate engineering students. By using ROC curve we executed,estimate and enhance decision tree, logistic regression and random forest.

Keywords: *Decision tress, random forest, Logistic regression, Machine learning, Strategic decisions,Higher educational institutions.*

INTRODUCTION

Now-a-days education plays an vital role in our society, because it elaborates vision so, the awareness had been created. The methods include story-telling, teaching, training, discussion. Educators had given guidance to the people. Education takes place in three types. Formal, Informal, Non-formal. Machine learning was determined by Arthur samuel in the year 1959. Machine learning is the domain which is also used for the purpose of the education. It is the latest word among all the domains. Machine learning is the study of algorithms and models. It provides ability to learn it self and it will improved only by the experience. Machine learning was classified in to three types. Supervised learning, unsupervised learning, Reinforcement learning. The primary goal is to satisfy the the machine learning way as human learning. It helps the people to work efficiently. Mathematical methods work more accurately and statistical methods are use in machine learning, medical diagnosis image processing, Classification, prediction. learning association regression are in real life examples of the machine learning.Machine learning makes algorithms to learn from past experiences. Supervised learning algorithms can be classified in to Linear regression, Logistic Regression, KNN algorithms, SVM, Decision tress, Random forest, Naïve Bayes theorem. Linear algebra calculus , statistics and probability, graph theory are required things which are used for the purpose to learn the machine learning. Machine learning is used for the classification. In Educational data mining field due to the research the Education system had been changed rapidly. Usage of DM methods, machine learning methods, and different statistical methods in education is known as EDM.In the educational institutions the techniques

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were used to know the data. Ineducation the Learning analysis and educational data mining are the important topics but student performance is slowly learned. Educational data mining are corresponding tolearninganalytics. Educational data should be anlayzed to give a good presentation of used data to support the difficult processes whether it is store in device or manually. Here data which is stored is not sufficient when directors and mangers are deciding. Machine learning focus on the computer program development which the data is accessed.

LITERATURE REVIEW

The intent of this paper is to find out the graduation rate about the under-graduate rate. For this we use three types of Supervised classification algorithms in this paper .In real data to find the graduation rates about the under graduate students by using the Decisiontree,Logistic regression and Random forest. The decision tree, logistic regression, and random forest are compared and designed the effectiveness by the comparision of ROC curve and accuracy. To manage the changes the academic field is transformed by the Information and communication technologies. In the educational field we use the ICT which we have classified in to the four types.

E_ LEARNING

E- learning is used for the new educational models and researches. By the latest development of E-learning had done the life-long teaching and knowledge transfer. By this the M-learning had been introduced. By the knowledge, and skills E-learning is used to develop the life-long education.

ACADEMIC RESEARCH

Academic research is important in the ICT. Academic research had been transformed by technology, digitialization of libraries.

QUALITY MEASURE

In education the quality is in different types: knowledge measurement, quality of teaching, quality assessment. The quality for all stakeholders are there in the higher educational institutions: teachers, directors, students, government and society.

MAKING THE DECISION

The data should be known even though the small transactional items such as attendance lists for the development of decision-making.on the impact of informationandcommunication technologies decisions are made the infrastructure, accessibility, and intensity are dependent in higher educational institution.

IN HIGHER EDUCATIONAL INSTITUTIONS CLASSIFICATION OF DECISIONS

From institutional government, strategies, goal, and resource allocation decisions are taken in the higher educational institutions..Here we use three types of governance in the higher educational instituation. Academic, Bureacratic, and corporate.

ACADEMIC

In the place of teaching, curriculum, academics and administration the members who are depending on the faculty work to get back the authority and making the decision powers.

BUREAUCRATIC

procedures,fixedadmimistrations and direct orders are characterized by hierarchy layers.

CORPORATE

The recruiting and retention efforts are the support for the marketing activities.Inbetween three categories variations exhibit in the real world governance. private universities are action-oriented.

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Decisions' structure levels at HEIs.

STRATEGIC

Here we have three levels. uppermost, middle and lower level. the uppermost level is used to the policies and strategies which is used for organization. In the strategic level, planning the higher level is very ambitious. Here we used to discuss the difficult factors in strategic planning. The decision in the strategic planning affects the universities resource allocation.

TACTIC

In tactic level we used to know and execute the plans which was taken from the uppermost level . In this level the people work together in the department . After the completion of the strategic level the tactic level is used for the purpose of the control and implementation. In this task the quality assurance is used . The tactic level performs taking decisions like how many students are there for each individual teacher.Naïve Bayes and Artificial Neural network algorithms were used.

OPERATIONAL

It is the lowest level which is used to taken the charge of everyday process. And their duty is to Strengthen the whole structure. To support the operation of the institutuion here we perform the specific tasks and transactional activities.The operational level has the information which is required by the higher educational institutions. In this level we use the IT governance to work like the instrument. Here strategic level and tactic level provided the guidelines according to the collaborators such as teachers, advisors, and tutor. A smaller population is affected at this level by decision making. In this structure level we use the prominent algorithms such as neural network, Support vector machine. In this pyramid structure each level have the decision-making process from upper level to bottom level. Here we use some software applications which are used to support the decision-making.Thethird stage is provided the information which is use for work.Here we can find out the student academic performance by improvingfactors. By those methods we can improve the students academic performance. Here EDM become a major research for the educational field. By predicting the student academic performance we can identify the number of things like drop out students, weak students, good in academics .Her the students academic performance is affected by the Alcohol consumption, Health , Relationship.

ALCOHOL CONSUMPTION

Due to the comparison between the alcohol consumption during the "weekend alcohol" and "Day alcohol" we take the percentage of the person who is consuming by "WA" and "DA". And by the result we had came to know that "DA" effects the person more than the "WA". And by this it is clear that the alcohol consumption affects the academic performance of the student.

HEALTH

Health is main important option for the student academic performance. the student with good health status score high marks.

INTERRELATION

Here the student who are in the interrelation had scored less marks whether the student who are not in the relation. So, the healthy relation is important for the improvement of the academic performance.

PARENTS EDUCATION

For the improvement of academic performance parents education takes place the key role. By this

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, both the mother and father education the failure percentage of the student should be decrease. And it affects the final grade of the student. And by noticing it by the both parents education the level of the student performance isautomatically increased.

And we can also find out the drop rate of the student. The student drop-out rate is found by important aspect in the higher education. the implementation of distance learning course is fundamental for In educational institutions the distance learning course is fundamental for this reason the reduction of drop rates is vital important. In a distance web -based course we predict the student drop-out rates. It deals with machine learning techniques. To analysed the students academic behaviour educational data mining is an important tool.

In the educational field the technique data mining refers to use EDM. In distance web-based course the students drop out rates are predict of using active learning methodologies. Clustering, Classification, and association analysis method have been implemented successfully.

And also the future development of student is find out. hesre the purpose of the classification we use decision tree and association rules. For the future development of the student to predict the performance it is the task for both teacher and the student. Depending on the past examinations of the student the results and the class-assessements of the student the development should be changed.

The students who are weak and who are good in the studies have been calculated. and we can give a better contradiction for them. So, by this we can easily develop the future development of the student. for this we use the decision tree, naviebayes, K-neigherest neighbour and support vector machine.

TRADITIONALMETHODFOR CLASSIFICATIONAND PREDICTION

To build the predictive modeling here we use the traditional tasks which is used for classification, and catagerization.

NEW METHOD FOR USING DEEP LEARNING AND ARTIFICAL INTELLIGENCE

It is an another technique used in the educational data mining. the advantage of neural network is to find out the detection of the same interactions .It can also perform the detection in even the complex depend and between the independent variables.

CONCLUSIONS

Even the machine learning in the educational field is still there, even though to analyse the information is notorious. Machine learning gives support to the process by using the various algorithms which is used for the data by differently.Decision tree, Logistic regression, and Random forest are the three supervised classification algorithms which are used. By using these algorithms we can early identified of the students who are graduated about the under graduate rates. To compare and evaluatethree algorithms the ROC curve and accuracy are executed.Inthis to improve the academic purpose we use some data mining methods for identify factors, identify weak students and improve them. Here the main factors which are influencing the final grades due to the alcohol consumption, relationship and health. The main factor that improve the performance is parent education.In a distance web-based course we predict the drop-out rate.This is a very important challenge in the universities. And the reason of this the reduction of drop rate is more important. EDM is the tool for analysing student academic behaviour.

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