ATTENDANCE MANAGEMENT SYSTEM USING SVM AND DECISION TREE

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ABSTRACT

Attendance of every student is important whether he has attended particular session or not . Many automatic system of attendance has been placed in the past (such as fingerprint scan ,retina scan, individual person taking attendance..... etc.) ,but the present is out of a pandemic situation referred to COVID - 19.

Most of this method is time-consuming and expensive instruments to handle it , moreover it takes up a certain amount of storage space in system which may be difficult to organize things in efficient manner.

Deals with attendance management system with maintenance of of students details.It

generates the attendence if and only if there's students presnece in the session of concerned scheduled class or any meeting.Daily maintenance of attendence is mandatory for reaching a given percentage by the campus or institution.

Intially for the presence of student the student has to Login into Ms Teams for attending the scheduled meeting.Later the student has to meet the certain amount of time is required to mark present in the attendence such as close to 35 minutes is minimum time required to get his attendence marked in ERP.

KEYWORDS

Attendance, Management, System, Present, Absent, Automation / Automated, ERP, MS Teams, Institution, Algorithm / Algorithm's

INTRODUCTION

Microsoft is a huge company which has various application operate. But Microsoft Teams was very much useful in this pandemic days which many institution have shifted themselves to a platform of online teaching environment. We found out a difficult regarding the attendence so this survey is bascially based in the difficulty mentioned above.

Maintaining of Attendence is very important in all aspects of instituation analysis students performance.Each have their own way of taking attendence.Some still use traditional(book and pen) method very few have adopted to new technology of taking attendence such as fingerprint, biometric. But these method also have disadvantage like waiting in queue at their time of entry into respective classrooms.By using these technique many innovations have taken place such as Iris,Face,Hand Geometry and voice.

By doing this will be a wasy method for marking attendence of each students.

There is a separate group for a particular section or batch wise team is splitted for having organised distribution as well as easy to know.

In Microsoft Teams student login details has to be entered before attending the session which is done manually by every individual for getting the acess.Then the student can check which is current ongoing session for scheduled slot timimgs fixed by the organiser.

In Microsoft Teams students details is automatically provided such as Status wheather the student is on hold or active,Batch describes which current year a student is studying,UID number added with an university mail address.

Microsoft provides various facilities such as office 365 which is required for every student to make Powerpoint presentation, Documents,Excel sheets,Cloud storage with a limited amout.

Then the organizer of the meeting has to download the attendence inorder to update cureent data information.

where in PRESIDENCY UNIVERSITY attendence is uploded in an website called ERP .

Our plan is to link MS TEAMS with ERP for comfortable management of attendence system ; due to this there won't be any downloading and storing of data , then later uploading to ERP system .

Therefore it is all automated system for marking an individual attendence in terms of Present / Absent.

PURPOSE AND OBJECTIVE

- The main aim is to make it responsive and feasible to handle.
- Details should be accessed firmly of each individuals.
- Easy maintainig of each students information.
- Auto calculation of attendance.
- To Maximize security.

FEATURES

- Student Attendance
- Leave
- Admin has the authority to edit, add, delete, update the records of attendance and leave.

RELATED WORK

[1]Maumita Mal,Shweta Koli,Aakash Karnani, Rasika Naik,Bhavesh Chetwani

Proposed that they have allotted one complete server system which can manage attendance in school and college.They have designed their framework in suchaway that there is no hurdels in between and included many features like user friendly,low power consumption and upgraded to any acquistion system.Used technological devices like biometric and RFID.

[2]Shravya Reddy,Shashi L Reddy,Veena G

Proposed that their software can manage the working modules efficiently.Interconnectivity module reduce time taken to perform the operation.Their software helps to gather information student automatically.Their systems is capable of storing the data from day one including Students as well as teachers.and maintain these details dynamically,therefore reducing traditional pen paper method.

[3]Saleh Alghamdi

Proposed that traditional method is time consuming and effort incase of huge class.The morden method solution have disadvantages in terms of high-end technology and have less functionality.If we take biometric scan (fingerprint scanner) require student to wait in queue in front of devices which not a prefect solution considering there's time consuming for the lecturer.this system is eradicating the above issue for both the members that is student and teachers.This is RFID technology which is mobile app based, it can be monitor the attendance of students at low cost without limitation of any other systems.

PROPOSED MODEL

Support Vector Machine:

Support Vector Machine Algorithm has been one of the best and most used Algorithms used Machine Learning.

In this Algorithm mostly used for Regression, Classsification and Detection.

In this Algorithm they have used Hyperplane which distinguishes between 2 points known as (present/absent).

The distinguishes of Hyperplane is called as margins .

The error rate is also stay low whith higher margins and the classification miss rate will also reduced.

The below Photo displays the division of hyperplane that divides the 2 classes.

We can divide the classes by applying various kernrel function parameters.

The atypical kernels in Support Vector Machine are Linear, rbf, polynomial and sigmoid.

The support Vector Machine become more useful when we are using larger dimension data set.Larger dimension means when we have more column which is nothing but features in techinical terms.

Incase if the model is at a stage where we cannot fit in more data we can make use of regularization by choosing different kernels.

Support vector uses dense input such as Numpy array and sparse vectors.

There are different classes provided for Support Vector Machine by sklearn for classification method.

The classes are SVC, NuSVC, LinearSVC, OneClassSVM.

Incase of regression classes are SVR, NuSVR, LinearSVR.

In the below figure we can observe that there are two classifications done and which are marked in two different colours namely red which is denotion for absent of the student

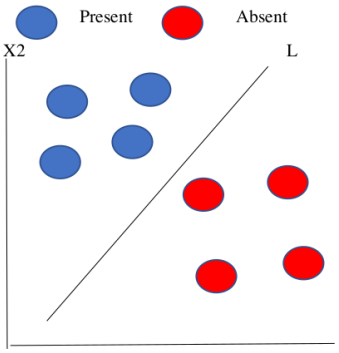
And the other color which is blue and the denotion is for the student is present.

This has a hyperplane which is divided and named as L1 for classification purpose

This method of categorization between the two values makes much useful for any identifier to identify just by looking at the below figure.

In this algorithm we can Categorization between the student has joined or not joined in Ms teams.It helps to identify dimensional space of data points however it is completely dependent on number of features.It is hard to view when the feature exceeds more than two;because two-dimensional is easily plotted and read by the resource person.Its is Robust in nature.

Below is basic representation



Source : Authors graph

Figure : 1

Decision Tree:

Decision tree is also known as CART algorithm which is bascially known as Classification and Regression Tree algorithm.

Decision is just like true or false statement if it is true it executes the further statements into sub-divisions of tree.

Decision tree can contain both categorical data as well as numeric data.

It has various terminologies referred to root node,leaf node,branching,splitting,pruning,parent and child node to better enhancement for making best decision.

Decision tree is used mostly because it imitates human type thinking ability,so it is easy to understand determing on the given problem statement.

Decision tree is basically based on the natural tree structure. This is one of the base of all the different tree models. The dicision tree has two varients in it namely classificstion and regressin algorithms these are optimized in sklearn.

These decision tree is known as non-parametric supervised learning.

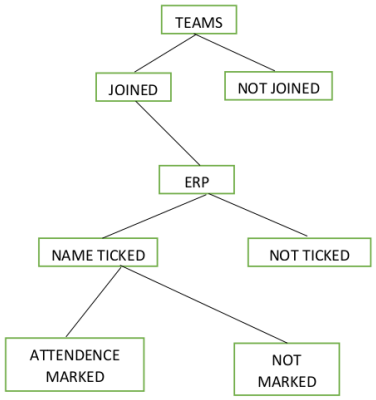
Non-parametric learning basically means the data values are freely distributed .

Decision tree is decided by choosing the main head / root node preferably caleed and they futher split into branches which is known as node.Splitting can be done by using metrics in decision tree.

The 3 main metrics in Decision tree is known as Entropy, Information Gain, Varaince Reduction.

In this algorithm the structure goes from decendent to futher generation to satifies the goals of the current mechanism.There's a split of dataset into divisions.Divisions of dataset are created to plot data of which ever data points is related to statemented problem.Division of the dataset in this algorithm has head and leaf nodes.

Structure is shown below.



Source : Authors Flowchart

Figure : 2

RESULTS

This system successfully capture the attendance of students.The prototype manage to map individuals name box is ticked or not.

We can implement the above two algorithms for effortless work.

The performance of this system was acceptable and would be considered for future implementations especially considered because of short execution time. Developing this systemy would be efficiently used by all faculty.

We have compared both the models which is known as Support Vector Machine. And Decision Tree algorithms. Support vector gives out the maximum accurrecy.

CONCLUSION AND FUTURE ENHANCEMENT

In this survey Paper, we have planned to make easy and comfortable way of marking attendence.

Attendance Management System is necessary in all fields.

This method is solved by adding automated recognition.The actual focus of this method must be handy.

This process is highly secured, feasible and readily available to make full use of it through any browers.

The Future enhancement of this can be done by merging MS teams with ERP webiste.Futher, the faculty can check their dashboard how many where present/absent inorder to know if the student is having enough attendance to write final exam.

We can make Business intelligence tool to get all data analytics for the requires campus or institition for monitoring the performance and better development of the company's growth and institution welfare.

REFERENCES

1. https://www.researchgate.net/publication/323511629_Student_Attendance_Management_System
2. https://ieeexplore.ieee.org/document/7124938/
3. http://ijcsi.org/papers/IJCSI-9-4-1-146-150.pdf
4. https://www.simplilearn.com/10-algorithms-machine-learning-engineers-need-to-know-article
5. https://www.kdnuggets.com/2017/10/top-10-machine-learning-algorithms-beginners.html
6. https://www.freeprojectz.com/php-mysql-project/attendance-management-system
7. https://www.jigsawacademy.com/popular-regression-algorithms-ml/
8. https://www.academia.edu/43552788/Monitoring_Student_Attendance_Using_A_Smart_System_at_Taif_University
9. https://www.academia.edu/39720251/STUDENT_MANAGEMENT_SYSTEM
10. http://www.jetir.org/view?paper=JETIR1602010
11. https://towardsai.net/p/machine-learning/fully-explained-decision-tree-classification-with-python
12. https://www.slideshare.net/PoojaMaan1/attendance-management-report-2016#:~:text=ABSTRACT%20Student%20attendance%20management%20system%20deals%20with%20the,username%20%26%20password%20to%20make%20the%20student%E2%80%99s%20status.
13. https://pub.towardsai.net/fully-explained-svm-classification-with-python-eda124997bcd
14. https://www.javatpoint.com/machine-learning-decision-tree-classification-algorithm

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