Machine Learning based Assessment System for Scholarships and Credits

Ms. Rasheeda B E[1], Prof. Amos R[2]

[1]*PG Student, Department Of MCA, Maharaja Institute of Technology Mysore*
[2]*Assistant Professor, Department of MC, Maharaja Institute of Technology Mysore*

Abstract: A Scholarship is an award of monetary useful resource for a pupil to continue withsimilarly education. Usually, scholarships are furnished through governments or authority's organizations. When college students are identified for his or her accomplishments it offers them the self-belief to pursue different goals. Receiving popularity from an enterprise or business enterprise enables college students take this step. Students can practice for scholarships primarily based totally at the eligibility criteria (including caste category, annual income, etc). Different schemes of scholarships are furnished for the scholars primarily based totally on exceptional eligibility criteria. The primary Objective is to broaden an academic primarily based totally utility that enables institutes to recognise the correct college students to praise scholarships. System is an automatic one, that shortlists maximum eligible pupil to praise scholarships. It applies Bayesian Classifier Algorithm to carry out choice criteria. Through the proposed machine, scholarship may be effortlessly rewarded as this machine mechanically shortlists the scholars primarily based totally at the given constraints the use of Machine Learning techniques.

Keywords: *- system learning, ML primarily based totally scholarship, Bayesian Classifier, ML algorithm.*

1. INTRODUCTION

A Scholarship is an award of financial aid for astudent to proceed with further education. When students get some benefit like scholarship award for their accomplishments it gives motivation and the confidence to pursue their goals. It is very important for students to recognize their own potentiality in their academic career so that they foster the growth. Receiving recognition from an organization orcompany motivates students. Students can apply for scholarships based on the eligibility criteria (such as caste category, annual income, etc). There are some of the common types of scholarships like merit-based, student-specific, and career-specific. Different schemes of scholarships are provided for the students based on different eligibility criteria. The existing systems are the manual systems thoseput pressure on people to produce correct details. Reporting and checking the data is robust which can be time consuming and expensive. In the present system, scholarships are provided only by the government or the government organizations. Even if scholarships are provided by the private organizations, many of the students may not have knowledge about the schemes announced by the private organizations. There are some of the constraints considered to shortlist the students. For example, considering annual income, first come first serve basis, etc.

The proposed system makes use of machine learning in the process of detecting students who will be given scholarship is important to evaluate inboth objective and subjective ways to students who apply. This project is designed using machine learning techniques to provide scholarship to the deserving students, where eligible students are automatically shortlisted based on the given constraints such as percentage, grade, annual income, category, communication skills, aptitude etc. Proposed system is a generic application which is suitable for all courses and colleges and it uses Visual Studio as front-end technology and SQL Server as back-end technology.

2.PROPOSED WORK

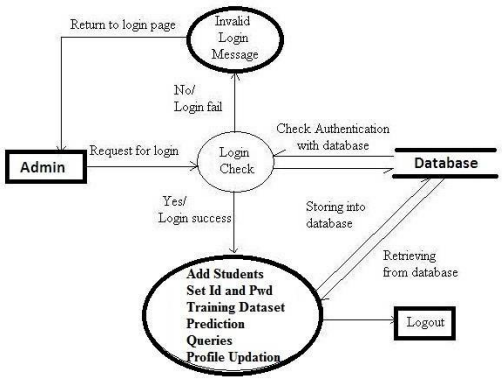
In the proposed system, scholarship can be easily rewarded as this system automatically shortlists the students based on the given

constraints using AI or ML techniques. The students have to login with the registered username and password and apply for the scholarship and provide the required documents such as caste certificate, income certificate, previous course certificates etc. Project structure shows the flow of the project. This involves users and modules/functionalities of the project. Reporting and checking the data is difficult can be timely and expensive. This is an area where significant money can be saved by automation.

In the present system, scholarships are provided only by the government or the government organizations. Even if scholarships are provided by the private organizations, many of the students may not have knowledge about the schemes announced by the private organizations. There are some of the constraints considered to shortlist the students. For example, considering annual income, first come first serve basis, etc.

Users:

- Administrator - the one who maintains the whole application, the one who has full authority.



Data Flow Diagram (Admin)

- Students - college students who can post any queries to admin.
- Organization - organization is the one who reward the scholarship for the students.

Administrator has the following functionalities:

- Login Module - here admin gets login to the application by inputting admin id and password.
- Add Students - here admin will add all students of different departments.
- Sets Id and Password - here admin will set unique id and password for the individual students.
- Manage Scholarship Dataset - here admin manages training dataset used in the project.
- Import data from Excel Sheet - training dataset stored in excel sheet, here we import data from excel sheet.
- Prediction Module - this is the core module where system predicts scholarship recipients using training data. here we use data science technique called as "Rule based Approach" Bayesian Probability algorithm.
- Student Queries - admin can view the students queries and send reply.
- Update Profile - admin can update profile.
- Sign-out

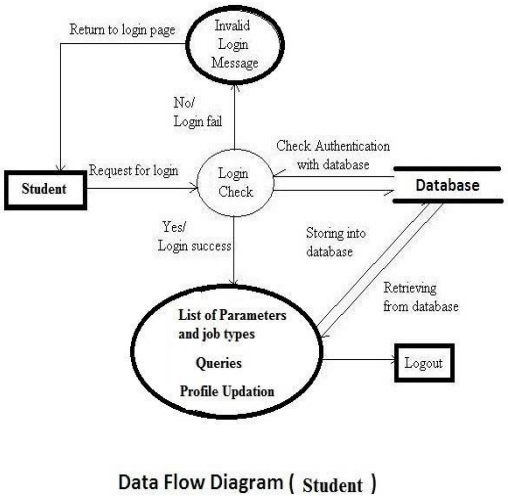
Students' functionalities:

- Login Module - here students can get loginby specify student id and password.
- Scholarship Details - can view thescholarship information.
- Post Queries - can post queries to admin ifany
- Update Profile - can update profile
- Sign-out

3. DESIGN AND IMPLEMENTATION

Process transforms data values. The least processes are of functions without any side effects. The data flow connects the output of an object or process to the input of another object. Figure 1 and 2represents the data flow design for both the admin and student respectively. The design explains the interaction between the procedure and the consumer of the data value. The arrow is labeled with the description of the data, usually its name or the type.

Figure 1: Data Flow diagram for Admin



Data Flow Diagram (Student)

Figure 2: Data Flow diagram for Student

Actor is an active object that can drives the data flow graph by consuming values. An actor is attached to the inputs and the outputs of a data flow graph. In other word, the actors lie on the boundary of the flow graph but terminate the flow of data as sources and sinks of data, so it is also called terminators. A data store is known as a passive object within a data flow diagram that stores the data for later access. Same as an actor, the data store does not generate any operations on its own way but merely it responds to requests to store and access the data.

Bayesian Classifier Algorithm:

Step 1: Scan the dataset (storage servers)

Step 2: Calculate the probability of each attribute value. [n, n_c, m, p]

Step 3: Apply the formulae P (attribute value (ai)/subject Value (vj)= (n_c + mp)/(n+m) Where: n = the number of training examples for which v = vj nc = number of examples for which v = vj and a = ai p = a priori estimate for P (ai, vj) m = the equivalent sample size

Step 4: Multiply the probabilities by p

Step 5: Compare the values and classify the attribute values to one of the predefined sets of class.

Figure 3: It shows the main web page of the website which includes elements that contains like about, gallery, contact, login.

Figure 4: This shows about us

Figure 5: Shows the gallery, that explains the description of website with pictures

Figure 6: The login page is a door that Admin or Student must open for best user experience; Student as well as Admin must login with user -id and password.

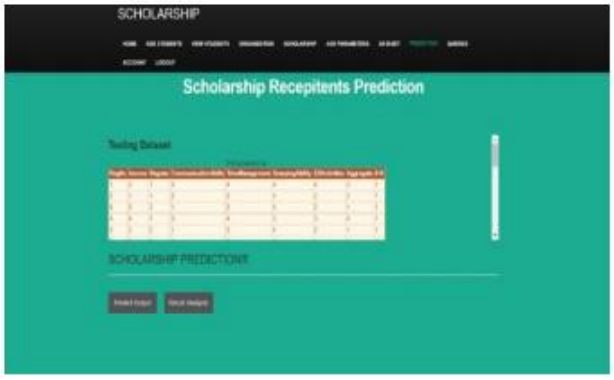


Figure 7: This shows the prediction details of the scholarship holders after applying the machine learning technique. Namely the testing data set which includes predicted output and the analyzed result.

4. CONCLUSION

Scholarships are given to the students who are studied in university by public institutions and organizations by taking different criteria into account. The students who seek the scholarship are detected from the information in the forms that are given by the student. The detector has to verify it by looking several forms to select the particular student to award the scholarship. This process is heavy time consuming and also quite drain. On the other way, it becomes too difficult to make correct decisions in some circumstances. Proposed system helps in scholarship awarding using data science technique.

5. REFERENCES

[1] "First Asia Institute of Technology and Humanities," [Online]. Available: htttp://www.firsasia.edu.ph.

[2] K. Bunkar, "Data Mining: Prediction for Performance Improvement of Graduate Students using," IEEE, 2012.

[3] S. Parack, "Application of Data Mining in Educational Databases for Predicting Academic Trends and Patterns," IEEE 2014

[4] N. T. Nghe, "A Comparative Analysis of Techniques for Predicting Academic Performance," IEEE, 2007

[6] G. Upton, "The Effects of Merit-Based Scholarships on Educational Outcomes," Journal of Labor Research, vol. 37, no. 2, pp. 235-261.

[7] http://www.saedsayad.com/decision_tree.htm.

[8] "Rapid Miner," [Online]. Available: https://docs.rapidminer.com/studio/operators/modeling/predictive/lazy/k_nn.html.