



Developing Classifiers through Machine Learning Algorithms for Student Placement Prediction Based on Academic Performance

*Prof. Ms Ganga B M^{*1}, Mr. Shivabasayya B Hiremath^{*2}, Mr. Prasad V^{*3}, Mr. Sagar B^{*4}, Mr. Supreeth S^{*5}*

^{*1,2,3,4,5} VTU, CSE, ACS College of Engineering, Bengaluru, Karnataka, India

ABSTRACT

In the time of globalization, understudy arrangement is exceptionally difficult issue for every single instructive establishment. For designing organizations, situation is a critical component to keep up with great positioning in the college as well as in other public and worldwide positioning offices. In this paper, we have proposed a couple of managed AI classifiers which might be utilized to foresee the position of an understudy in the IT business in view of their scholastic execution in class 10th, Twelve, Graduation, and Accumulation till date in Graduation. We additionally think about the aftereffects of different proposed classifiers. Different boundaries used to think about and dissect the aftereffects of various created classifiers are precision score, rate exactness score, disarray network, heatmap, and arrangement report. Arrangement report produced by created classifiers comprises of boundaries accuracy, review, f1-score, and backing. The order calculations Support Vector Machine, Gaussian Innocent Bayes, K-Closest Neighbor, Arbitrary Woodland, Choice Tree, Stochastic Angle Plunge, Strategic Relapse, and Brain Organization are utilized to foster the classifiers. Every one of the created classifiers are too tried on new information which are barred from the dataset utilized in the trial.

Keywords: component, formatting, style, styling, insert (Placement, AIML, Campus Prediction)

I. INTRODUCTION

Position is a conclusive element of effective finish of any coursework at the alumni or postgraduate level. It is a fantasy of each and every understudy to get placed in top MNCs to accomplish their put forth objectives and targets. Planning to put the most extreme number of understudies, the colleges and establishments are stepping up their game by preparing and overhauling their understudies through preparing and position cells. AI is the study of getting PCs to learn, without being expressly modified. Each time you really want your email and a spam channel saves you from being required to swim through lots of spams, once more, that is on the grounds that your PC has figured out how to recognize spam from nonspam email. As indicated by the Samuel "The field of study that gives PC the capacity to learn without being unequivocally customized". This is a more seasoned meaning of AI. Other definition is given by Tom Mitchell "A PC program is said to gain as a matter of fact E regarding some class of undertakings T and execution measure P, assuming it's exhibition at task in T, as estimated by P, improves with experience E".

II. METHODOLOGY

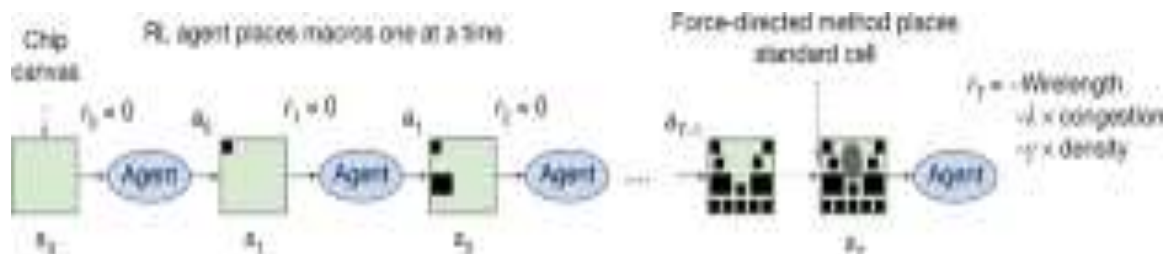


Fig. 1: Overview of our method and training regimen.

DATA MINING PROCESS

Knowing the factors for placement of student can help the teachers and administrators to take necessary actions so that the success percentage of placement can be improved. Predicting the placement of a student needs a lot of parameters to be considered. Prediction models that include all personal, social, psychological and other environmental variables are necessitated for the effective prediction of the placement of the students.

A. Data Preparations

The data set used in this study was obtained from VBS Purvanchal University, Jaunpur (Uttar Pradesh) on the sampling method for Institute of Engineering and Technology for session 2008-2012. Initially size of the data is 65.

B. Data selection and Transformation

In this step only those fields were selected which were required for data mining. A few derived variables were selected. While some of the information for the variables was extracted from the database. All the predictor and response variables which were derived from the database

III. MODELING AND ANALYSIS

Linear Regression

Linear regression is a supervised machine learning algorithm where the predicted output is a continuous and has a constant slope. It is used to predict values within a continuous range, (e.g., Sales and price). Linear regression is a very simple method but has proven to be very useful for a large number of situations.

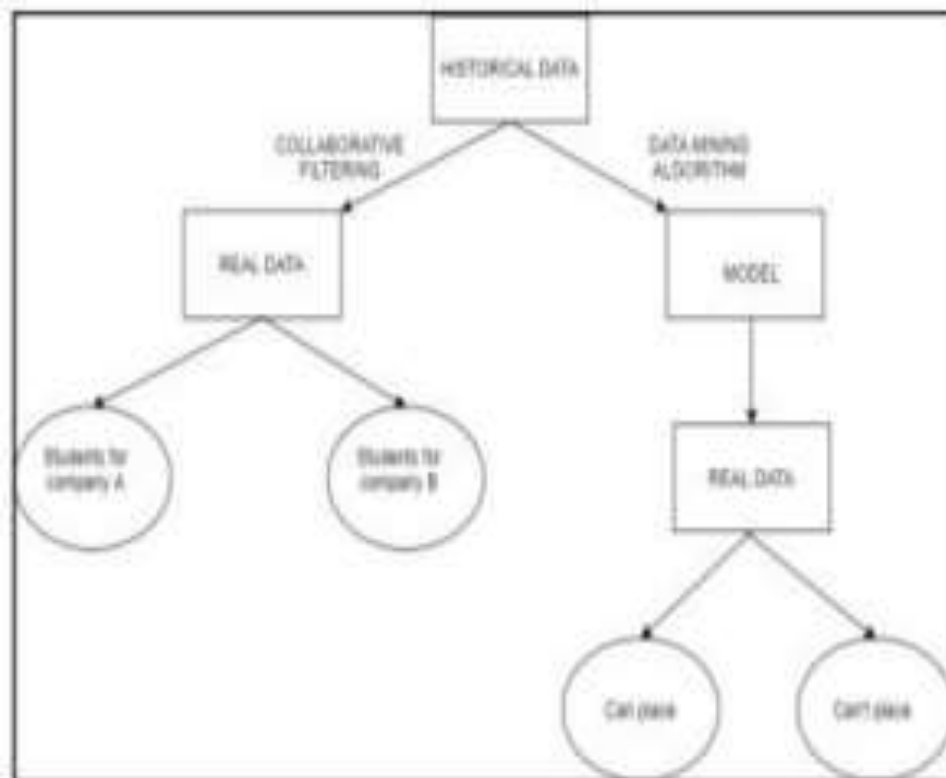


Fig 2. Linear regression flow chart

KNN Algorithm

K-Nearest Neighbour Classifiers are often known as lazy learners. The classifier proceeds by identifying objects based on closest proximity of training examples in the feature space. While determining the class, this classifier considers k number of objects as the nearest object. The main challenge of this classification technique relies on picking the appropriate value of k.

IV. RESULTS AND DISCUSSION

A. Figures and Tables

```

===== RESTART: C:\Users\shivu\Desktop\Project1.py =====
  sl_no gender  ssc_p  ssc_b ... specialisation mba_p  status  salary
0     1     M  67.00  Others ...           Mkt&HR  58.80  Placed  270000.0
1     2     M  79.33  Central ...          Mkt&Fin  66.28  Placed  200000.0
2     3     M  65.00  Central ...          Mkt&Fin  57.80  Placed  250000.0
3     4     M  56.00  Central ...           Mkt&HR  59.43  Not Placed  NaN
4     5     M  85.00  Central ...          Mkt&Fin  55.50  Placed  425000.0

[5 rows x 15 columns]
(215, 15)
  sl_no          int64
gender          object
  ssc_p          float64
  ssc_b          object
  hsc_p          float64
  hsc_b          object
  hsc_s          object
  degree_p       float64
  degree_t       object
  workex        object
  etest_p        float64
specialisation  object
  mba_p          float64
  status         object
  salary         float64
dtype: object
  sl_no          0
gender          0
  ssc_p          0
  ssc_b          0
  hsc_p          0
  hsc_b          0
  hsc_s          0
  degree_p       0
  degree_t       0
  workex        0
  etest_p        0
specialisation  0
  mba_p          0
  status         0
  salary         67
dtype: int64
  gender  ssc_p  hsc_p  hsc_s ... specialisation mba_p  status  salary
0     M  67.00  91.00  Commerce ...           Mkt&HR  58.80  Placed  270000.0
1     M  79.33  79.33  Science ...          Mkt&Fin  66.28  Placed  200000.0
2     M  65.00  68.00  Arts ...          Mkt&Fin  57.80  Placed  250000.0
3     M  56.00  52.00  Science ...           Mkt&HR  59.43  Not Placed  0.0
    
```

Fig 3. Data Study

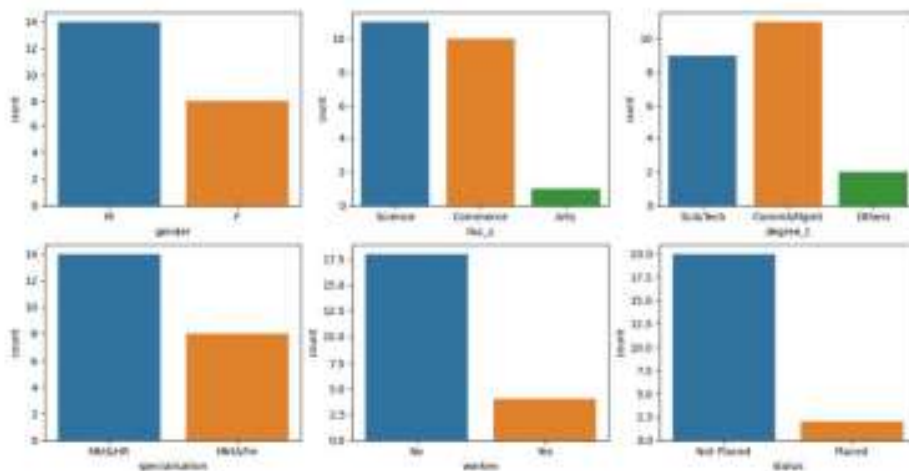


Fig 4. Data Visualisation

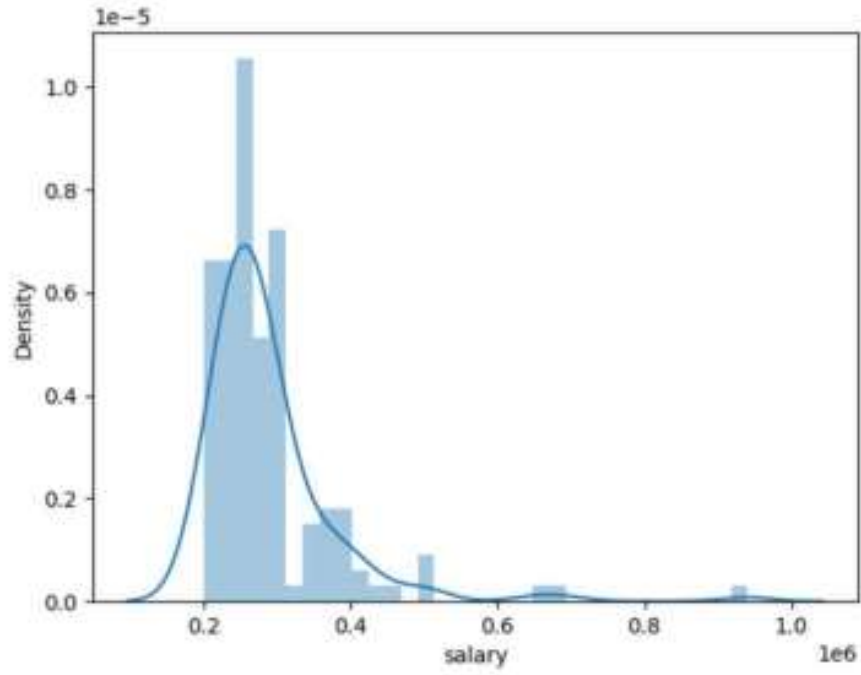


Fig 5. Salary Distribution

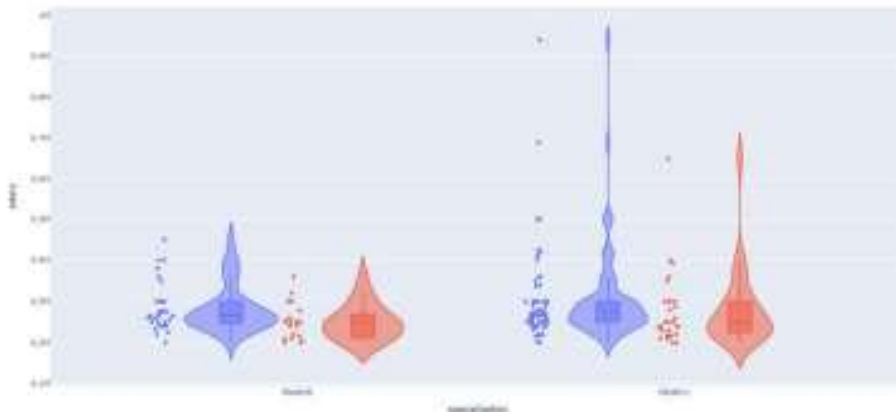


Fig 6. Relationship among the data



Fig 7. Correlation among the data

The screenshot shows an Excel spreadsheet with a table containing company names and numerical data. The columns are labeled 'Company', 'min_pay', 'max_pay', and 'avg_pay'. The rows list various companies such as '1. Apple Inc.', '2. Amazon.com', '3. Microsoft', etc.

Company	min_pay	max_pay	avg_pay
1. Apple Inc.	50	90	70
2. Amazon.com	50	90	70
3. Microsoft	50	90	70
4. Meta Platforms	50	90	70
5. Google	50	90	70
6. Facebook	50	90	70
7. Netflix	50	90	70
8. Tesla	50	90	70
9. Oracle	50	90	70
10. IBM	50	90	70
11. Salesforce	50	90	70
12. LinkedIn	50	90	70
13. Slack	50	90	70
14. Zoom	50	90	70
15. Microsoft Dynamics	50	90	70
16. SAP	50	90	70
17. Oracle ERP	50	90	70
18. SAP S/4HANA	50	90	70
19. SAP SuccessFactors	50	90	70
20. SAP Ariba	50	90	70
21. SAP Fieldglass	50	90	70
22. SAP Concur	50	90	70
23. SAP Jam	50	90	70
24. SAP Fiori	50	90	70
25. SAP HANA	50	90	70
26. SAP Business One	50	90	70
27. SAP Business ByDesign	50	90	70
28. SAP Business Intelligence	50	90	70
29. SAP Business Analytics	50	90	70
30. SAP Business Reporting	50	90	70

Fig 7. Company Recommendation Dataset

The screenshot shows a web application interface with several input fields for user data. The fields are: Name, Gender, Department (Education Percentage - 100 Scale), City (with a dropdown arrow), Highest Education Percentage (100 Scale), Education (with a dropdown arrow), Degree Percentage, Email (with a dropdown arrow), and Age (with a dropdown arrow). A green 'Submit' button is located at the bottom of the form.

Fig 8. Input Page

The screenshot shows the output of the placement prediction. The text displayed is: "PLACEMENT PREDICTION" followed by "Placement Prediction : You are Doing well!!! You Will Get placements".

Fig 9. Output page for Prediction

V. CONCLUSION

The Student Placement Prediction Based on Academic Performance has been implemented and detected.

ACKNOWLEDGEMENTS

We take this opportunity to express my sincere gratitude and respect to the **ACS College of Engineering**, Bengaluru for providing me an opportunity to carry out our project report.

We express my deep regards to our honourable Chairman **Sri. A C Shanmugam** for providing me an opportunity to fulfil our ambition in this prestige institute.

We would like to express my immense gratitude to **Dr. M S Murali**, Principal, ACS College of Engineering, Bengaluru, for his timely help and inspiration during the tenure of the course.

We express my sincere regards and thanks to **Dr. V Mareeswari**, Associate Professor & HOD, Computer Science and Engineering, ACSCE, Bengaluru for the encouragement and support throughout encouragement the work. With the profound sense of gratitude,

We acknowledge the guidance support and encouragement to our guide **Ms. Ganga B M**, Assistant professor of Computer Science and Engineering, ACSCE, Bengaluru

REFERENCES

- [1]. <https://www.geeksforgeeks.org/basic-concept-classificationdatamining/>
- [2]. <https://www.coursera.org/lecture/machine-learning/welcome-RKFpn/>
- [3]. Agarwal, K., M. Ekansh, R. Chandrima, P. Manjusha, and S. Siddharth. "Analysing student performance in engineering placement using data mining." In Proceedings of International Conference on Computational Intelligence and Data Engineering, pp.171–81. Springer, Singapore, 2019.
- [4]. Broadley, C., and P. Smyth. 1997. Applying classification algorithms in practice. Statistics and Computing 7.
- [5]. Cerquides, J., M. Lopez-Sanchez, S. Ontanon, E. Puertas, A. Puig, O. Pujol, and D. Tost. "Classification algorithms for biomedical volume datasets." In Conference of the Spanish Association for Artificial Intelligence, pp.143–52. Springer, Berlin, Heidelberg, 2005.