Model Program Book

SEMESTER INTERNSHIP

Designed & Developed by

ANDHRA PRADESH

STATE COUNCIL OF HIGHER EDUCATION

SEMESTER INTERNSHIP PROJECT REPORT ON

STUDENT PERFORMANCE ANALYSIS

Submitted in partial fulfilment of the requirements for the award of the degree

BACHELOR OF TECHNOLOGY

In

ELECTRONICS AND COMMUNICATION ENGINEERING

Submitted by

A.THULASI KRISHNA - 20T91A0402
A.J.N.H.M.SRIAKAR SAI - 20T91A0403
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Under the Esteemed Guidance of
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

GIET ENGINEERING COLLEGE

Accredited by NAAC, Affiliated to JNTUK, Kakinada, Chaitanya Knowledge City, Velugubanda, Rajamahendravaram – 533 296, Andhra Pradesh, India.

STUDENT PERFORMANCE ANALYSIS

A PROJECT REPORT

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Department of Electronics and Communication Engineering

GIET ENGINEERING COLLEGE, RAJAHMUNDRY

MAY, 2023

GIET ENGINEERING COLLEGE

NH-16, Chaitanya knowledge city, Rajahmundry-533294

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE

This is to certify that the Summer Internship project work entitled **STUDENT PERFORMANCE ANALYSIS** is being submitted for partial fulfillment of BACHELOR OF TECHNOLOGY in Electronics and Communication Engineering to **GIET ENGINEERING COLLEGE**, Rajahmundry, A.P. affiliated to the JNTUK, Kakinada, is Bonafide work done by NAME:**A.THULASI KRISHNA** bearing Roll. No: **20T91A0402**, NAME: **K.A.J.N.M.SRIKAR SAI** bearing Roll. No: **20T91A0403**, NAME:**B.RAVI TEJAbearing** Roll.No:**20T91A0407**, NAME: **G.V.N.SURENDRA** bearing Roll.No:**20T91A0410**, during the academic year 2023-2024 and it has been found suitable for acceptance according to the requirement of university. These results embodied in the project report have not been submitted to any other university or institute for the award of degree.

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ACKNOWLEDGEMENT

Behind any major work undertaken by an individual there lies the contribution of the people who helped him to cross all the hurdles to achieve his goal.

It gives me the immense pleasure to express my sense of sincere gratitude to- wards my respected guide **Mr.O.Sudhakar sir**, for his persistent, outstanding, invaluable co-operationand guidance. It is my achievement to be guided under him. He is a constant source of encouragement and momentum that any intricacy becomes simple. I gained a lot of invaluable guidance and prompt suggestions from him during entire project work. I will beindebted of him forever and I take pride to work under him.

Place : RAJAHMUNDRY

Date : 08-07-2023

ABSTRACT

This project aims to unleash the untapped potential of youth by conducting a comprehensive analysis of student performance data. By leveraging data-driven insights, we seek to identify key factors that influence academic achievement, engagement, and overall well-being among students. The project will use advanced data analytics and machine learning techniques to analyze diverse datasets encompassing academic records, extracurricular activities, social interactions, and other relevant information. The results obtained from this **Analysis** will contribute to the enhancement of educational strategies, curriculum design, and support systems to create an empowering and inclusive learning environment for the youth.Ultimately, this endeavor aspires to play a pivotal role in shaping a brighter future for the youth and society at large.

KEYWORDS:

Unleashing potential, Youth , Student performance, Engagement, Data-driven insights, Empowering learning environment

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Student Performance Analysis

1.INTRODUCTION

1.1 Overview:

Student performance analysis and prediction using datasets has become an essential component of modern education systems. With the increasing availability of data on student demographics, academic history, and other relevant factors, schools and universities are using advanced analytics and Machine learning Programs to gain insights into student performance and predict future outcomes. This approach helps educators identify areas of improvement, personalize learning experiences, and provide targeted support to struggling students. Furthermore, student performance analysis and prediction can also aid in decision-making processes for school administrators and policymakers, helping them allocate resources more effectively. In this article, we will explore the benefits of using datasets for student performance analysis and prediction and discuss some of the methods and tools used in this field.

This project understands how the student's performance (test scores) is affected by other variables such as Gender, Ethnicity, Parental level of education, and Lunch and Test preparation course.

The primary objective of higher education institutions is to impart quality education to their students. To achieve the highest level of quality in the education system, knowledge must be discovered to predict student enrollment in specific courses, identify issues with traditional classroom teaching models, detect unfair means used in online examinations, detect

abnormal values in student result sheets, and predict student performance. This knowledge is hidden within educational datasets and can be extracted through data mining techniques. This project focuses on evaluating students' capabilities in various subjects using a classificaton task. Data classification has many approaches, and the decision tree method and probabilistic classification method are utilized here. By performing this task, knowledge is extracted that describes students' performance in the end-semester examination. This helps in identifying dropouts and students who require special attention, enabling teachers to provide appropriate advising and counseling

1.2 Purpose:

- **Parent involvement:** Teachers can keep parents involved by sending progress reports of their children to home for review and sign. By sending progress reports to home, parents are informed about the academic achievement and in class behaviour of their children. This will facilitate parents in making changes at home schedule by devoting more study time for their children. Further they can also appreciate by rewarding their children for doing well. This will ultimately help students to get back on track academically.

- **Student awareness:** Progress Reports help the students in knowing – how well they are doing and what is the perception of teachers in the class towards them. This helps in minimising the shock- which they get at the end of the quarter or year report card. Students have the chance to identify the areas of improvements and they can make changes in their grade before the final report cards are released.

- **Teacher tracking:** Progress reports help the teachers in knowing- how well their students are doing in class. They are forced to review the strengths and weaknesses students on a regular basis. Moreover, the teachers have to reach the classroom

standards; progress reports help them to see whether the class is meeting those standards e.g. academic expectations. Report card sometimes called Progress reports; provide the records of student's performance based on curriculum outcomes over a period of time. It is the document that should provide straight forward information about what a student knows and can demonstrate. Progress reports are issued to students in every four to six weeks while Report cards are issued at the end of each other

FIG:-1.1 ACADEMIC PERFORMANCE

They are forced to review the strengths and weaknesses of students on a regular basis. Moreover, the teachers have to reach the classroom standards; progress reports help them to see whether the class is meeting those standards e.g. academic expectations.

2.LITERATURE SURVEY

2.1 Existing problem:

One of the most challenging tasks in the education sector in India is to predict student's

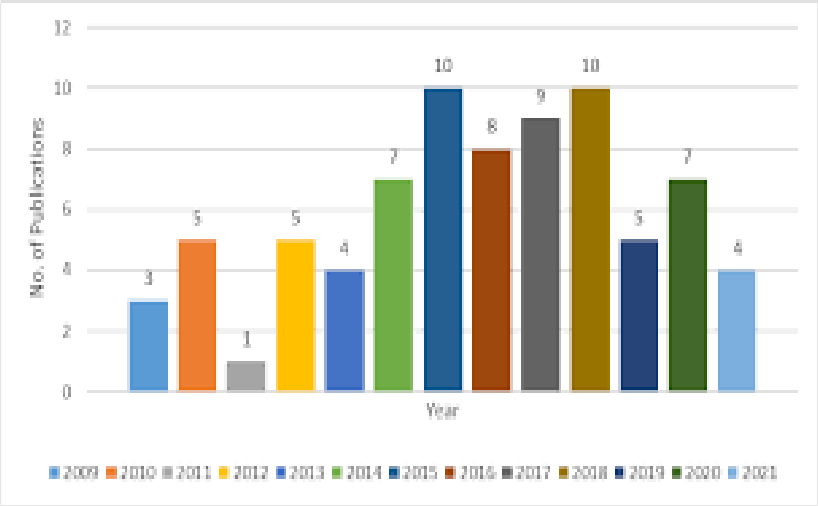


FIG:-2.1 BAR GRAPH

academic performance due to a huge volume of student data. In the Indian context, we don't have any existing system by which analyzing and monitoring can be done to check the progress and performance of the student mostly in Higher education system. Every institution has their own criteria for analyzing the performance of the students. The reason for this happing is due to the lack of study on existing prediction techniques and hence to find the best prediction methodology for predicting the student academics progress and performance. Another important reason is the lack in investigating the suitable factors which affect the academic performance and achievement of the student in particular course. So to deeply understand the problem, a detail literature survey on predicting student's performance using data mining techniques is proposed. The main objective of this article is to provide a great knowledge and understanding of different data mining techniques which have been used to predict the student progress and performance and hence how these prediction techniques help to find the most important student attribute for prediction. Actually, we want

to improve the performance of the student in academic by using best data mining techniques. At last, it could also provide some benefits for faculties, students, educators and management of the institution.

2.2 Proposed solution:

1. **Analyze Why and Where Are They Lacking In Studies?**

   It is important as a teacher to understand and analyze the weaker students in which area or subject they are lacking. Talk to them. The more you get familiar with their strengths and weaknesses, the more you can conclude and help them. You may find many reasons for their weak performance like:

1. Lack of Discipline
2. Less exposure to learning opportunities
3. Chaotic home environment
4. Complex study material – difficult to understand
5. Anxiety and Stress

These can be some of the reasons for their weak performance and when you know the problem you can help them better and more effectively. **2. Concise Lessons With Demonstrated Examples :** For the topic you are going to teach, you must be clear about what aspect of your lesson you want to inculcate in students or what is the main purpose or goal. Make it clear or concise as it gets easier for students and teachers to understand and teach.

The involvement of demonstrated examples of each topic makes students more likely to absorb and retain the information. More examples lead to mastery of the topic.

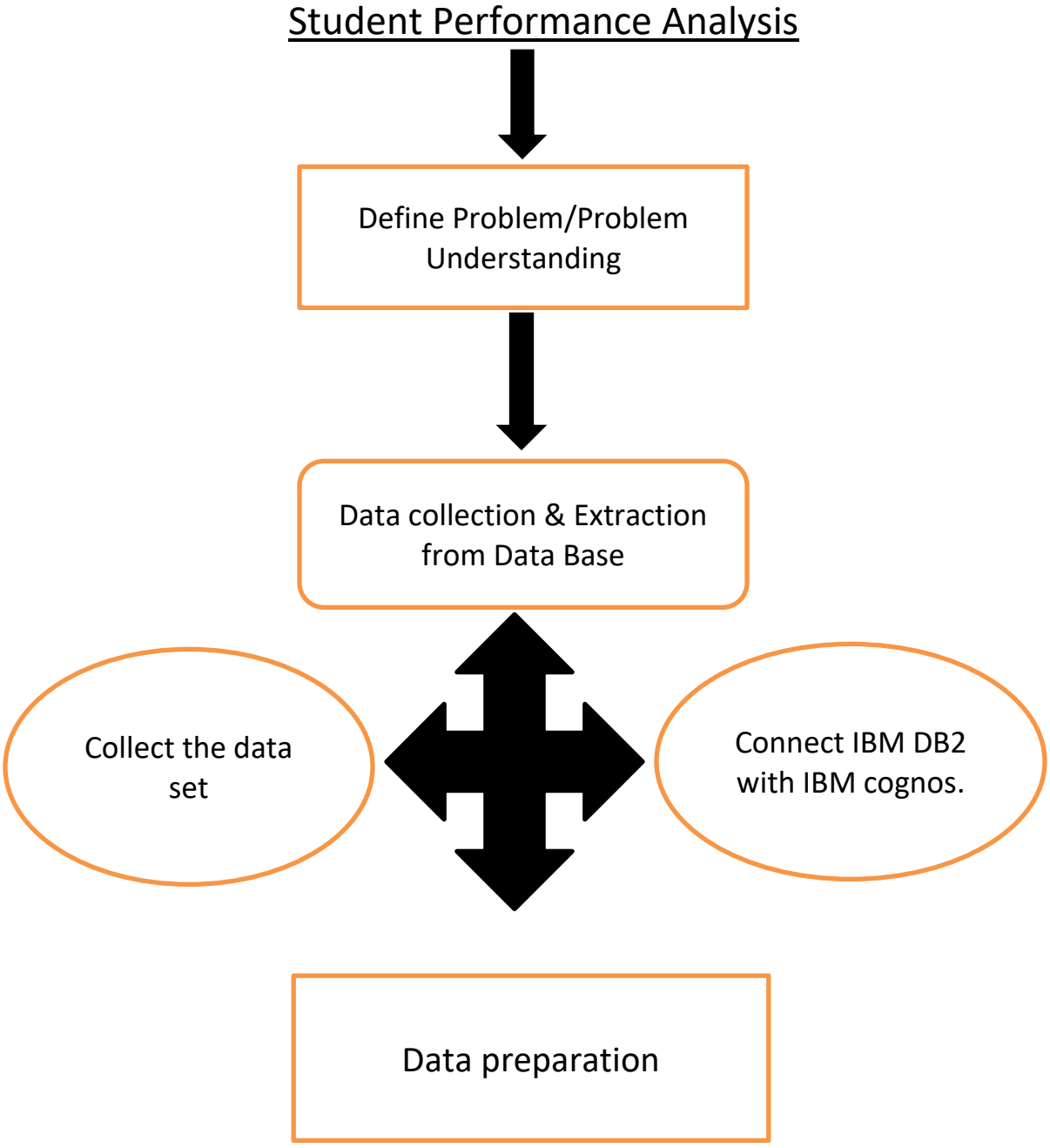
3. Focus On Encouragement And Motivation : Never mock weaker students in front of the whole classroom as it can make them feel shattered and demotivated. After the class period, brilliant students tease or bully weaker students and as a result, they feel discouraged.

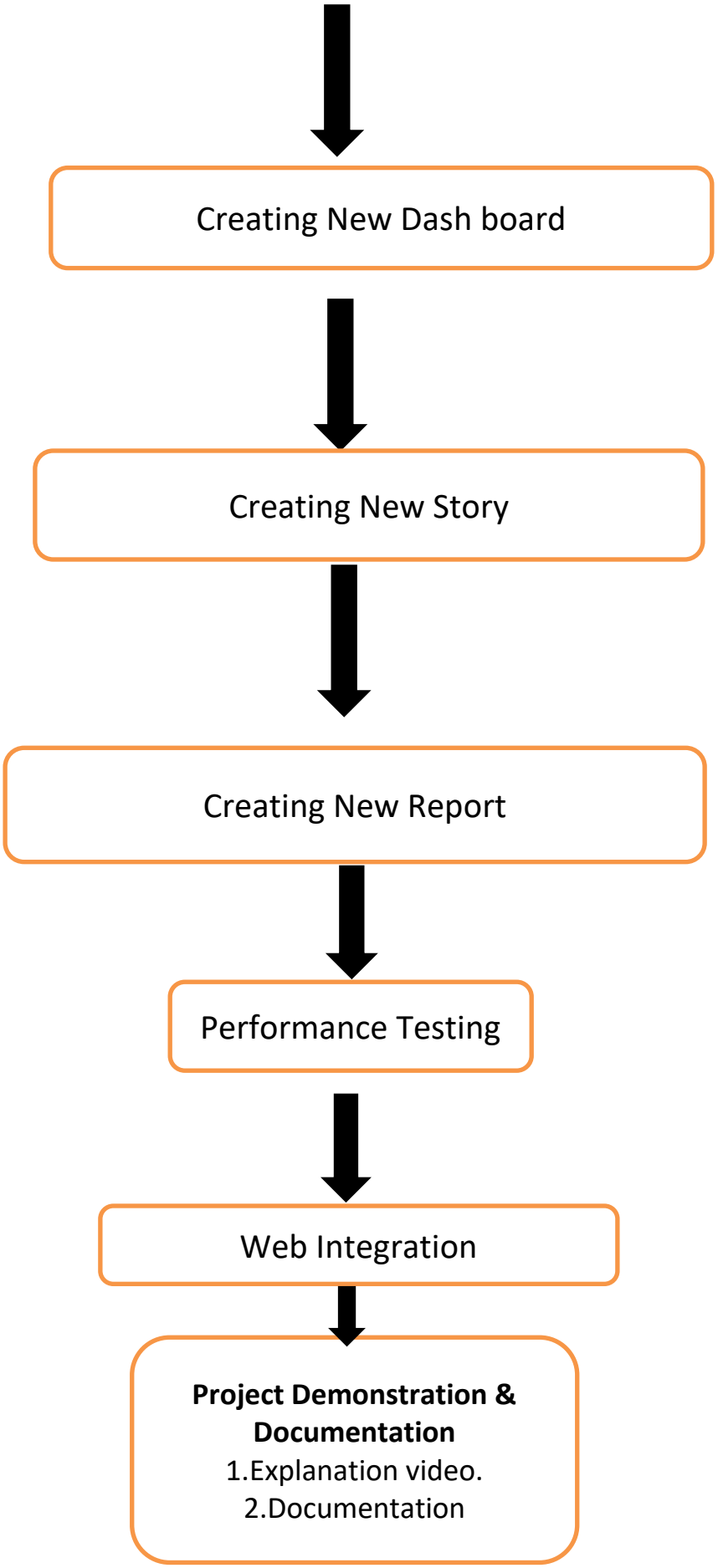
For example, if a student fails to answer, don't mock or make them feel stupid for their answer. Instead, you should talk to them and encourage and tell them ways to improve. This For the topic you are going to teach, you must be clear about what aspect of your lesson you want to inculcate in students or what is the main purpose or goal. Make it clear or concise as it gets easier for students and teachers to understand and teach.

FIG:2.2 STUDENT PERFORMANCE REPORTING SYSTEM

3.THEORITICAL ANALYSIS

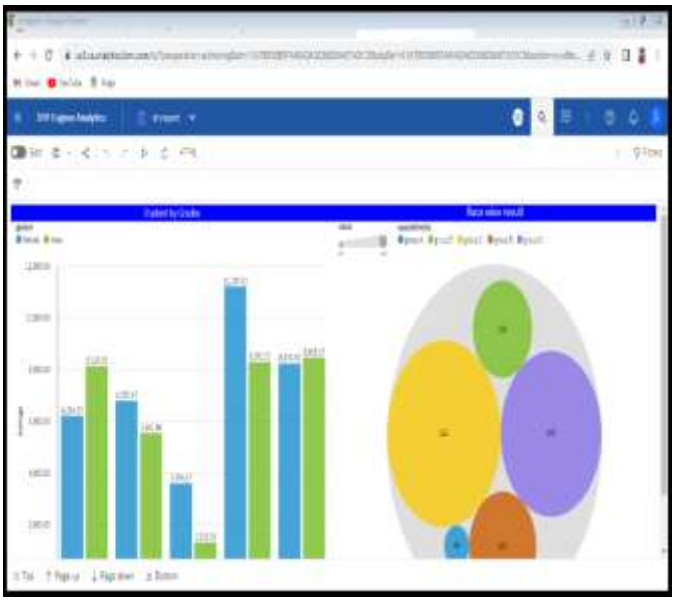
3.1 Block diagram:



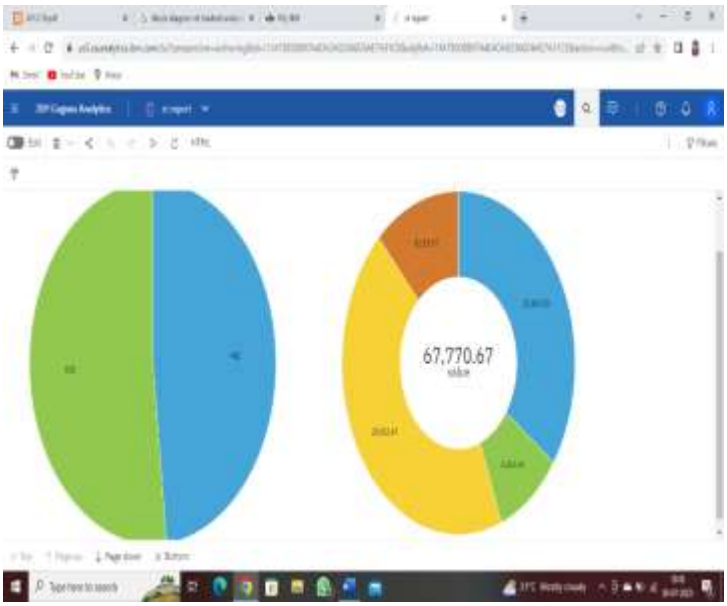

Creating New Dash board
Creating New Story
Creating New Report
Performance Testing
Web Integration
Project Demonstration & Documentation
1.Explanation video.
2.Documentation

4.RESULT

REPORT

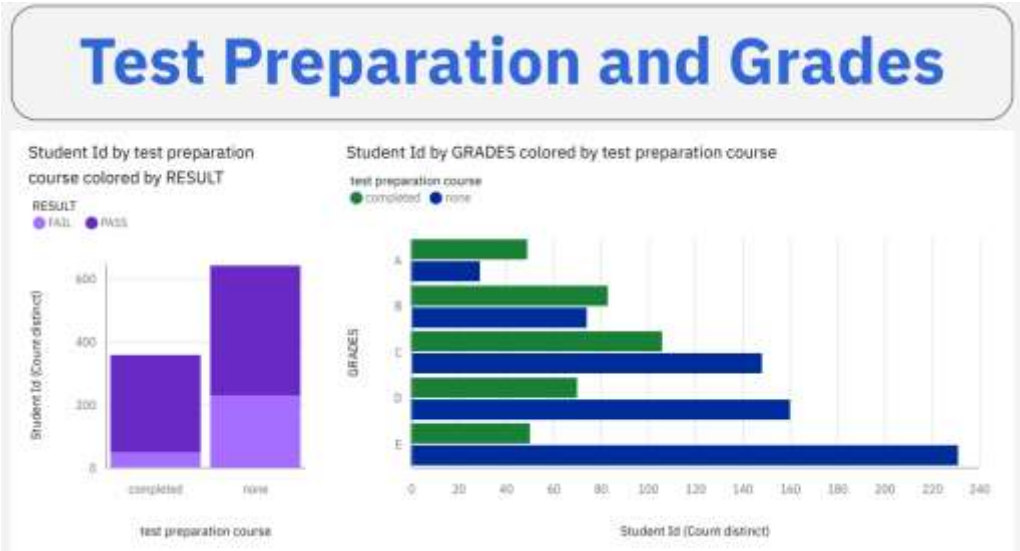


Grapical representation of student data by grades and race wise results

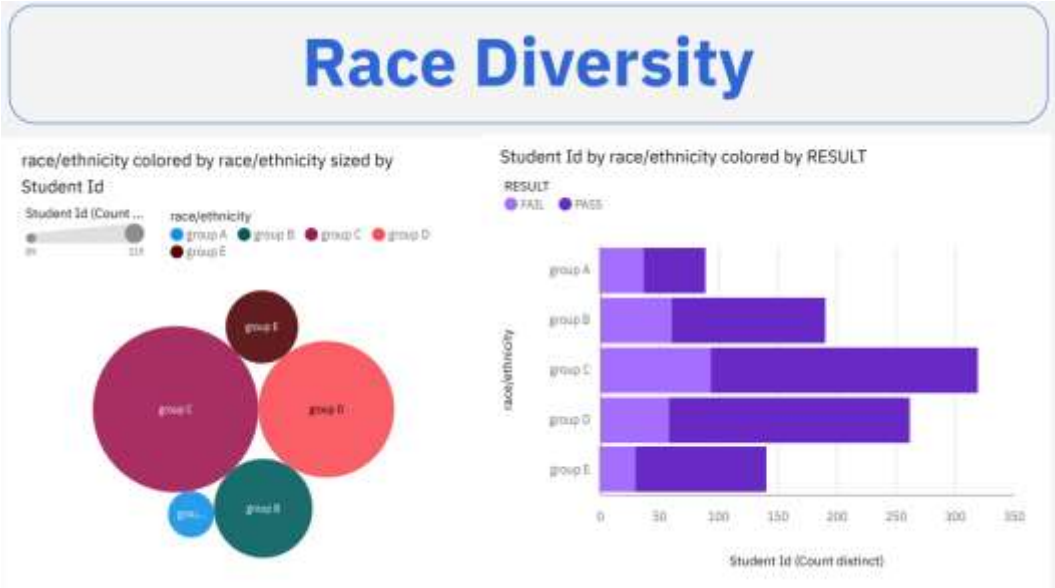


Student data by gender bias and gender wise result

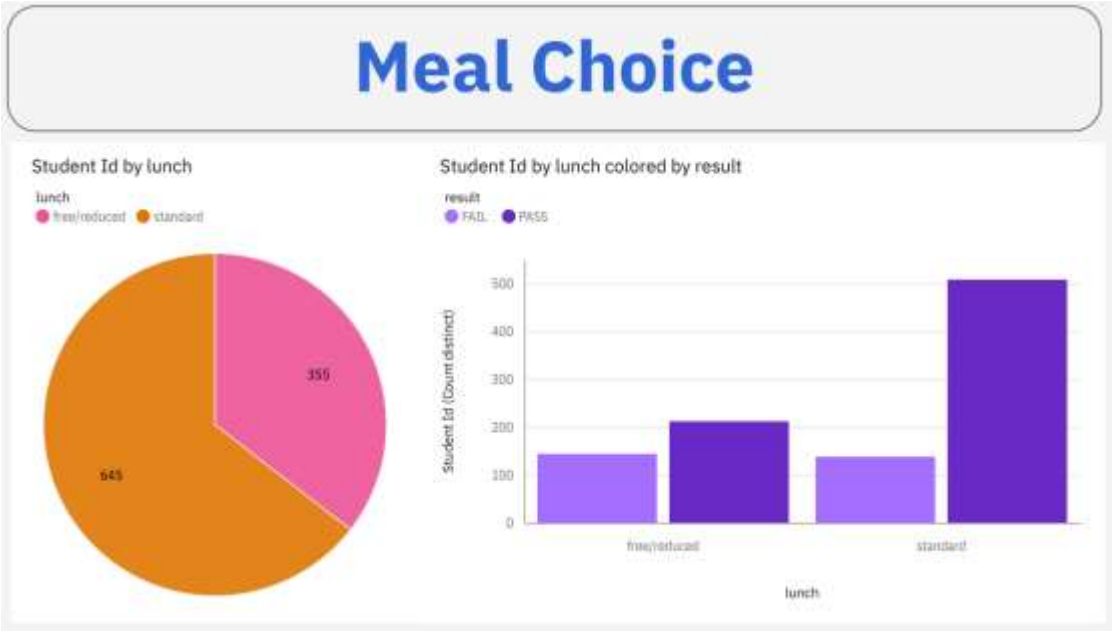
STORY



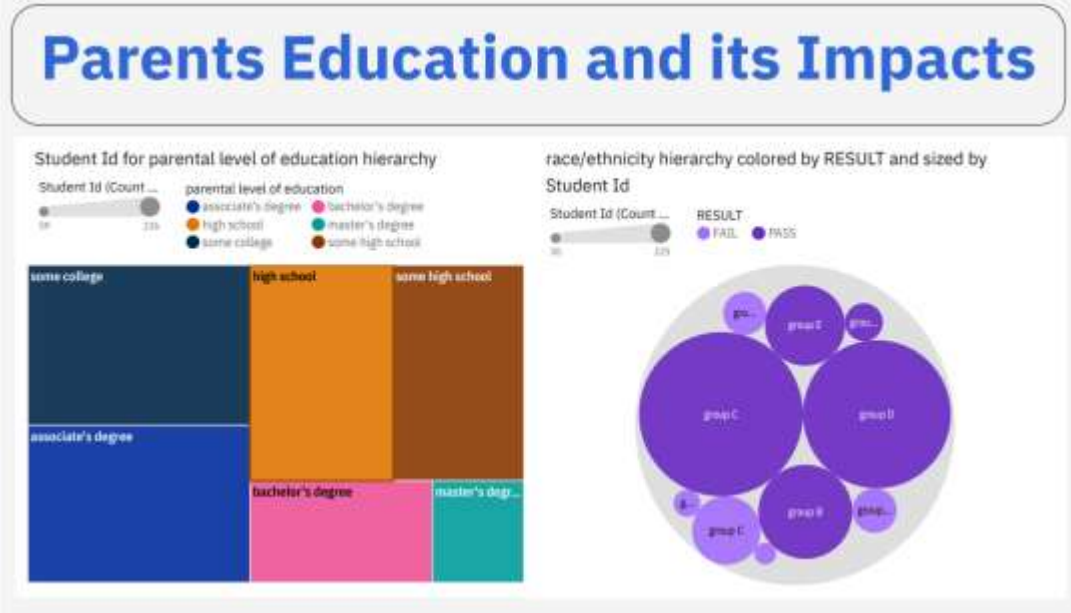
Student id by test preparation courses and grades



Race/ethnicity by student id and result

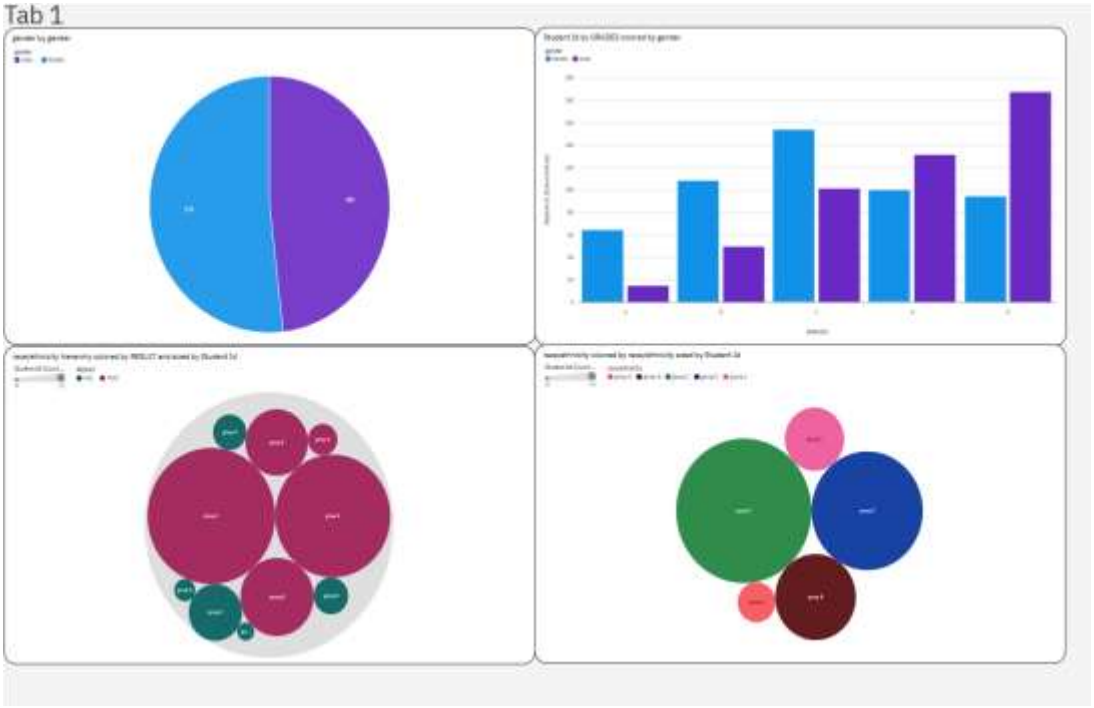


students meal choice by students id

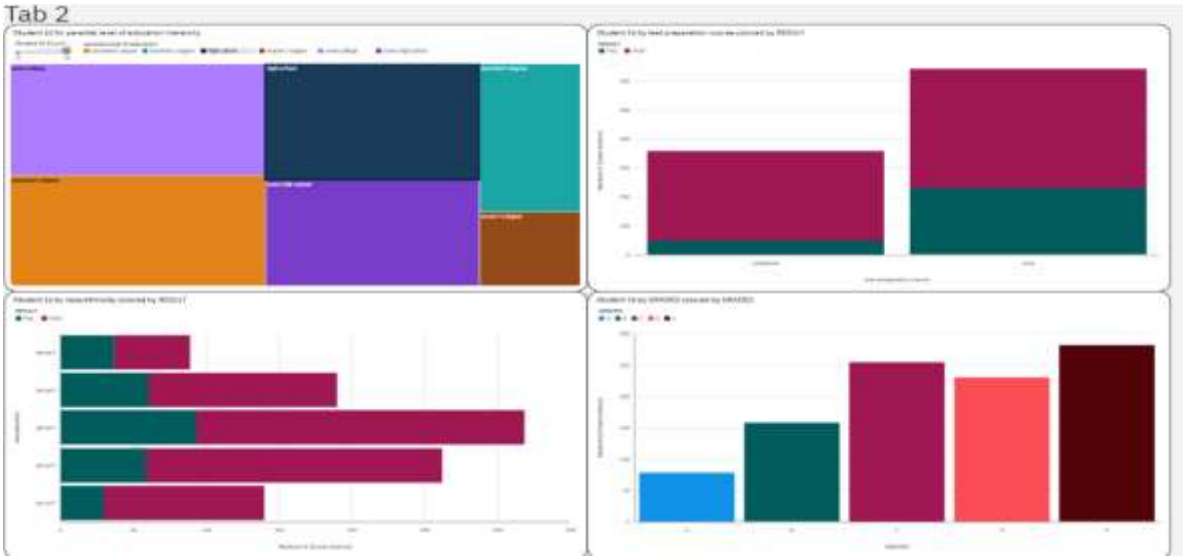


parents education and its impacts by student data

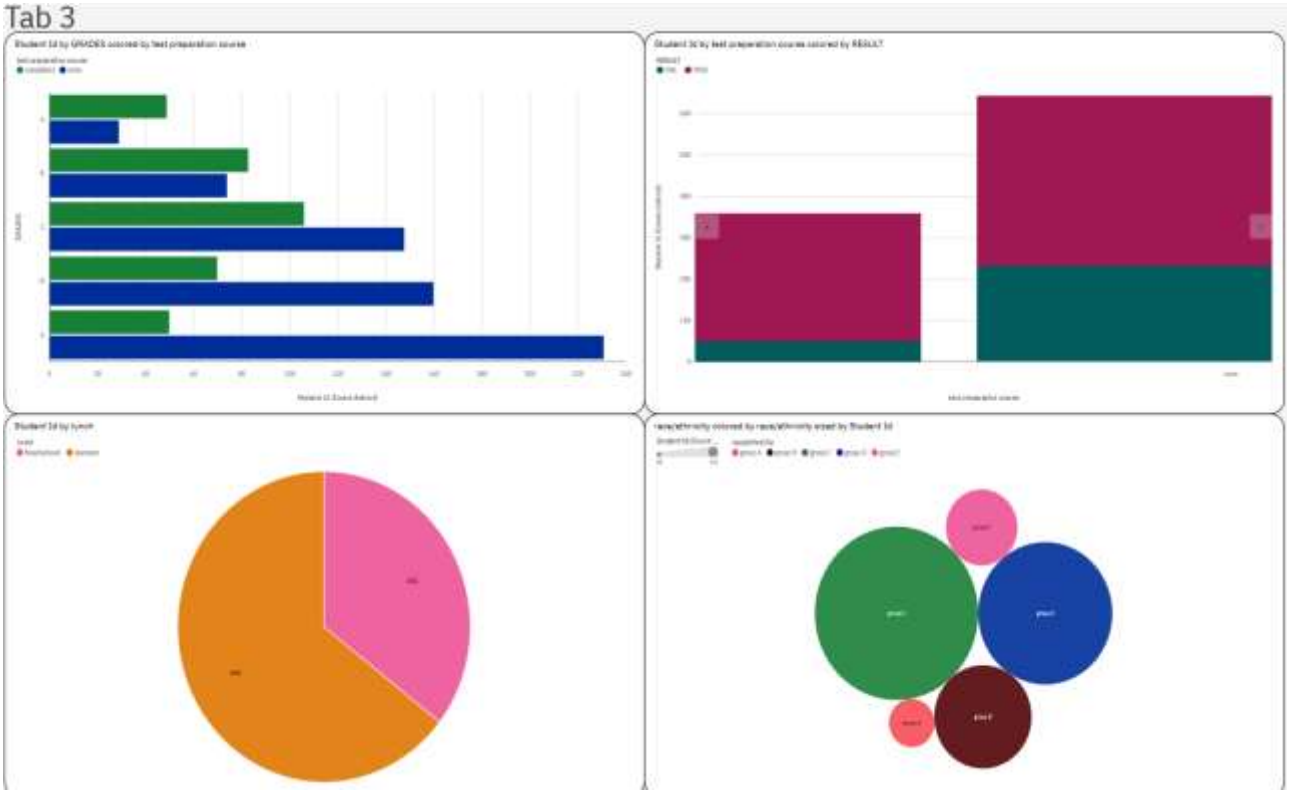
DASH BOARD



Graphical Representation of Student Data by genders



Graphical Representation of Student Data by Grades



Graphical Representation of lunch and race/ethnicity

5 . ADVANTAGES & DISADVANTAGES

- A good academic achievement will give the child a sense of accomplishment.
- Academic achievement can help the child get into a good college.
- Academic achievement can lead to better job opportunities.
- Academic achievement can help the child to develop a love for learning.
- Academic achievement can lead to better health later in life.
- Academic achievement can help the child develop a strong work ethic
- Academic achievement can improve the self-confidence of the child.
- Academic achievement can help kids attain a sense of satisfaction and accomplishment.
- Help Them Create a Positive Learning Environment
- Encourage your child to ask questions in class. This will help them understand the material better and participate in discussions. It will also show their teacher that they are engaged in the lesson.

6.APPLICATIONS

Students' feedback is usually gathered in institutions of higher education to evaluate the teaching quality from the students' perspective, using questionnaires administered at the end of the courses. These evaluations are useful to pinpoint the course strengths, identify areas of improvement, and understand the factors that contribute to students' satisfaction. They are an important mechanism for improving the teaching and learning processes. However, there is little standardisation in how this kind of feedback is collected, analysed, and used, and their active use for improving the teaching and learning processes is low. Additionally, students are rarely asked if they consider that those aspects included in the questionnaires are really important; this information would allow relativizing students' evaluations of teaching. This research proposes the use of importance-performance analysis (IPA) together with a student's evaluation of teaching questionnaire as a tool for lecturers to collect, analyse, and interpret the data obtained from the student's feedback. This work shows how using IPA lecturers can obtain a visual representation of what teaching attributes are important for their students, how important each attribute is, and how well the instructors performed on each attribute from their students' point of view. The usefulness of this tool for lecturers to assess students' evaluation of their teaching and to guide the course programming in higher education is shown. . These evaluations are useful to pinpoint the course strengths, identify areas of improvement, and understand the factors that contribute to students' satisfaction. They are an important mechanism for improving the teaching and learning processes

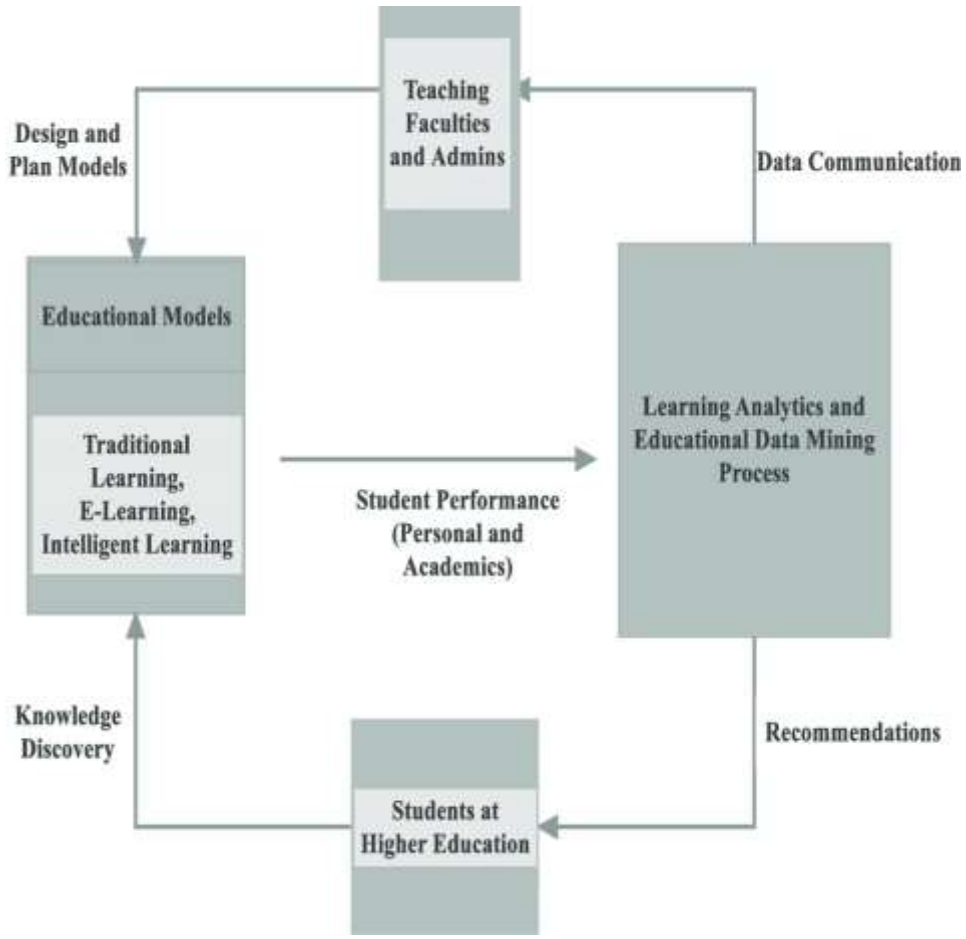


FIG 6.1 :-BLOCK DIAGRAM OF STUDENT PERFORMANCE

This research proposes the use of importance-performance analysis (IPA) together with a student's evaluation of teaching questionnaire as a tool for lecturers to collect, analyse, and interpret the data obtained from the student's feedback. This work shows how using IPA lecturers can obtain a visual representation of what teaching attributes are important for their students, how important each attribute is, and how well the instructors performed on each attribute from their students' point of view

7. FUTURE SCOPE

The future scope for the project. "Unleashing the Potential of Our Youth: A Student Performance Analysis." can include several potential areas of expansion and further investigation. Here are some future scopes that can be considered:

1. Advanced analytics: As technology and data analytics tools advance, there is potential for more sophisticated analysis techniques to be applied. This could include machine learning algorithms, predictive analytics, and natural language processing to extract deeper insights from student performance data.

2. Personalized learning: The proposed solution can be further leveraged to support personalized learning approaches. By analyzing individual student data, including learning styles, preferences, and strengths, educators can tailor instruction and interventions to meet the unique needs of each student, fostering personalized learning experiences.

3. Early intervention and student support: The solution can be utilized to identify early warning signs and indicators of student underperformance or potential dropout. By analyzing data on attendance, assignment completion, and assessment scores, educators can intervene early and provide targeted support to struggling students, improving retention rates and overall student success.

4. Longitudinal Analysis: Extend the analysis to include data from multiple years or semesters to observe trends and patterns in student performance over time. This can provide insights into the effectiveness of educational policies and interventions implemented and identify long-term impacts on student outcomes.

5. Qualitative Research: Supplement the quantitative analysis with qualitative research methods such as interviews, focus groups, or surveys to gather deeper insights into the experiences and perspectives of students, parents, and educators. This can provide a more holistic understanding of the underlying factors influencing student performance.

6. Exploration of Additional Variables: Consider incorporating additional variables or datasets that can potentially contribute to a more comprehensive analysis. For example, factors such as class size, teacher experience, extracurricular activities, or student engagement can be explored to assess their impact on student performance.

7. Comparison with External Data Sources: Compare the findings from the "Students Performance" dataset with external data sources such as national or international assessments to gain broader insights into educational outcomes and performance benchmarks. This can provide a broader context for understanding the strengths and weaknesses of the education system under examination.

8. Implementation of Recommendations: Collaborate with educational institutions, policymakers, and stakeholders to implement evidence-based recommendations derived from the analysis. Monitor the outcomes of the implemented interventions and measure their effectiveness in improving student performance.

9. Ethical considerations and data privacy: Given the sensitivity of student data, future developments should also focus on ensuring strong ethical standards and data privacy protections. Striking a balance between data analysis for improvement and safeguarding student privacy is crucial for the future implementation of such solutions.

8. CONCLUSION

This 'Student Performance Analysis System' has been developed successfully and was also tested successfully by taking few test cases. It is user friendly and has required options, which can be used by user to perform desired operation. According to the result analysis the current model works properly and has achieved the goal of getting 100% accuracy within the desired format. We have implemented various best practices to create and train our model. Throughout the development of the model we have learned various best practices and architecture patterns being used in industry today.

The goals that are achieved by the system are:

- Optimum utilization of resources.
- Efficient management of records.
- Simplification of Operations.
- Less processing time and easy of getting required information.
- Usefulness and correctness.