



MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

TOPIC: UNLEASHING THE POTENTIAL OF OUR YOUTH: A STUDENT PERFORMANCE ANALYSIS

TEAM ID : NM2023TMID07497

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ABSTRACT

The quality of a country's education system is considered a fundamental metric for measuring its growth and development. Today, the education sector is not just a service; it is an industry facing a myriad of challenges, with one of the most pressing being the declining success rates of higher education students and their increasing tendency to leave courses without completion. This project revolves around the critical aspect of analyzing student performance, which is an intrinsic part of effective teaching and learning. Teachers continually assign, collect, and assess student work to gauge learning outcomes and to refine and enhance their teaching methods. Ongoing assessment of student performance provides a platform for educators to engage in a perpetual cycle of quality improvement within their courses. The dataset used for this analysis encompasses the academic performance of 1000 students from a school. The primary objective is to unravel the intricate relationships between student performance and various influencing factors. This analysis delves into the role of significant attributes such as parental level of education, participation in test preparation courses, and other variables that can affect students' performance in examinations. Through a data-driven approach, this project seeks to answer questions that are of paramount importance in the realm of education. This project aims to shed light on the complex dynamics of educational achievement and inform strategies for enhancing student success. Understanding these influential factors can not only aid educators and policymakers in designing more effective educational programs but also contribute to a broader discussion on how to foster an environment where every student can thrive and realize their full potential. In an era where education is a key driver of societal progress, this project offers valuable insights that can help shape the future of learning and teaching.

Project Report Format

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1.INTRODUCTION

1.1 Project Overview

A country's progress is inextricably linked to the quality of its education system, and the global education sector has undergone significant transformation in recent years. It is now acknowledged as an industry, facing challenges akin to other sectors. One of the paramount challenges in higher education is the declining student success rates and an increasing trend of students leaving courses prematurely. Analyzing student work is fundamental in the teaching process. Teachers routinely assign, collect, and assess student work to gauge learning outcomes and enhance their teaching methods continuously. This ongoing assessment plays a crucial role in refining course quality. Various factors influence a student's performance, including parental educational backgrounds and test preparation. This project centers around a dataset comprising the academic performance of 1000 students from a school. The primary objective is to analyze and establish correlations between student performance and various attributes. The analysis seeks to unravel the impact of key factors like parental education levels and participation in test preparation courses on students' academic achievements, providing valuable insights into the dynamics of educational success.

1.2 Purpose

The purpose of this project is to delve into the pivotal role of education in a country's growth and development. The quality of a nation's education system is widely recognized as a barometer for its progress. The global education sector has evolved significantly, now regarded as an industry facing challenges similar to other sectors. In the domain of higher education, a prominent concern is the declining success rates of students and the rising incidence of students leaving their courses prematurely. In this context, the project aims to emphasize the importance of ongoing assessment in the education process. Teachers continually assign, collect, and scrutinize student work as part of their instructional practices, serving the dual purpose of assessing student learning and refining their teaching methodologies. Through this ongoing assessment, educators can engage in a continual process of enhancing the quality of their courses. This project uses a dataset comprising the academic performance of 1000 students from a school, with the primary objective of analyzing and establishing correlations between student performance and various attributes. In particular, the analysis seeks to elucidate the impact of key factors such as the educational background of parents and students' participation in test preparation courses on their academic achievements. By exploring

these attributes and their influence on student performance, the project endeavors to provide valuable insights into the dynamics of educational success. In doing so, it contributes to the broader discourse on the challenges and opportunities in the contemporary education sector and the pivotal role it plays in shaping the future of individuals and, by extension, the nation's growth and prosperity.

2. LITERATURE SURVEY

2.1 Existing problem

The existing problem within the framework of "Unleashing The Potential of Our Youth: A Student Performance Analysis" lies in the inadequacies and challenges faced in the education system that hinder students from realizing their full potential. This problem encompasses a variety of issues, including:

- **Standardization Over Individualization :** Education systems often prioritize standardized testing and curriculum, which may not cater to the diverse learning styles and aptitudes of individual students. As a result, many students may not have their unique talents and potential fully recognized and nurtured.
- **Lack of Early Intervention :** There's a need for more robust early intervention strategies to identify struggling students promptly. Some students may face learning difficulties or personal challenges that, if addressed early, could prevent long-term academic underperformance.
- **Resource Disparities :** Disparities in educational resources, both within and between schools, can significantly impact student performance. Students in underfunded schools may not have access to the same educational opportunities as those in more affluent areas.
- **Teacher Workload and Training :** Many educators face high workloads, making it challenging to provide individualized attention to each student. Additionally, not all teachers may have the training or resources to support diverse student needs effectively.
- **Assessment-Driven Approach :** Overemphasis on standardized tests as the primary measure of student success can lead to a narrow focus on exam preparation at the expense of holistic development.
- **Lack of Support for Non-Academic Factors :** Factors such as socio-economic background, mental health, and family support play crucial roles in a student's performance. The existing system often does not adequately address these non-academic factors.
- **Limited Career Guidance :** Many students struggle with finding their career paths or understanding how their education is relevant to their future. The lack of comprehensive career guidance can limit their potential.
- **Insufficient Engagement :** Engagement is a key driver of learning. The existing system may not always engage students effectively, leading to disinterest and underperformance.

- **Inadequate Data Utilization** : Although data is collected on student performance, it is not always utilized effectively to inform decision-making, instructional improvements, or targeted interventions.

- **Inequities in Access to Higher Education** : Socio-economic disparities often lead to unequal access to higher education opportunities, limiting the potential of many students.

Addressing these issues requires a comprehensive approach that focuses on personalized learning, early support, resource allocation, teacher training, and a broader understanding of success beyond standardized test scores. To unleash the potential of our youth, it's essential to reevaluate and reform the existing system to better cater to the diverse needs and aspirations of students.

2.2 References

1) **Title** : Unleashing the Potential - Transforming Technical and Vocational Education and Training

Published in : 2015 by UNESCO Publishing

Authors : Priscilla Toka Mmantsetsa Marope, K. P. Holmes, B. Chakroun

2) **Title** : How the World's Greatest Organizations Drive Growth by Unleashing Human Potential

Published in : 2002 by Grand Central Publishing

Authors : Curt Coffman, Ashok Gopal, Gabriel Gonzalez-Molina

3) **Title** : Unleashing the Life Stories and Hopes of the Out-of School-Youths

Published in : 2021 by American Journal of Qualitative Research

Authors : Lauro Aspiras and Emma Aspiras

4) **Title** : Unleashing Passion, Purpose, and Performance in Younger Generations

Published in : 2018 by Greenleaf Book Group Press

Authors : Mark C. Perna

5) **Title** : Unleashing Students' Potential Through Creative Math, Inspiring Messages and

Innovative Teaching

Published in : 2015 by Wiley

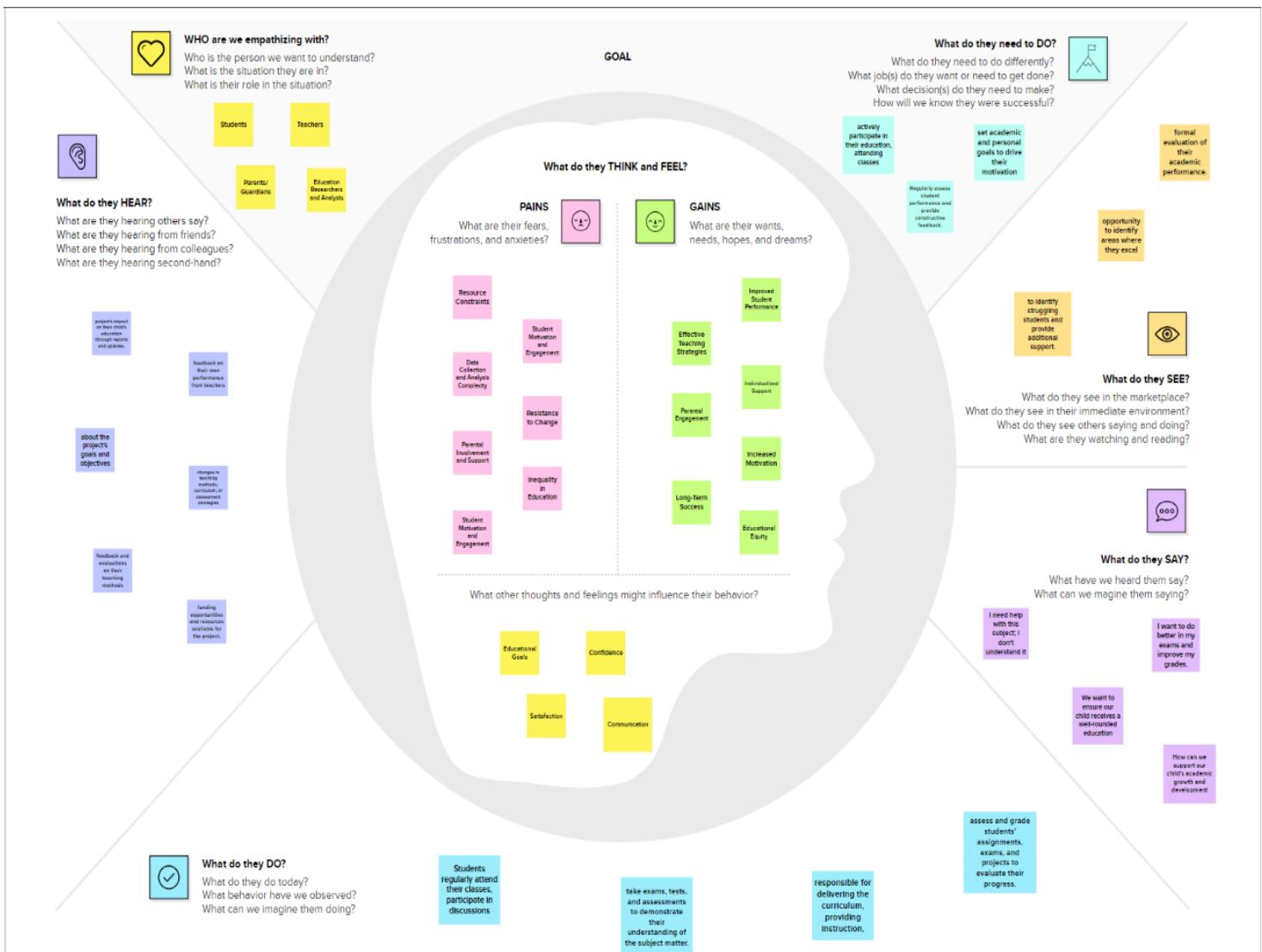
Authors : Jo Boaler

2.3 Problem Statement Definition

The problem at hand is the underutilization of the inherent talents and abilities of our youth due to inadequate educational approaches and support systems. This situation is characterized by inconsistent student performance, unequal access to quality education, and a lack of tailored strategies to nurture individual potential. The challenge is to comprehensively analyze and address the factors that hinder student performance and, in turn, obstruct the realization of our youth's full capabilities. It involves a comprehensive examination of factors affecting student performance, both academic and non-academic, with the aim of identifying areas where improvements can be made to ensure that every student can reach their full potential. This analysis encompasses the need to evaluate teaching methodologies, support systems, curriculum effectiveness, and holistic well-being in order to foster an educational environment where young individuals can thrive and excel. This problem statement aims to identify and implement effective solutions that empower students to achieve their highest potential and, in doing so, foster a brighter future for both the individuals and the community as a whole.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 Ideation & Brainstorming

Template



Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- ⌚ 10 minutes to prepare
- ⌛ 1 hour to collaborate
- 👤 2-8 people recommended



Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

⌚ 10 minutes

A Team gathering

Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

B Set the goal

Think about the problem you'll be focusing on solving in the brainstorming session.

C Learn how to use the facilitation tools

Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#) →



Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

⌚ 5 minutes

PROBLEM

How can we analyze and address factors that influence student performance in order to empower young individuals to reach their full potential within the educational system?



Key rules of brainstorming

To run a smooth and productive session

- | | |
|-------------------|----------------------------|
| 💡 Stay in topic. | 💡 Encourage wild ideas. |
| 👉 Defer judgment. | 👂 Listen to others. |
| 📢 Go for volume. | 👁️ If possible, be visual. |

2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

⌚ 10 minutes

TIP

You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

Person 1



Person 2



Person 3



Person 4



3

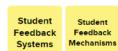
Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

⌚ 20 minutes

TIP

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.



Parent-Teacher Communication

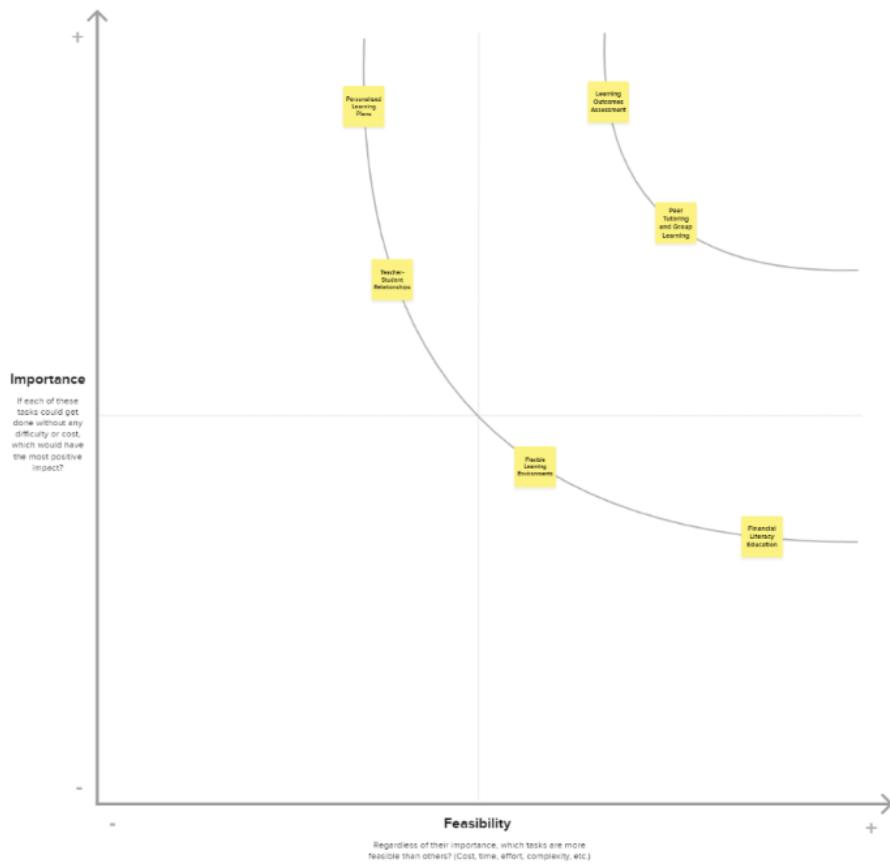
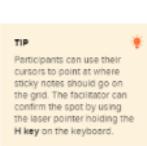


4

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

⌚ 20 minutes



5

After you collaborate

You can export the mural as an image or pdf to share with members of your company who might find it helpful.

Quick add-ons

Share the mural
Share a view link to the mural with stakeholders to keep them in the loop about the outcomes of the session.

Export the mural
Export a copy of the mural as a PNG or PDF to attach to emails, include in slides, or save in your drive.

Keep moving forward

 **Strategy blueprint**
Define the components of a new idea or strategy.
[Open the template →](#)

 **Customer experience journey map**
Understand customer needs, motivations, and obstacles for an experience.
[Open the template →](#)

 **Strengths, weaknesses, opportunities & threats**
Identify strengths, weaknesses, opportunities, and threats (SWOT) to develop a plan.
[Open the template →](#)

 [Share template feedback](#)

4. REQUIREMENT ANALYSIS

4.1 Functional Requirements

FR NO	FUNCTIONAL REQUIREMENTS	SUB REQUIREMENTS(STORY/SUB-TASK)
FR-1	User Account Management	Implement user registration and account activation. Develop secure user login and logout features. Define user roles and set permissions.
FR-2	Data Input and Management	Create and update student profiles. Enable entry of academic scores and achievements. Support attachment of supporting documents.
FR-3	Performance Analysis	Aggregate performance data for classes. Calculate average, median, mode, and standard deviation. Provide trend analysis for students and classes.
FR-4	Visualization Tools	Design and implement a user-friendly dashboard. Generate graphs and charts for data visualization.

4.2 Non-Functional Requirements

NFR NO	FUNCTIONAL REQUIREMENTS	SUB REQUIREMENTS(STORY/SUB-TASK)
NFR-1	Performance	The system should be highly responsive, providing quick access to data and analysis results. It should be capable of handling a large number of concurrent users and large datasets efficiently.
NFR-2	Scalability	The system should prioritize the security and privacy of student and user data. This includes data encryption, secure user authentication, authorization, and compliance with relevant data protection regulations

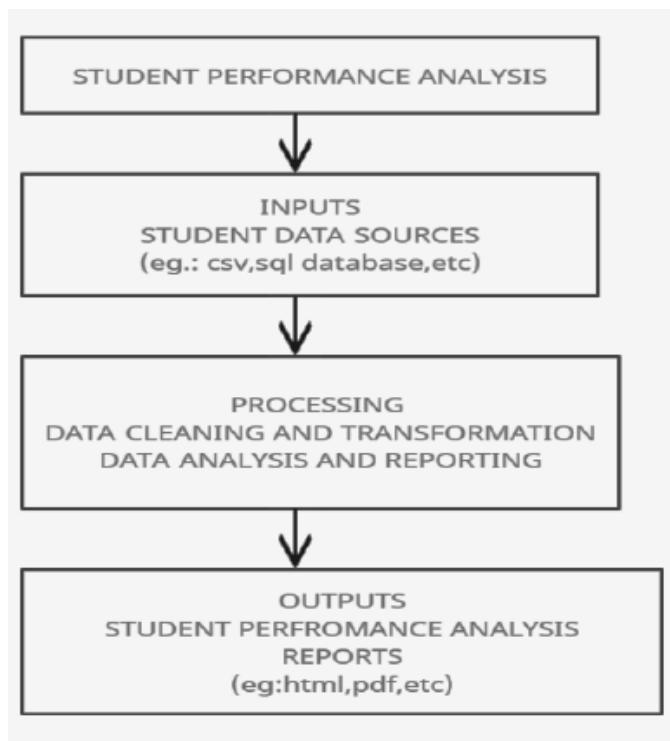
NFR-3	Security	The system should be designed to scale horizontally and accommodate an increasing volume of data and users without degradation in performance. It should be able to adapt to changing requirements over time.
NFR-4	Usability	The system should provide an intuitive and user-friendly interface for all types of users, including students, teachers, administrators, and parents. Usability testing should be conducted to ensure an optimal user experience.

5. PROJECT DESIGN

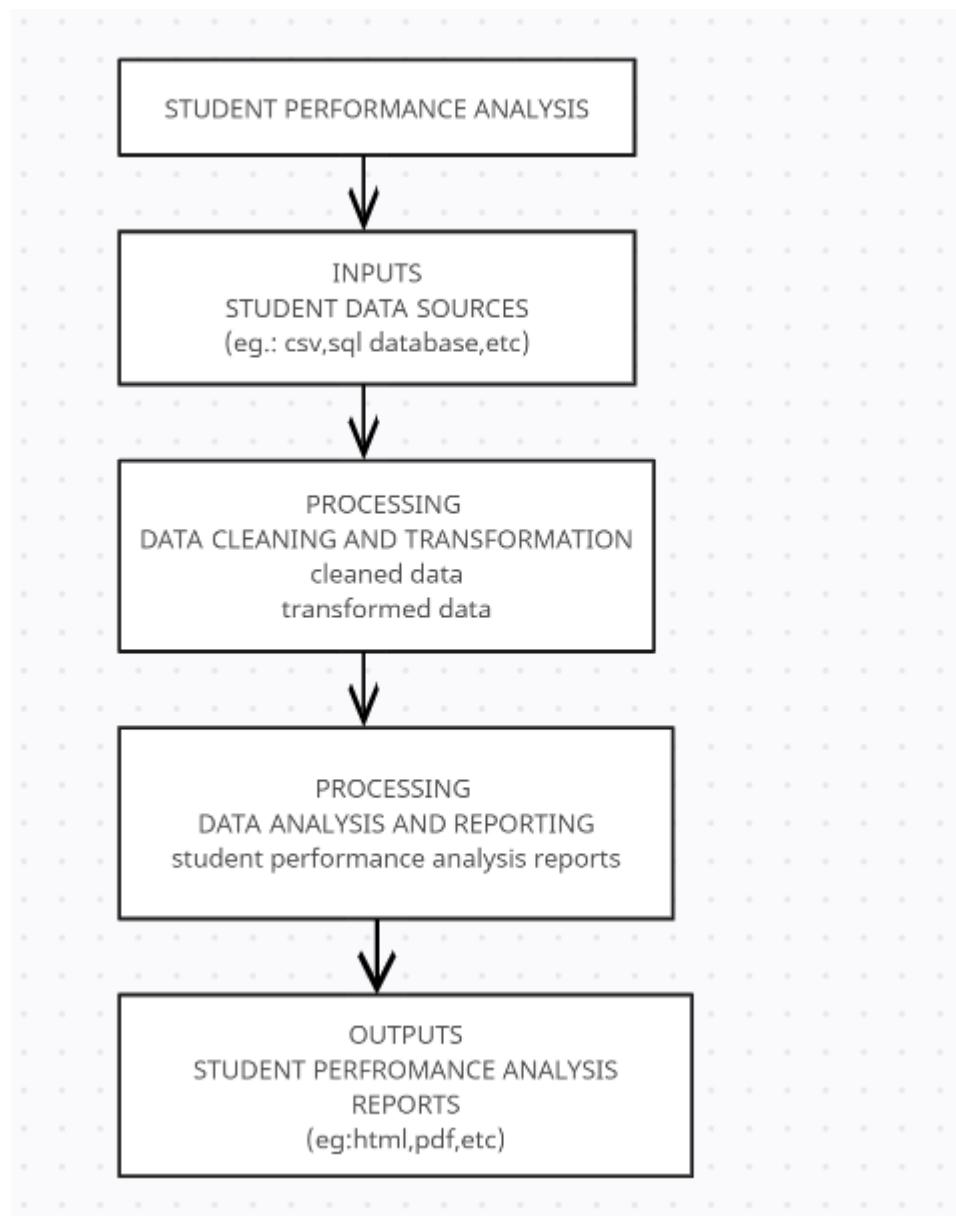
5.1 Data Flow Diagrams & User Stories

A data flow diagram (DFD) for student performance analysis would depict the flow of data and processes involved in analyzing and evaluating student performance within an educational system. The DFD can be expanded or decomposed further based on the specific requirements and processes involved in the student performance analysis system. It provides a visual representation of how data flows through various processes and entities, facilitating understanding, analysis, and communication among stakeholders involved in monitoring and improving student performance.

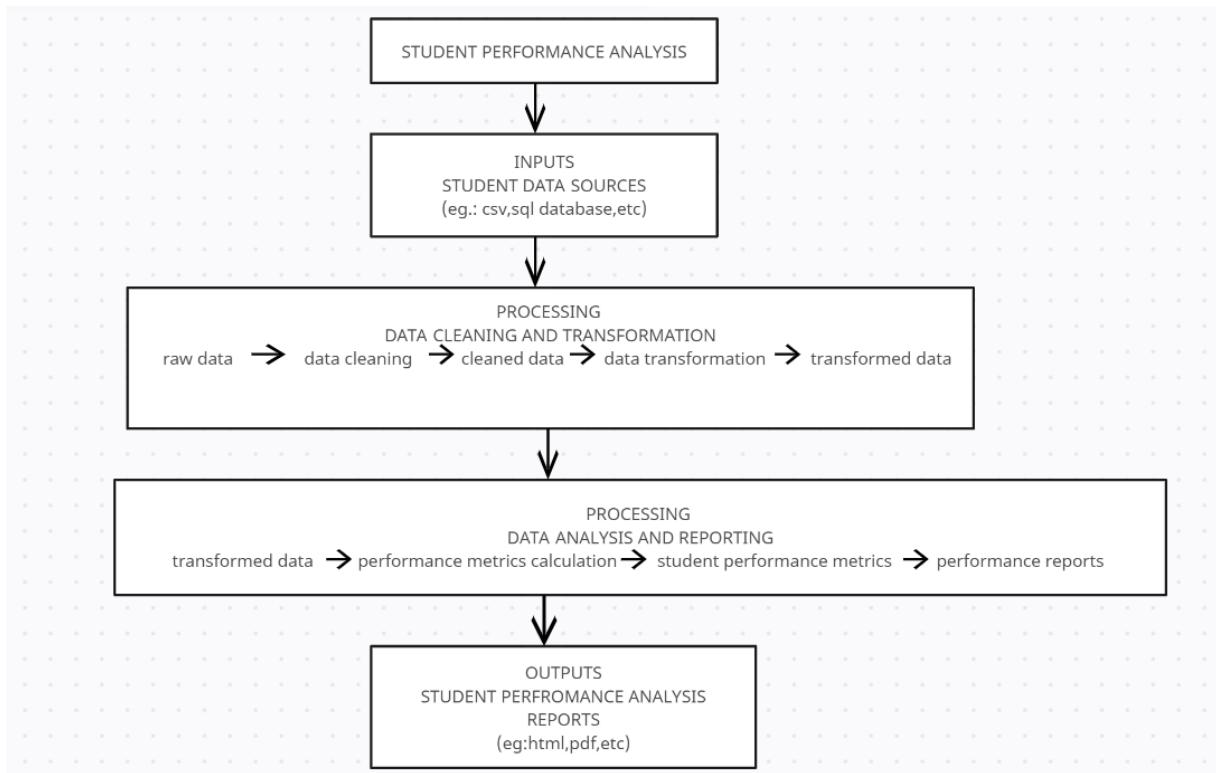
DFD LEVEL 0



DFD LEVEL 1



DFD LEVEL 2



User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority
Administrator	User Account Management	USN-1	<p>1. As a user, I want to register an account by providing my name, email address, and creating a password. After registration, I should receive a confirmation email to verify my account.</p> <p>2. As a user, I want to log in to my account securely using my registered email and password. Once logged in, I should have access to features based on my role. I can also log out.</p>	<p>1. The registration form should include fields for name, email address, and password.</p> <p>2. After registration, the user should receive a confirmation email. The confirmation link in the email should successfully activate the user's account.</p> <p>3. Users should be able to log in using their registered email and password.</p>	High

				<p>4. After successful login, users should be directed to the appropriate landing page based on their role.</p> <p>5. Logging out should terminate the user's session and require re-authentication for access.</p>	
Teacher	Data Input and Management	USN-2	<p>1. As a teacher, I want to create and update student profiles by entering their personal information, such as name, contact details, and class information. This ensures that the system has up-to-date student data.</p> <p>2. As a teacher, I want to enter or upload students' academic scores, extracurricular achievements, and behavioral observations. I should be able to attach supporting documents or notes for context.</p>	<p>1. Teachers should be able to add, update, or delete student profiles.</p> <p>2. Student profiles should include fields for personal information, contact details, and class information.</p> <p>3. Teachers should be able to enter or upload academic scores, extracurricular achievements, and behavioral observations for students.</p> <p>4. The system should validate and process uploaded data without errors.</p> <p>5. Administrators should be able to upload student data in bulk using common formats such as Excel or CSV.</p> <p>6. The system should provide feedback on the success or failure of the import process.</p>	High

Parent	Performance Analysis	USN-3	<p>1. As a user, I want to view aggregated performance data of my child, which should include overall class averages, highest and lowest scores, and distribution of scores. This helps me assess the child's performance at a glance.</p> <p>2. As a user, I want to access various statistical analyses, including average scores, median scores, mode, standard deviation, and other relevant statistics to understand student performance.</p> <p>3. As a user, I want to track performance trends over time for individual students or the entire class. I should be able to see if a student's performance is improving or declining.</p>	<p>1. The class performance dashboard should show accurate data with class averages, highest and lowest scores, and score distribution.</p> <p>2. Data should update in real-time as new data is entered or uploaded.</p> <p>3. The system should accurately calculate average scores, median scores, mode, standard deviation, and other relevant statistics.</p> <p>4. Users should be able to view performance trends over time for individual students or Classes.</p> <p>5. Trend analysis should provide clear information on improvements or declines.</p>	Medium
Student	Visualization Tools	USN-4	<p>1. As a user, I want a dashboard that displays key performance metrics in an easy-to-understand format. It should include graphs, tables, and charts that summarize student performance and trends.</p> <p>2. As a user, I want to generate various types of graphs and charts (e.g., line graphs, bar charts, pie charts) based on specific criteria such as subject, class, or time period to visually represent data. This aids in better data interpretation.</p>	<p>1. The dashboard should display key performance metrics with updated and accurate data.</p> <p>2. Users should find the dashboard layout intuitive and easy to navigate.</p> <p>3. Users should be able to generate various types of graphs and charts based on specific criteria.</p>	Medium

				4. Generated visualizations should be clear, legible, and accurately represent the underlying data.	
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5.2 Solution Architecture

Our solution is a student performance analysis tool that uses data analytics to analyze the performance of students. The tool collects data from various sources such as exam results, attendance records, and student feedback, and uses this data to generate insights into the performance of students. The tool provides dashboards and reports that help teachers and educational institutions to identify the areas where students are struggling and take corrective measures to improve their performance.

Our solution is unique because it uses data analytics to analyze the performance of students. Our solution is also unique because it is customizable and can be tailored to the specific needs of each educational institution and provides specifications according to which the solution is defined, managed, and delivered.

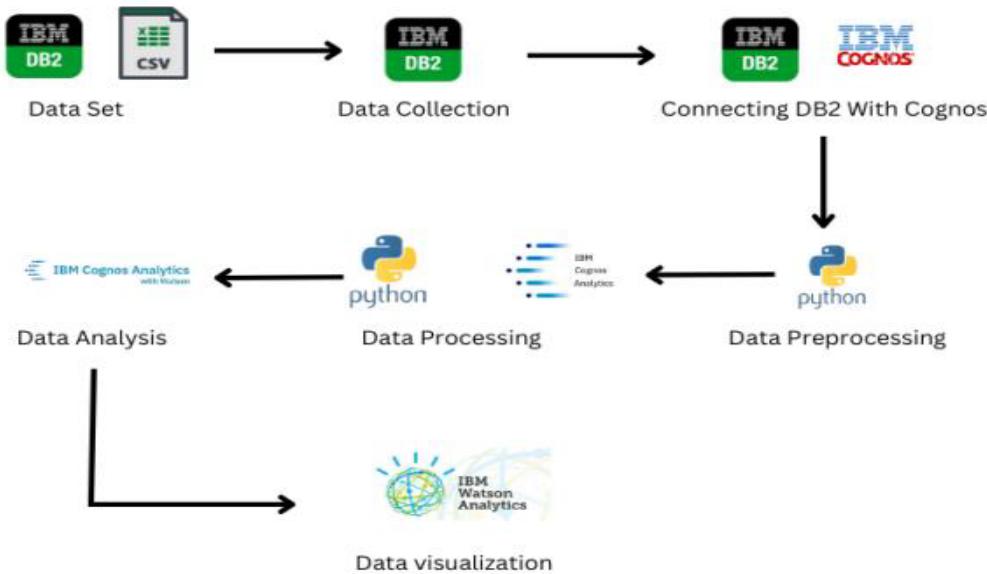
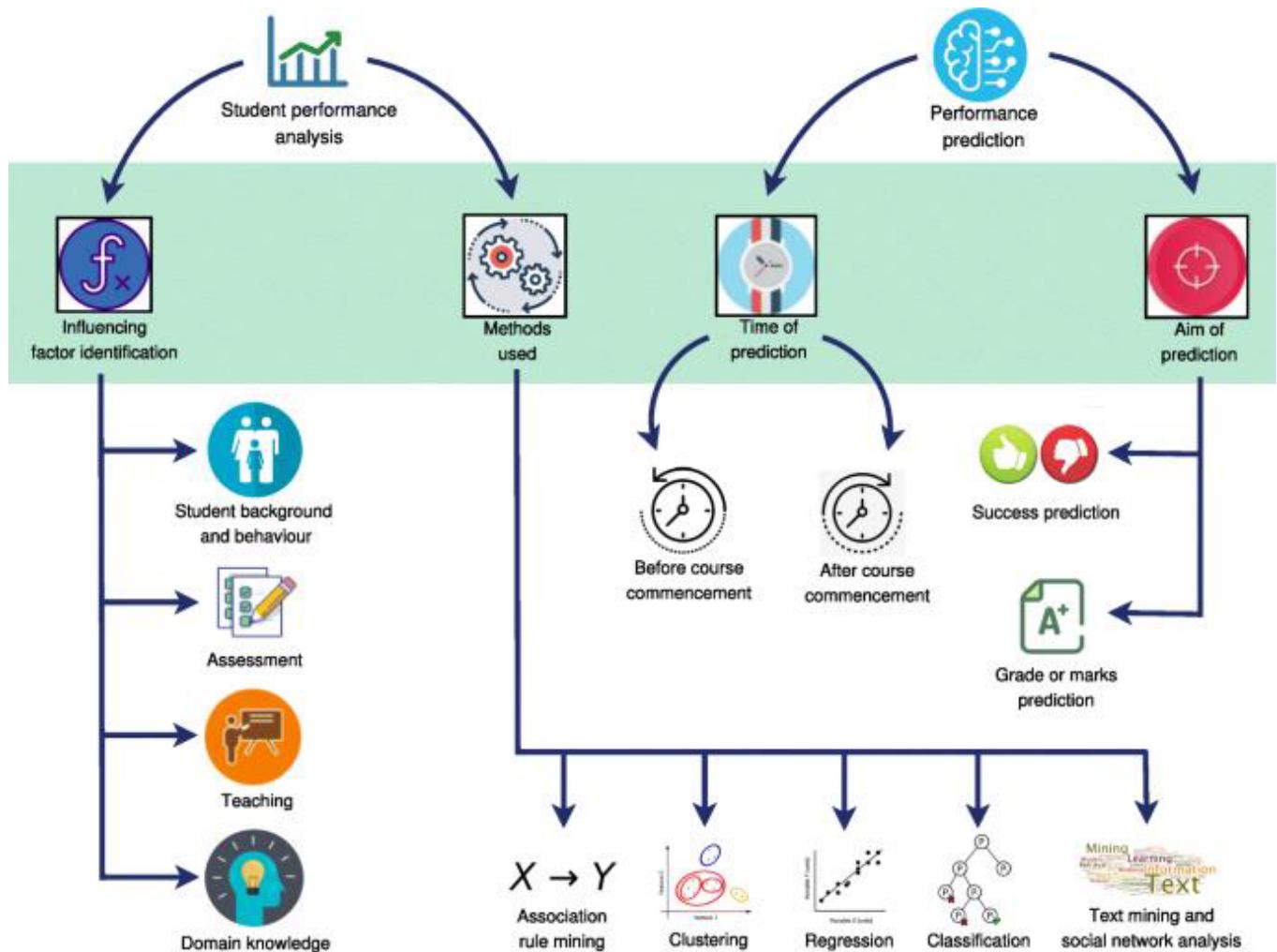


Figure 1: Architecture and data flow of a Student Performance Analysis application

6. PROJECT PLANNING & SCHEDULING

6.1 Technical Architecture



6.2 Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	User Account Management	USN-1	1. As a user, I want to register an account by providing my name, email address, and creating a password. After registration, I should receive a confirmation email to verify my account.	2	High	Swetha

			2. As a user, I want to log in to my account securely using my registered email and password. Once logged in, I should have access to features based on my role. I can also log out.			
Sprint-2	Data Input and Management	USN-2	<p>1. As a user, I want to create and update student profiles by entering their personal information, such as name, contact details, and class information. This ensures that the system has up-to-date student data.</p> <p>2. As a user, I want to enter or upload students' academic scores, extracurricular achievements, and behavioral observations. I should be able to attach supporting documents or notes for context.</p>	2	High	Bavatharini
Sprint-3	Performance Analysis	USN-3	<p>1. As a user, I want to view aggregated performance data of my child, which should include overall class averages, highest and lowest scores, and distribution of scores. This helps me assess a child's performance at a glance.</p> <p>2. As a user, I want to access various statistical analyses, including average scores, median scores, mode, standard deviation, and other relevant statistics to understand student performance.</p> <p>3. As a user, I want to track performance trends over time for individual students or the entire class. I should be able to see if a student's performance is improving or declining.</p>	1	Medium	Sharmila
Sprint-4	Visualization Tools	USN-4	1. As a user, I want a dashboard that displays key performance metrics in an easy-to-understand format. It should include graphs,	2	Medium	Teertha

			<p>tables, and charts that summarize student performance and trends.</p> <p>2. As a user, I want to generate various types of graphs and charts (e.g., line graphs, bar charts, pie charts) based on specific criteria such as subject, class, or time period to visually represent data. This aids in better data interpretation.</p>			
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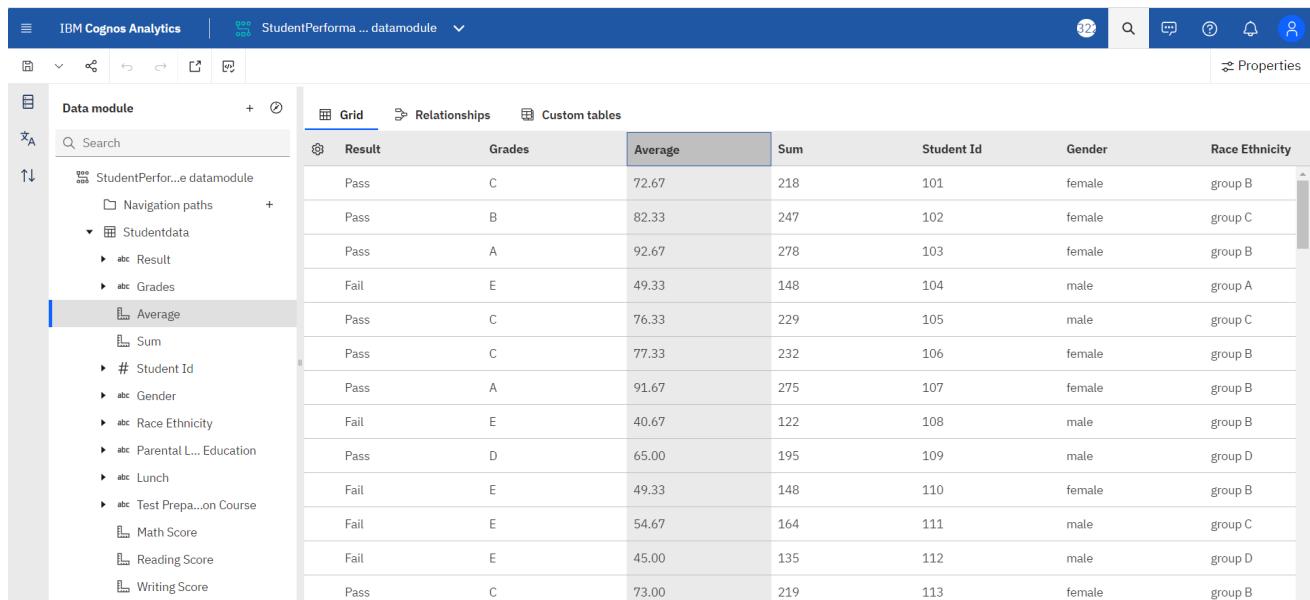
6.3 Sprint Delivery Schedule

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	October 1 2023	October 4 2023	20	October 4 2023
Sprint-2	20	6 Days	October 6 2023	October 9 2023	20	October 10 2023
Sprint-3	20	6 Days	October 11 2023	October 17 2023	20	October 17 2023
Sprint-4	20	6 Days	October 18 2023	October 22 2023	20	October 23 2023

7. CODING & SOLUTIONING

7.1 Feature 1

IBM Cognos (dashboard, story, report) - Utilizing IBM Cognos, the project enables the creation of visually appealing dashboards, interactive stories, and detailed reports for comprehensive student performance analysis.

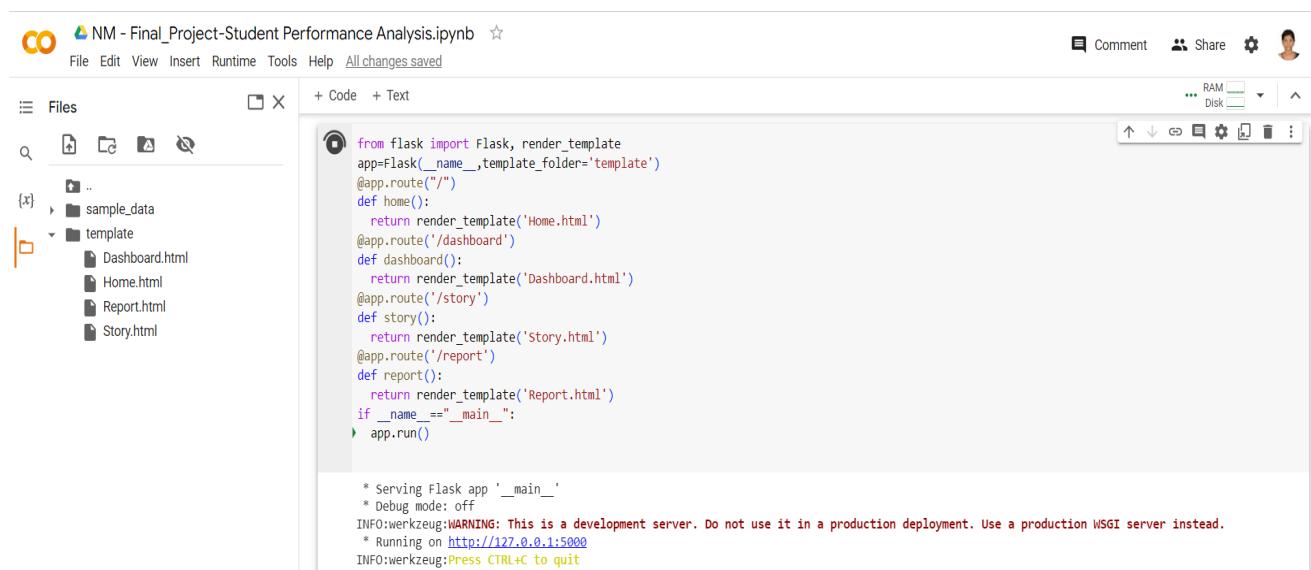


The screenshot shows the IBM Cognos Analytics interface. On the left, there's a navigation pane with a tree structure under 'Data module'. One node is expanded, showing 'StudentPerformance datamodule' with various data items like 'Navigation paths', 'Studentdata', 'Result', 'Grades', 'Average', 'Sum', '# Student Id', 'Gender', 'Race Ethnicity', 'Parental L... Education', 'Lunch', 'Test Prepa...on Course', 'Math Score', 'Reading Score', and 'Writing Score'. To the right of the navigation is a 'Grid' view showing student performance data. The columns are 'Result', 'Grades', 'Average', 'Sum', 'Student Id', 'Gender', and 'Race Ethnicity'. The data includes rows for Pass, B, 72.67, 218, 101, female, group B; Pass, B, 82.33, 247, 102, female, group C; Pass, A, 92.67, 278, 103, female, group B; Fail, E, 49.33, 148, 104, male, group A; and many other entries. The 'Average' column is highlighted in blue.

Result	Grades	Average	Sum	Student Id	Gender	Race Ethnicity
Pass	C	72.67	218	101	female	group B
Pass	B	82.33	247	102	female	group C
Pass	A	92.67	278	103	female	group B
Fail	E	49.33	148	104	male	group A
Pass	C	76.33	229	105	male	group C
Pass	C	77.33	232	106	female	group B
Pass	A	91.67	275	107	female	group B
Fail	E	40.67	122	108	male	group B
Pass	D	65.00	195	109	male	group D
Fail	E	49.33	148	110	female	group B
Fail	E	54.67	164	111	male	group C
Fail	E	45.00	135	112	male	group D
Pass	C	73.00	219	113	female	group B

7.2 Feature 2

Python Flask Application - The project incorporates a Python Flask application to provide a user-friendly and responsive interface for accessing and interacting with the student performance data, enhancing the overall user experience.



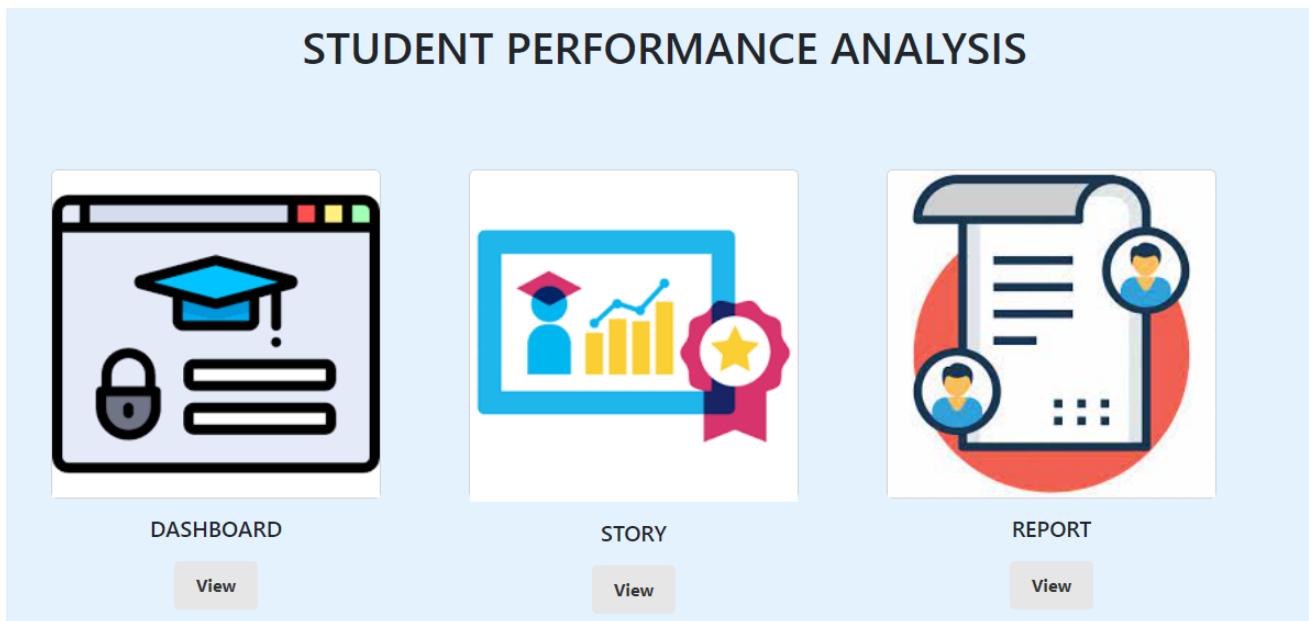
The screenshot shows a Jupyter Notebook interface with a file named 'NM - Final_Project-Student Performance Analysis.ipynb'. The notebook contains Python code for a Flask application. The code defines a Flask app, routes for home, dashboard, story, and report, and runs the app. It also includes a warning message from Werkzeug about using it in production.

```
from flask import Flask, render_template
app=Flask(__name__,template_folder='template')
@app.route("/")
def home():
    return render_template('Home.html')
@app.route('/dashboard')
def dashboard():
    return render_template('Dashboard.html')
@app.route('/story')
def story():
    return render_template('Story.html')
@app.route('/report')
def report():
    return render_template('Report.html')
if __name__=="__main__":
    app.run()

* Serving Flask app '__main__'
* Debug mode: off
INFO:werkzeug:WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
INFO:werkzeug:Press CTRL+C to quit
```

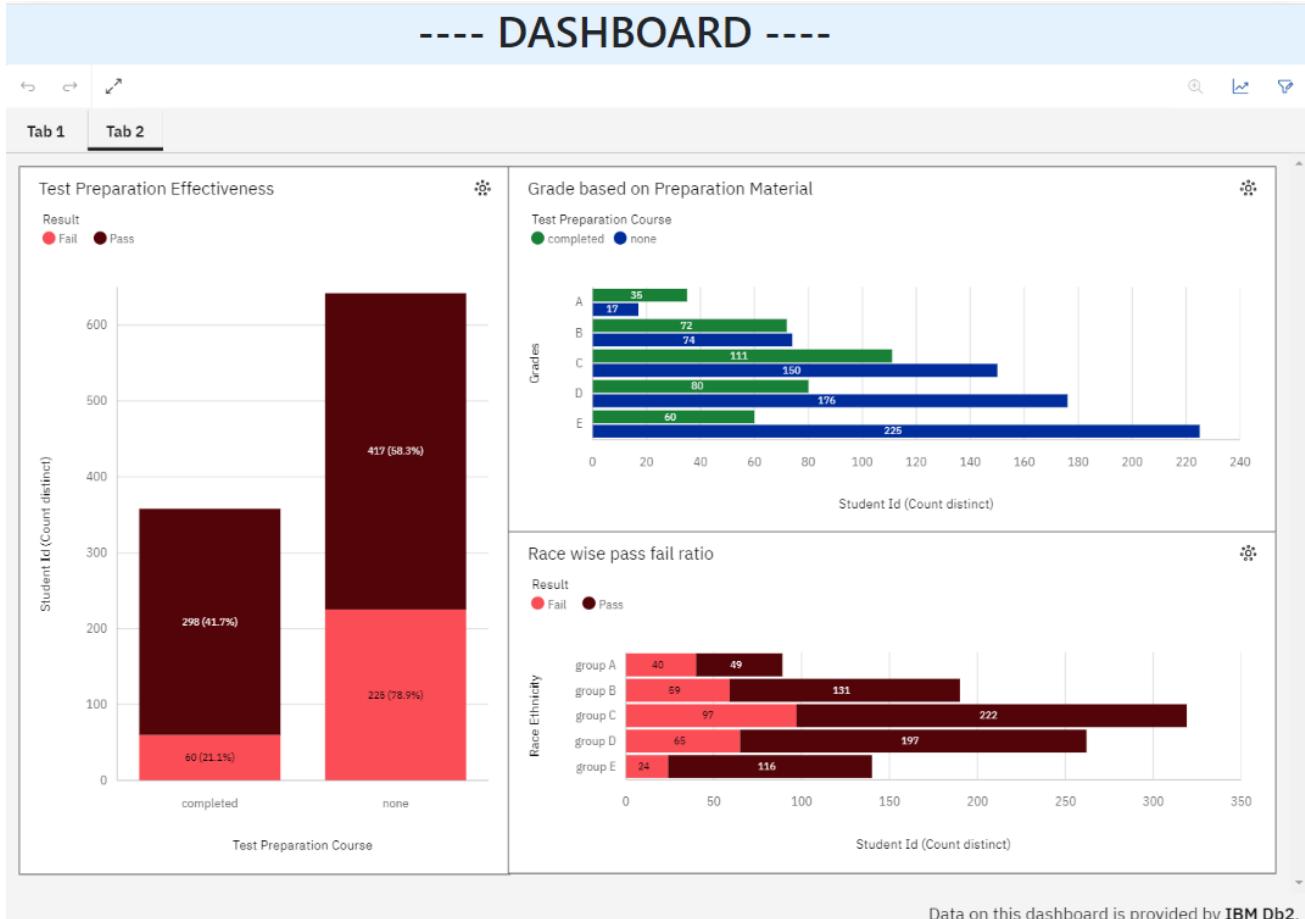
7.3 Feature 3

Webpage- A webpage for student data analysis provides an interactive and user-friendly interface for analyzing and exploring student performance data. It allows educators, administrators, and other stakeholders to access and analyze student data to gain insights, track progress, and make informed decisions.



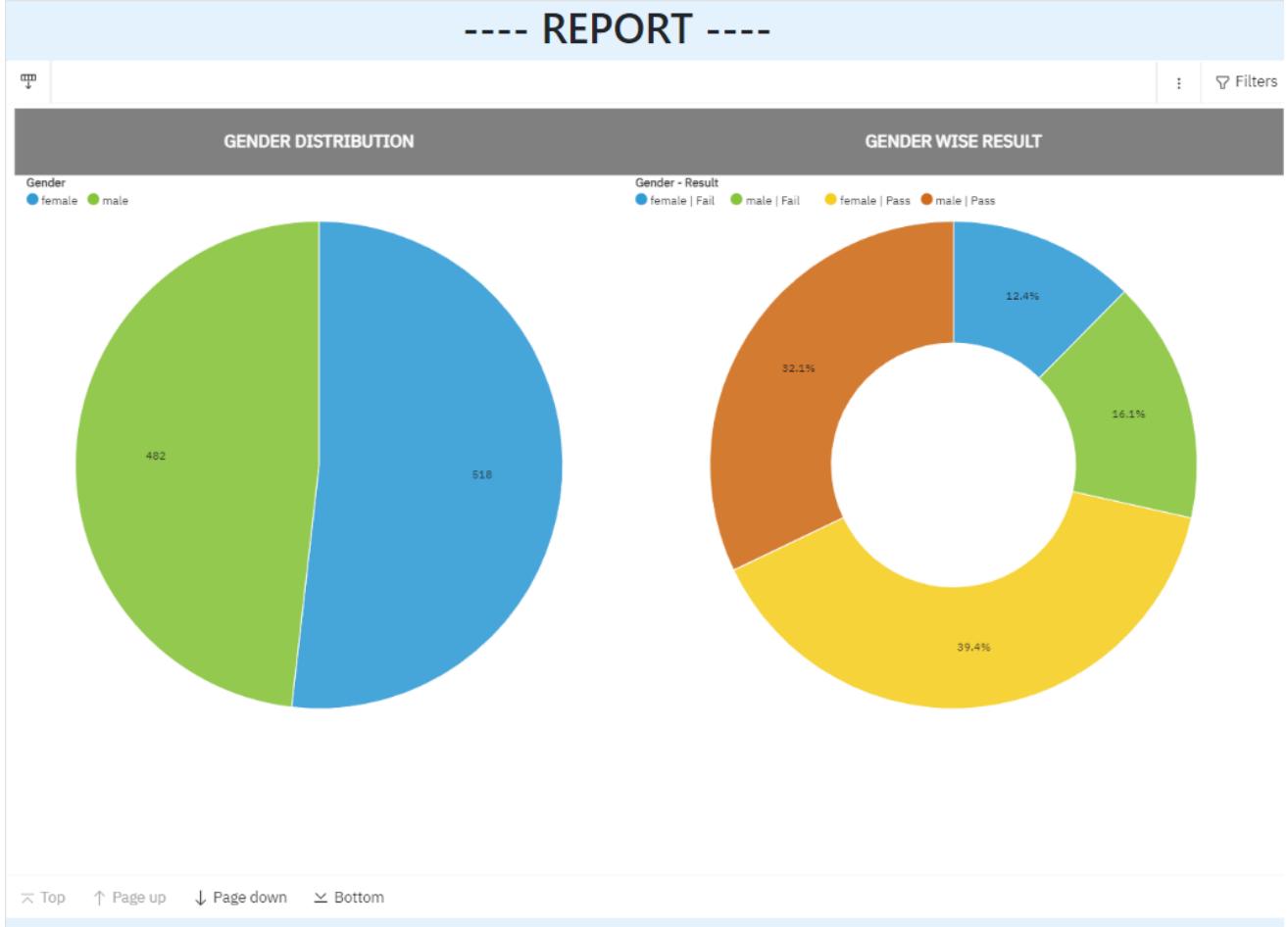
7.4 Feature 4

Dashboard - A dashboard for student data analysis provides a visual representation of key metrics and insights derived from student performance data. It allows educators, administrators, and other stakeholders to monitor and assess student progress, identify areas of improvement, and make data driven decisions.



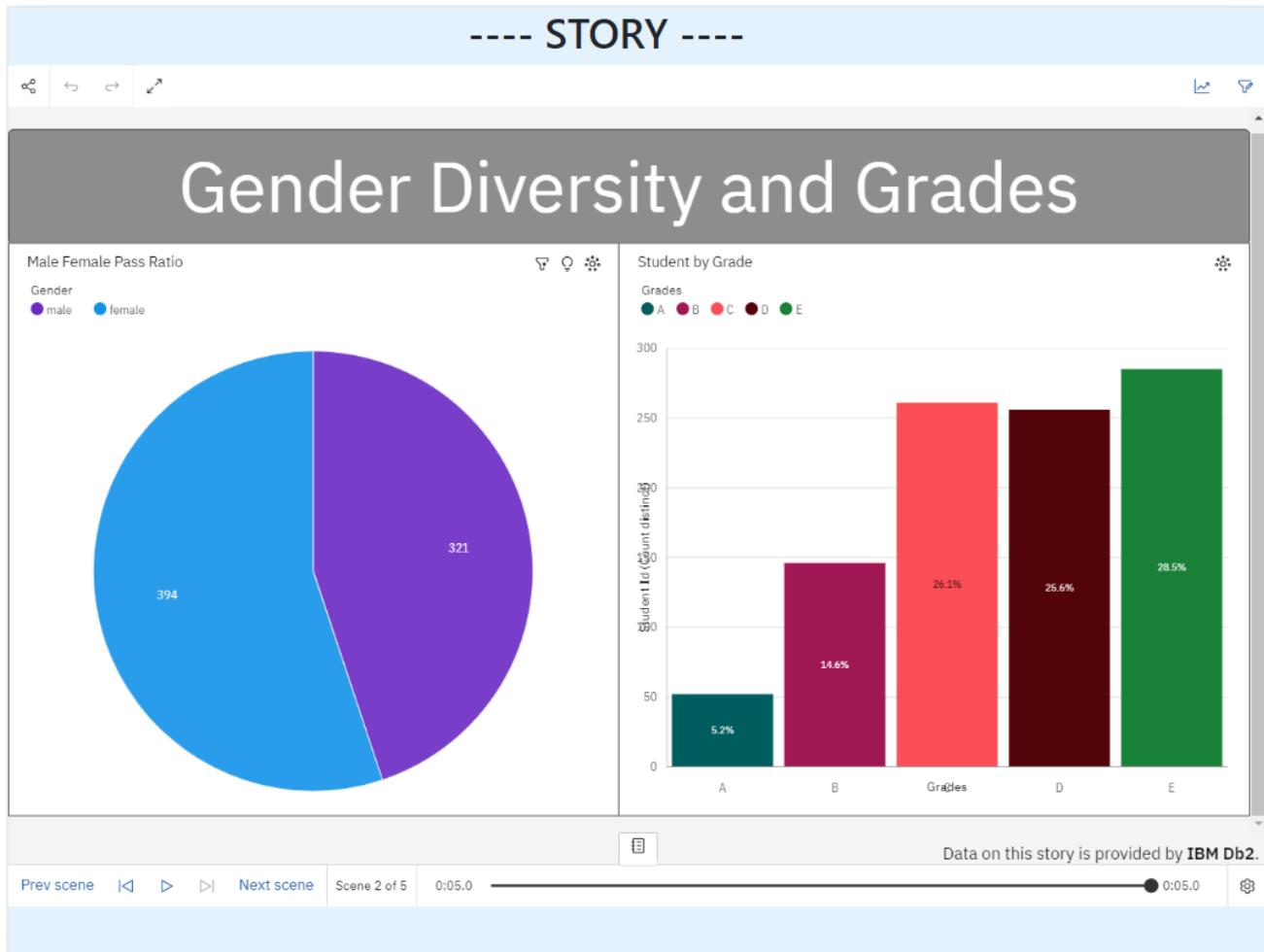
7.5 Feature 5

Report- This report highlights key findings, trends, and insights derived from the analysis of student data, enabling stakeholders to make informed decisions and take targeted actions to improve educational outcomes. The report begins with an executive summary, presenting a concise overview of the main findings and recommendations. It provides a high-level snapshot of student performance, identifying notable achievements, challenges, and areas requiring further attention.



7.6 Feature 6

Story- The story highlights the impact of leveraging student data to improve educational outcomes and create a nurturing environment for student success.



8. PERFORMANCE TESTING

8.1 Performance Metrics

Dimensions: Responsive ▾ 1140 x 869 75% No throttling ▾

Elements Console Sources Network Lighthouse >>

02:38:12 - 127.0.0.1:5500 ▾

http://127.0.0.1:5500/Home.html

STUDENT PERFORMANCE ANALYSIS

DASHBOARD STORY REPORT

View View View

Performance Accessibility Best Practices SEO PWA

100 73 91 80 PWA

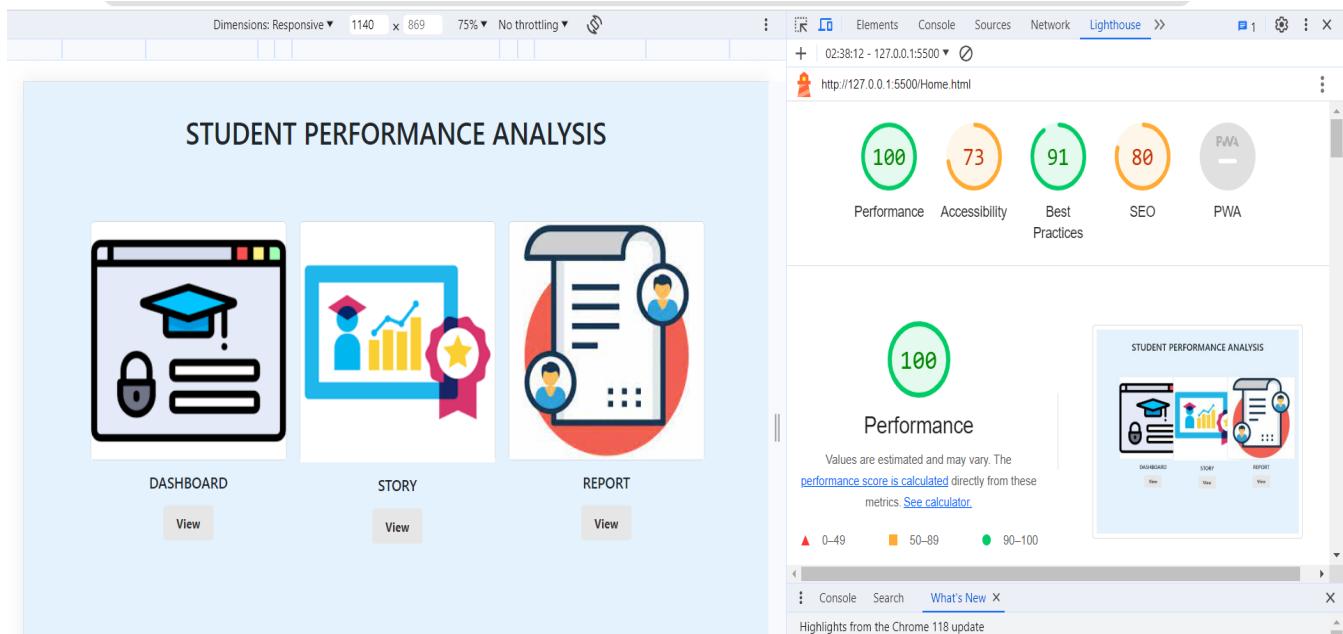
100 Performance

Values are estimated and may vary. The performance score is calculated directly from these metrics. See calculator.

▲ 0-49 ■ 50-89 ● 90-100

Console Search What's New X

Highlights from the Chrome 118 update



Dimensions: Responsive ▾ 1044 x 869 75% No throttling ▾

Elements Console Sources Network Lighthouse >>

02:22:17 - 127.0.0.1:5500 ▾

http://127.0.0.1:5500/Dashboard.html

---- DASHBOARD ----

Male Female Pass Ratio

Gender: male (394), female (321)

Race Specific Distribution

Student Id (Count): group A (129), group B (125), group C (540), group D (242), group E (190)

Student Id (Count): Race Ethnicity: group A (129), group B (125), group C (540), group D (242), group E (190)

Student by Grade

Grades: A (5.2%), B (14.6%), C (24.1%), D (25.6%), E (35.3%)

Parents Education Level

Student Id (Count): Parental Level Of Education: some college (226), high school (51%), bachelor's degree (118), associate's degree (222), some high school (219), master's degree (59)

Data on this dashboard is provided by IBM Db2.

99 49 91 55 PWA

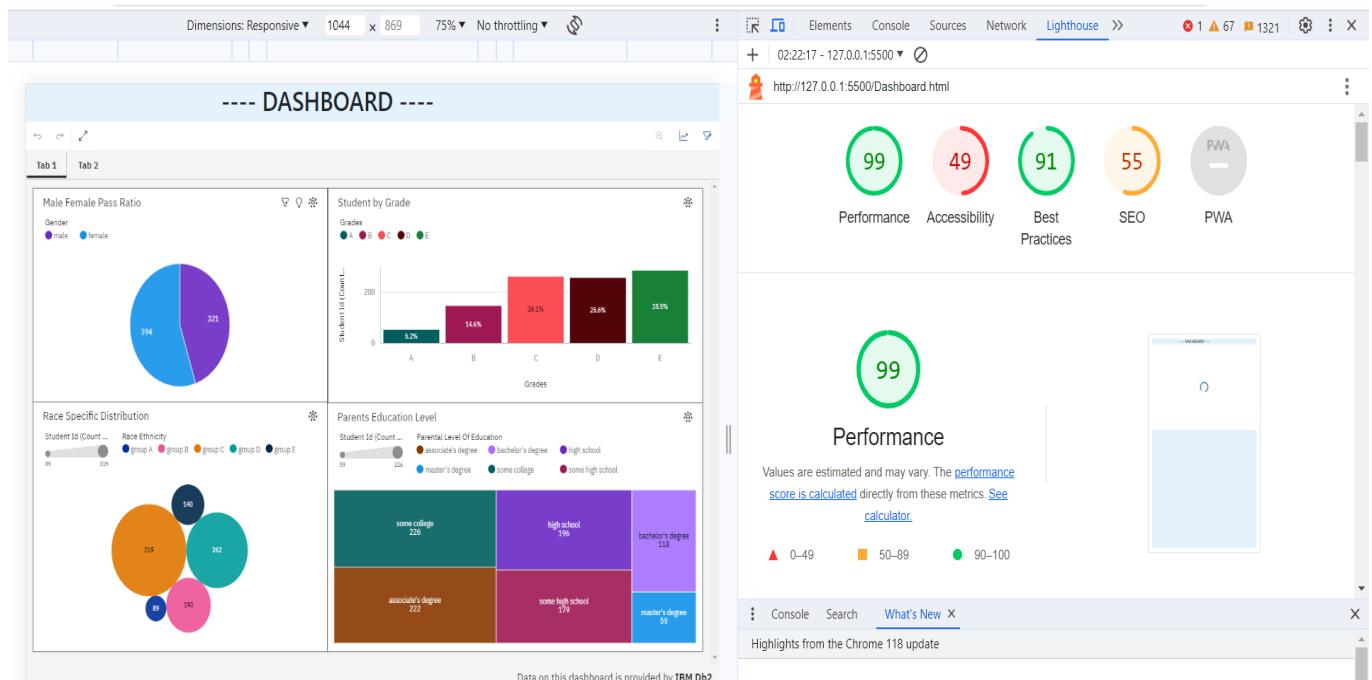
99 Performance

Values are estimated and may vary. The performance score is calculated directly from these metrics. See calculator.

▲ 0-49 ■ 50-89 ● 90-100

Console Search What's New X

Highlights from the Chrome 118 update



Dimensions: Responsive ▾ 1044 x 869 75% No throttling ▾

Elements Console Sources Network Lighthouse > 0 1 229 2012 X

02:44:40 - 127.0.0.1:5500 ▾ Ø http://127.0.0.1:5500/Story.html

---- STORY ----

Unleashing the Potential of Our Youth: A Student Performance Analysis

Data on this story is provided by IBM Db2.

Prev scene ⏪ ⏩ Next scene Scene 1 of 5 0:00.0 0:05.0

Performance

Values are estimated and may vary. The [performance score is calculated](#) directly from these metrics. See [calculator](#).

▲ 0–49 ■ 50–89 ● 90–100

Console Search What's New X

Highlights from the Chrome 118 update

99

Performance

Dimensions: Responsive ▾ 1044 x 869 75% No throttling ▾

Elements Console Sources Network Performance Lighthouse > 7 904 X

02:26:21 - 127.0.0.1:5500 ▾ Ø http://127.0.0.1:5500/Report.html

---- REPORT ----

GENDER DISTRIBUTION

Gender	Percentage
Female	51.9
Male	48.1

GENDER WISE RESULT

Gender Result	Percentage
Female Fail	32.1%
Female Pass	39.4%
Male Fail	15.1%
Male Pass	12.4%

Filters

Top Page up Page down Bottom

Performance

Values are estimated and may vary. The [performance score is calculated](#) directly from these metrics. See [calculator](#).

▲ 0–49 ■ 50–89 ● 90–100

Console Search What's New X

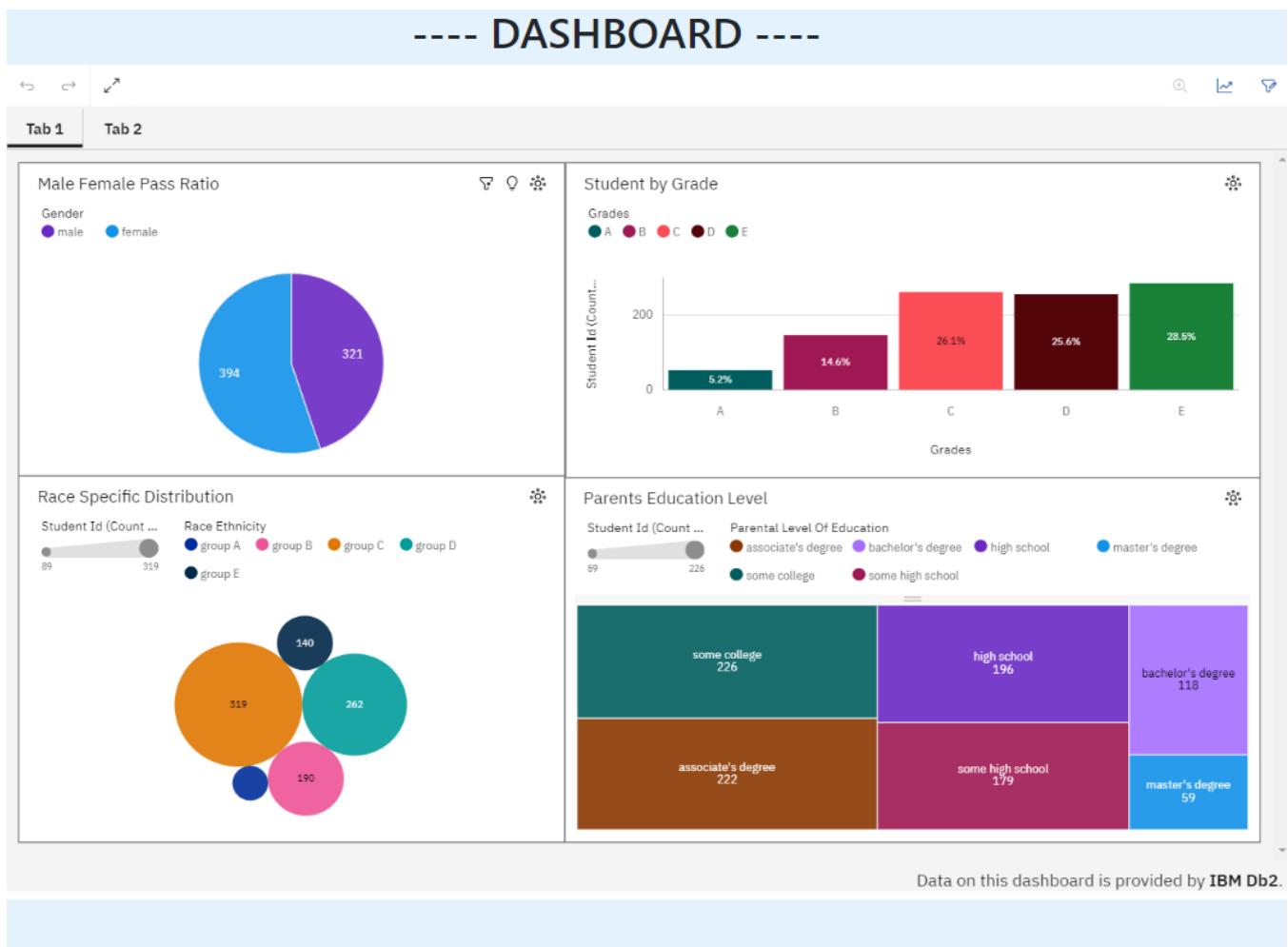
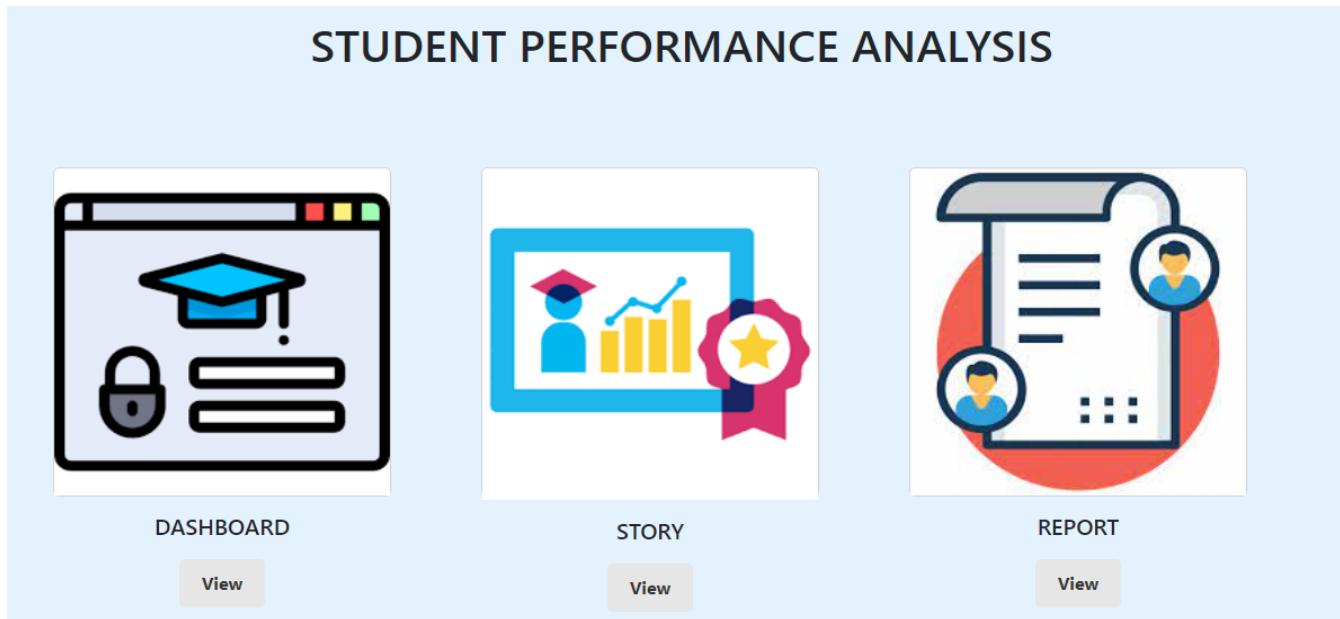
Enhanced search

95

Performance

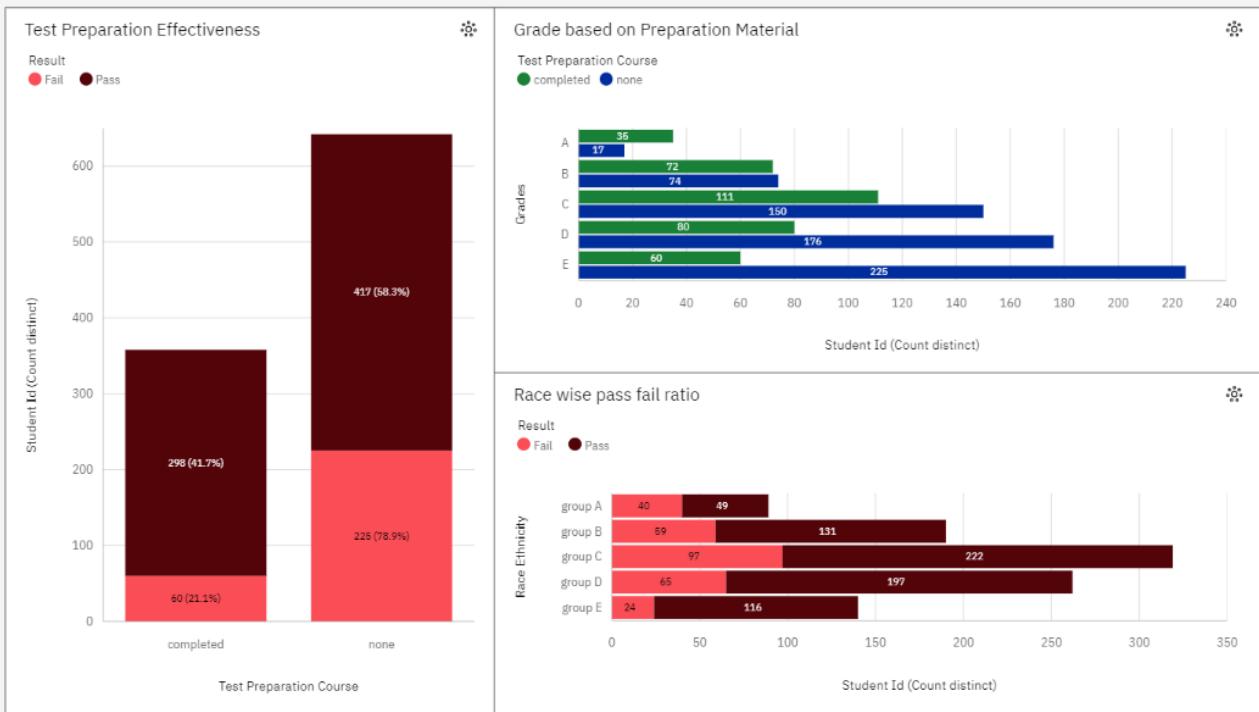
9. RESULTS

9.1 Output Screenshots



---- DASHBOARD ----

Tab 1 Tab 2



Data on this dashboard is provided by IBM Db2.

---- STORY ----

Unleashing the Potential of Our Youth: A Student Performance Analysis

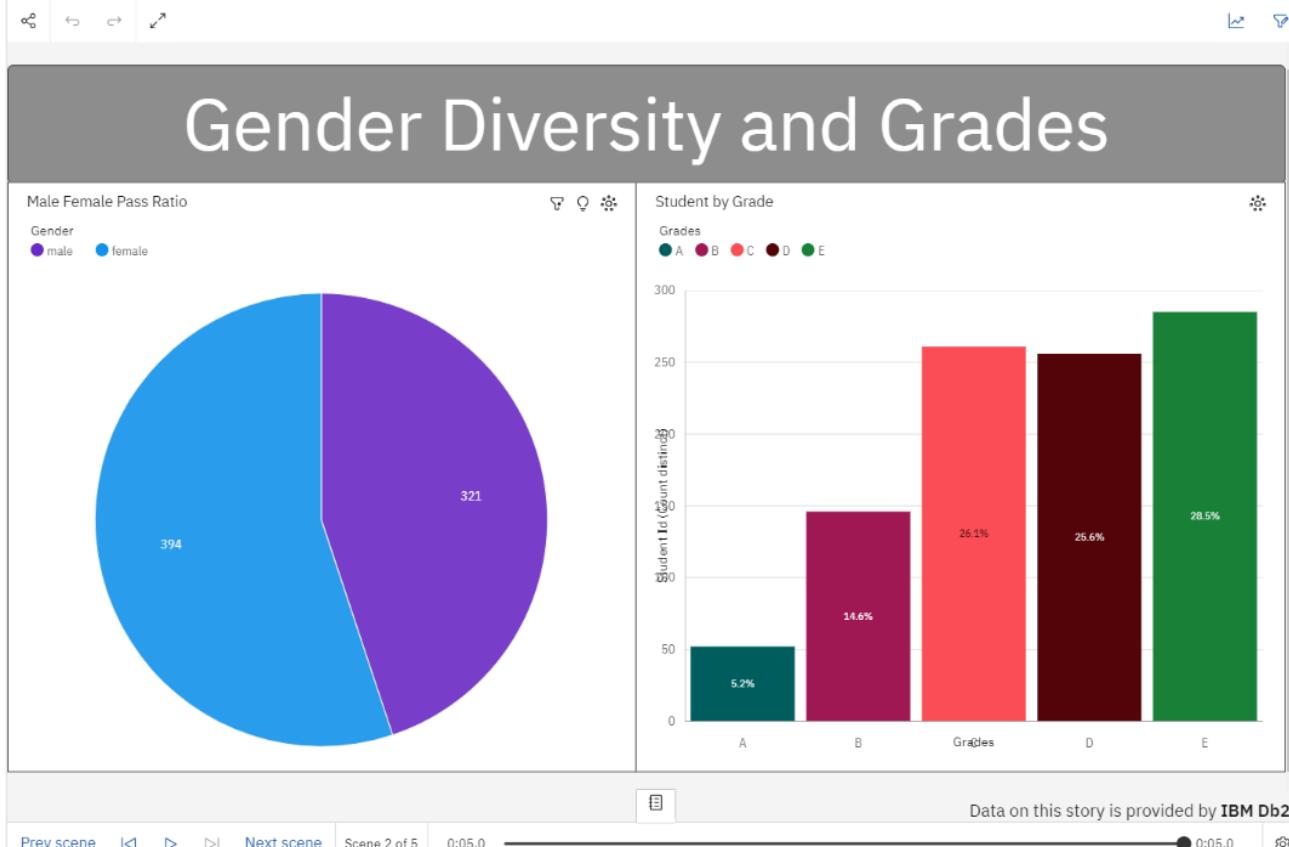


Data on this story is provided by IBM Db2.

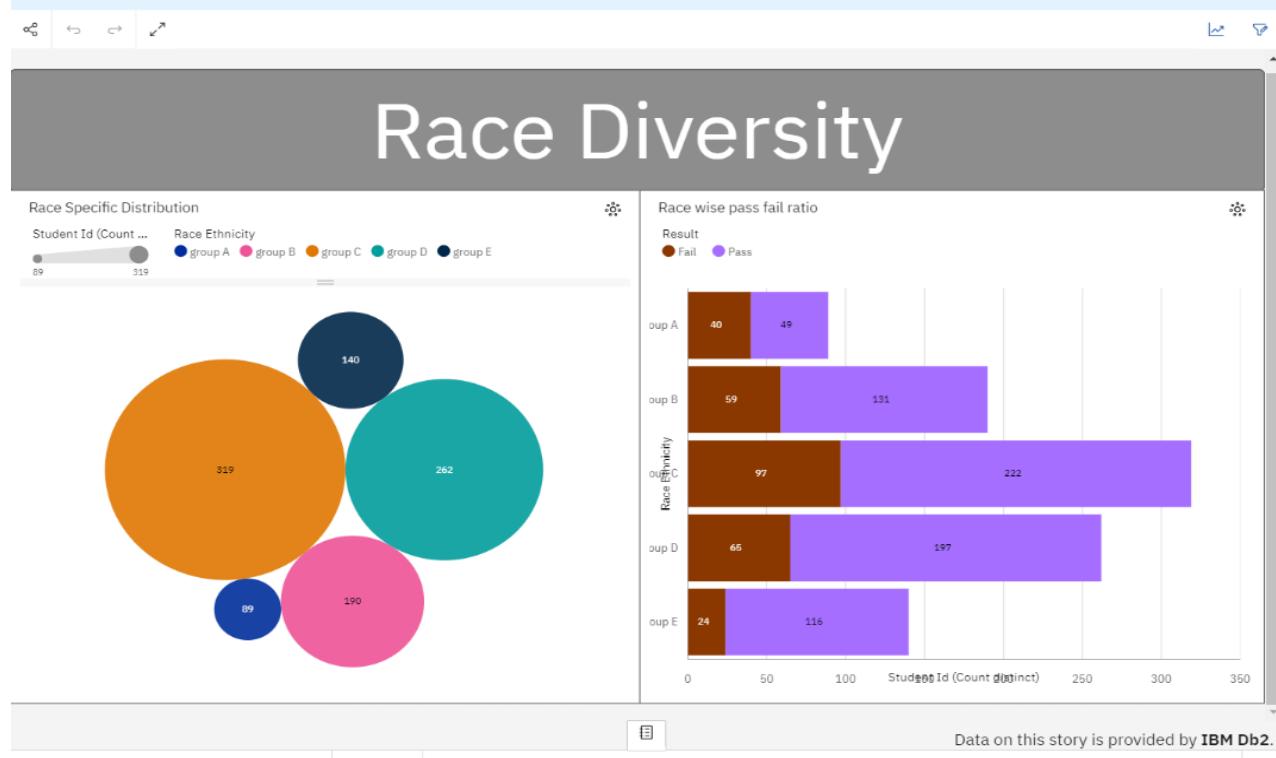
Prev scene |<| >| Next scene Scene 1 of 5 0:00.0 ●

0:05.0

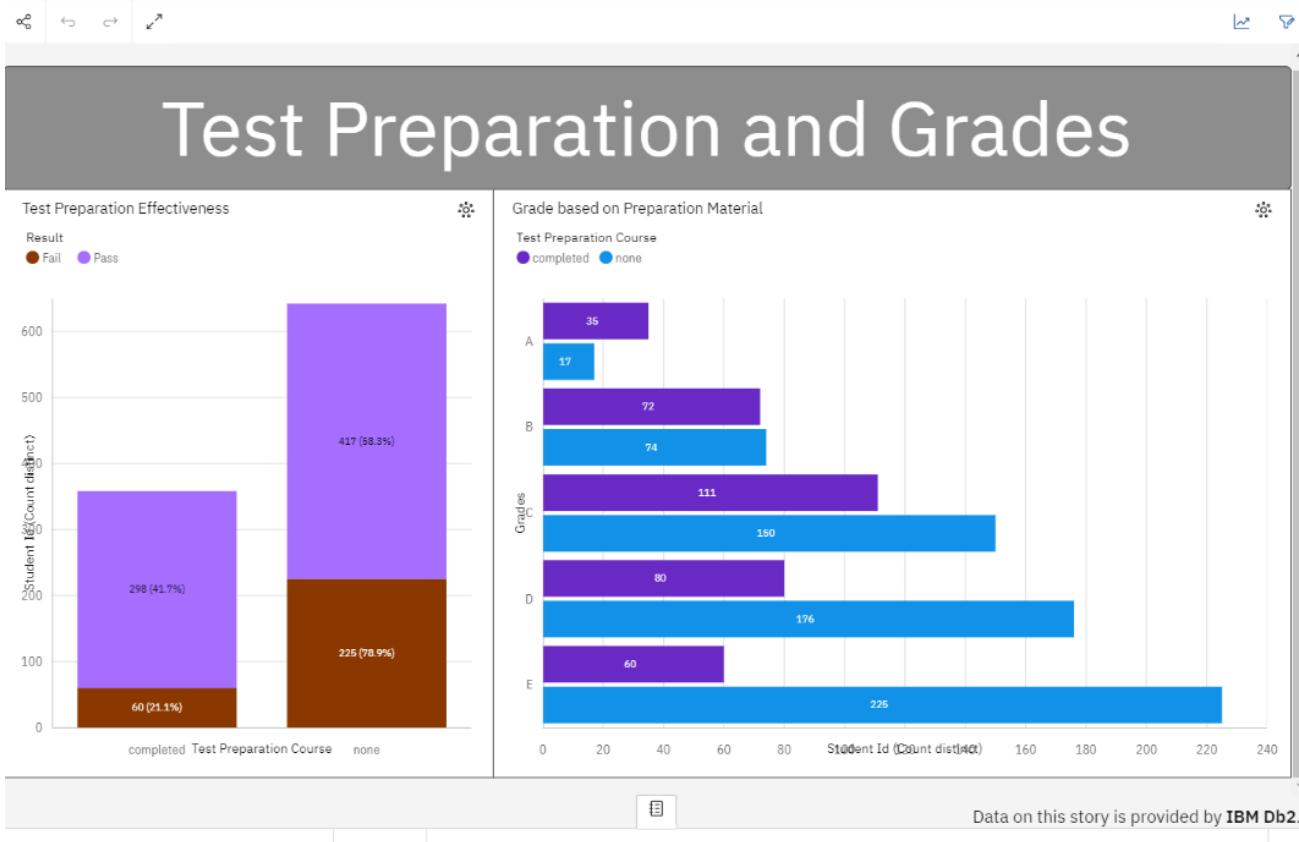
---- STORY ----



---- STORY ----



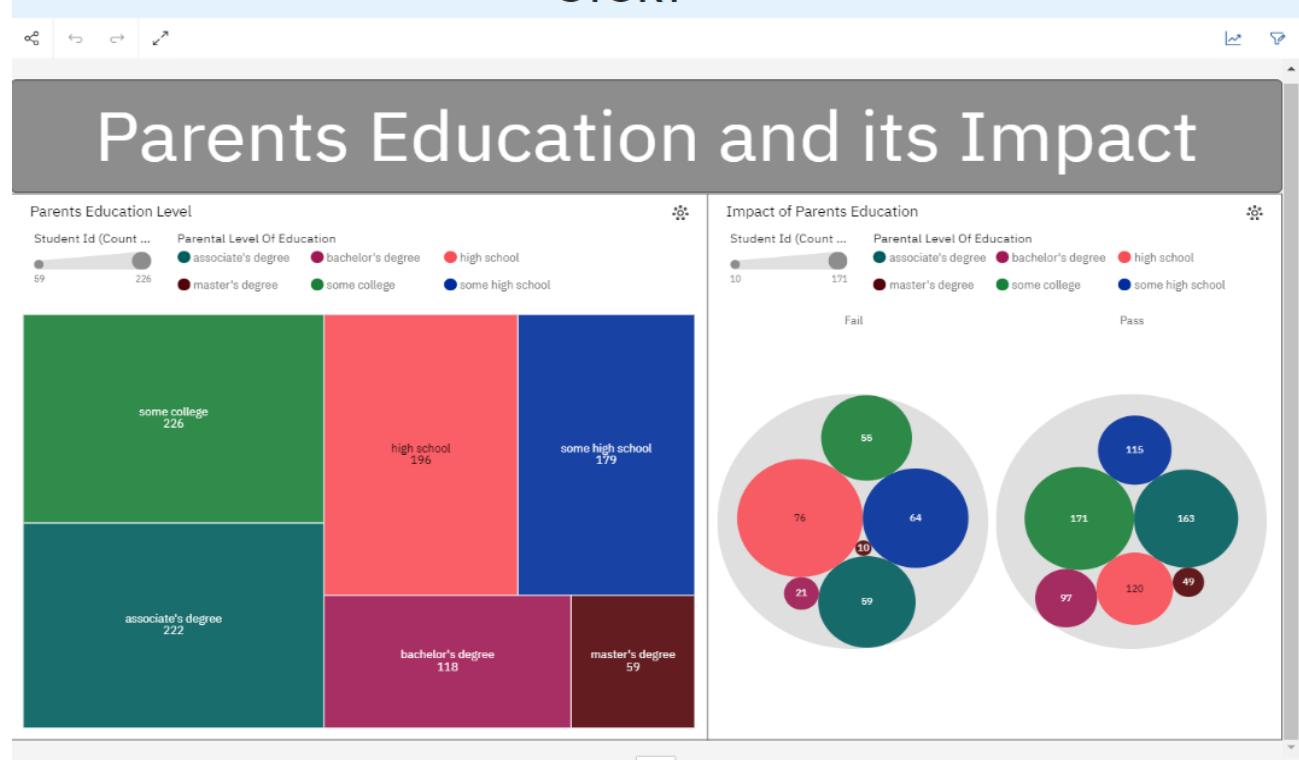
---- STORY ----



Data on this story is provided by IBM Db2.

Prev scene | Next scene | Scene 4 of 5 | 0:05.0

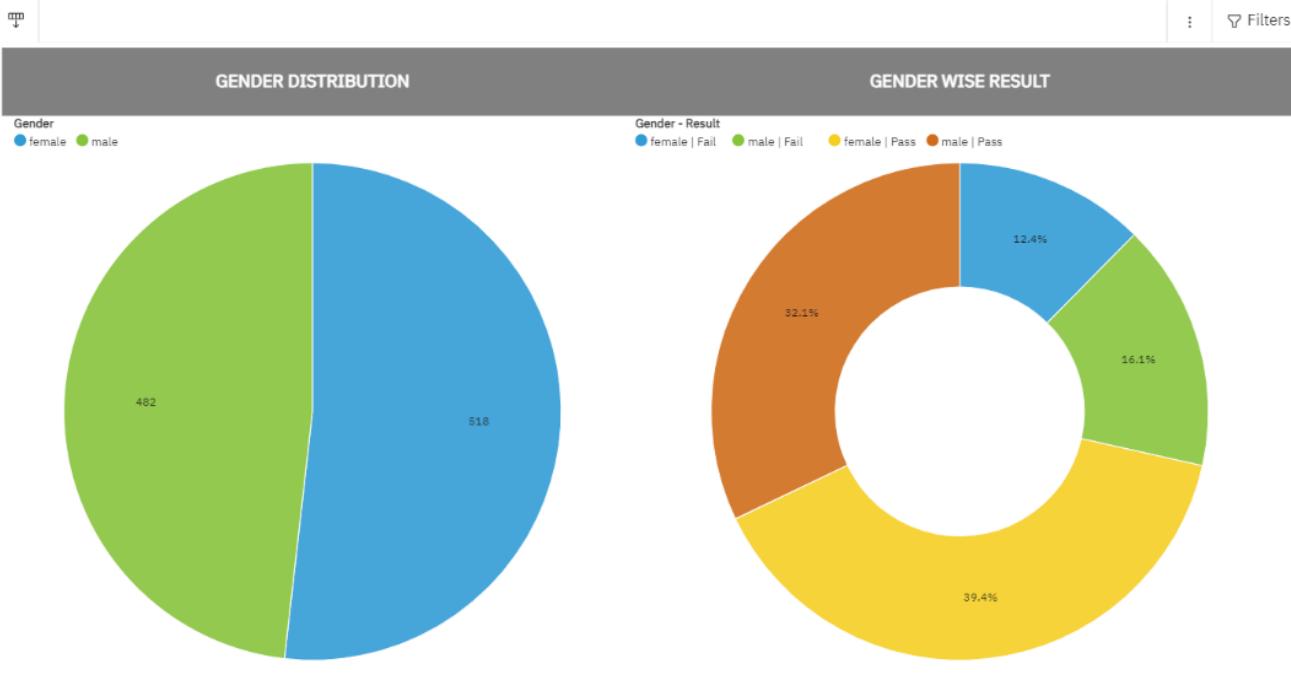
---- STORY ----



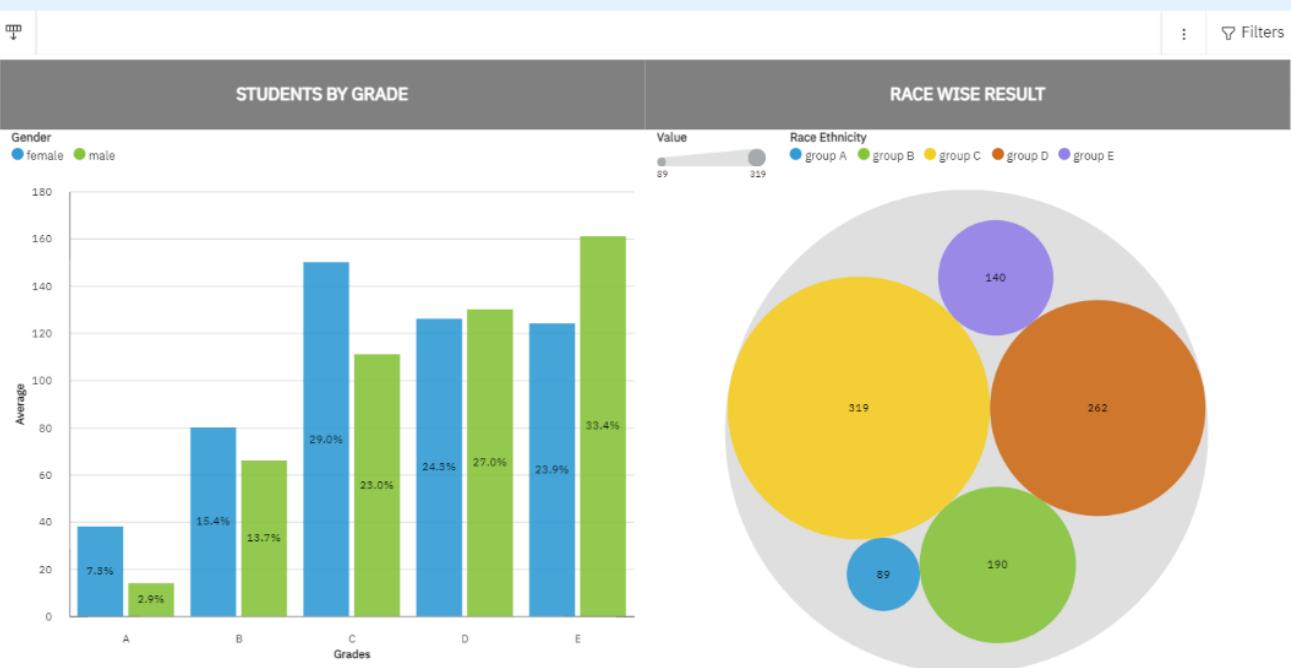
Data on this story is provided by IBM Db2.

Prev scene | Next scene | Scene 5 of 5 | 0:05.0

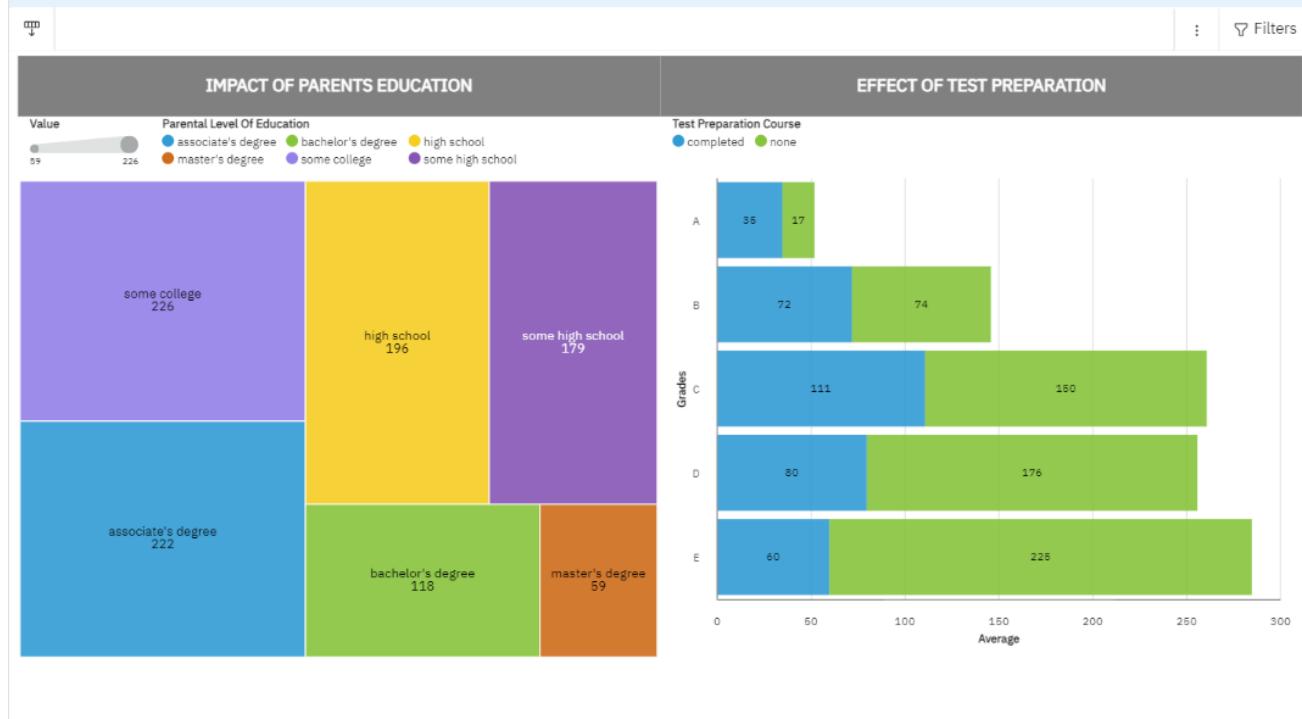
---- REPORT ----



---- REPORT ----



---- REPORT ----



---- REPORT ----



10. ADVANTAGES & DISADVANTAGES

Advantages:

- 1. Data-Driven Decision Making:** Student performance analysis provides valuable data that can be used to make informed decisions about curriculum, teaching methods, and resource allocation.
- 2. Identifying Strengths and Weaknesses:** It helps identify individual students' strengths and weaknesses, allowing for tailored interventions to support their growth and development.
- 3. Early Intervention:** By tracking performance, educators can identify struggling students early and provide them with the necessary support to prevent them from falling behind.
- 4. Setting Goals:** Analysis of student performance enables educators and students to set specific, measurable, and achievable goals, promoting motivation and accountability.
- 5. Personalized Learning:** It enables the implementation of personalized learning plans, adapting instruction to cater to the unique needs of each student.
- 6. Resource Allocation:** Schools can allocate resources more effectively by focusing on areas and programs that yield the best results, thus optimizing the use of funds.
- 7. Quality Improvement:** Continuous analysis and assessment help in improving the quality of education and teaching methods.

Disadvantages:

1. **Narrow Focus:** Overemphasis on standardized testing and performance metrics may result in a narrow focus on test preparation, neglecting other aspects of education, such as character development and critical thinking skills.
2. **Stress and Pressure:** The pressure to perform well in assessments can lead to stress and anxiety among students, potentially causing mental health issues.
3. **Teaching to the Test:** Educators might feel compelled to "teach to the test" to ensure good performance, limiting the scope of the curriculum.
4. **Data Misuse:** In some cases, student performance data can be misused, leading to inappropriate comparisons, labeling, and tracking of students.
5. **Inequity:** Performance analysis can exacerbate educational inequities, as students from disadvantaged backgrounds may face more challenges and score lower on standardized tests.
6. **Standardization:** It might not account for the diverse learning styles and individual differences of students.
7. **Overemphasis on Quantitative Data:** Qualitative aspects of education, such as creativity, problem-solving, and social skills, may not be adequately addressed in a purely quantitative analysis.

11. CONCLUSION:

It is evident that the multifaceted nature of student performance involves various determinants, such as socio-economic disparities, personalized learning, teacher quality, and the creation of supportive learning environments. To harness the full potential of our youth, a comprehensive approach is required. This approach should prioritize equitable access to quality education, offering tailored support for students based on their individual needs, and investing in the continuous professional development of our educators. Moreover, it emphasizes the importance of cultivating holistic learning environments that promote not only academic achievement but also emotional and social growth. By adopting these strategies, we can empower our youth, enabling them to thrive and contribute positively to society, thus securing a more promising future for the next generation. One of the key findings is the stark impact of socio-economic factors on student outcomes. Disparities in access to educational resources and opportunities remain a significant challenge, highlighting the urgent need for policies that promote equity in education. To unlock the potential of our youth, addressing these disparities is imperative. Personalized learning emerges as another critical facet of improving student performance. Recognizing that each student is unique and may require tailored support is paramount. Early interventions for students who are struggling can make a substantial difference in their academic journey.

12. FUTURE SCOPE:

This includes in-depth exploration of emerging pedagogical methodologies, such as the implementation of advanced data analytics and artificial intelligence in education to enhance personalization and early intervention strategies. Research should also extend to the evolving digital learning landscape, seeking to optimize technology's role in education. Cultivating 21st-century skills, like critical thinking and adaptability, is pivotal to prepare students for the ever-changing job market. Collaborative international research can provide a global perspective and inform best practices. Moreover, the pursuit of inclusivity and equity will remain a central concern, with a focus on understanding the impact of inclusive practices on student performance. Teacher development, student well-being, and mental health initiatives will require ongoing examination. Longitudinal studies are essential to monitor the lasting effects of policies and interventions, ensuring sustainability and guiding continuous improvement. Ultimately, future research and action should concentrate on policy implementation and evaluation, strengthening the collaboration between educational institutions, families, and communities. In this way, we can collectively nurture the potential of our youth, shaping a brighter future for generations to come.

13. APPENDIX

13.1 Source Code

app.py

```
from flask import Flask, render_template
app=Flask(__name__,template_folder='template')
@app.route("/")
def home():
    return render_template('Home.html')
@app.route('/dashboard')
def dashboard():
    return render_template('Dashboard.html')
@app.route('/story')
def story():
    return render_template('Story.html')
@app.route('/report')
def report():
    return render_template('Report.html')
if __name__=="__main__":
    app.run()
```

Home.html

```
<html>
    <head>
        <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-T3c6CoIi6uLrA9TneNEoa7RxnatzjcDSCmG1MXxSR1GAsXEV/Dwwykc2MPK8M2HN" crossorigin="anonymous">
        <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/js/bootstrap.bundle.min.js" integrity="sha384-C6RzsynM9kWDrMNeT87bh95OGNyZPhcTNXj1NW7RuBCsyN/o0jlpcV8Qyq46cDfL" crossorigin="anonymous"></script>
    <style>
        .link {
            display: inline-block;
            margin: 10px;
            padding: 10px 20px;
```

```
background-color: #e6e6e6;
border-radius: 5px;
text-decoration: none;
color: #333;
font-weight: bold; }

</style>

<meta name="viewport" content="width=device-width, initial-scale=1.0">
<meta charset="utf-8"/>
</head>
<body>
<div style="background-color: #e3f2fd; height: 100vh;">
<div class="text-center" style="position: relative; top: 40px;">
<h1>STUDENT PERFORMANCE ANALYSIS</h1></div>
<div class="container" style="position: relative; top: 120px;">
<div class="row">
<div class="col-md-4">
<div class="card" style="height: 300px; width: 300px;">
>

```
<div class="card-body">
 <h5 class="text-center">DASHBOARD</h5>
 <div class="container">
 <div class="text-center">
 View
 </div></div>
 </div>
 </div>
 <div class="col-md-4">
 <div class="card" style="height:300px; width: 300px;">
```

>

```
<div class="card-body">
 <h5 class="text-center">STORY</h5>
 <div class="container">
 <div class="text-center">
 View
 </div></div>
 </div>
 </div>
 </div>
 <div class="col-md-4">
 <div class="card" style="height:300px; width: 300px;">
 >

```
<div class="card-body">  
    <h5 class="text-center">REPORT</h5>  
    <div class="container">  
        <div class="text-center">  
            <a class="link" href="{{ url_for('report') }}>View</a>  
        </div></div>  
    </div>  
    </div>  
</div>
```

```
</div>  
</div>
```

```
</body>  
</html>
```

Dashboard.html

```
<html>  
  <head>  
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/css/bootstrap.min.css" rel="stylesheet"  
          integrity="sha384-T3c6CoIi6uLrA9TneNEoa7RxnatzjcDSCmG1MXxSR1GAsXEV/Dwwykc2MP  
          K8M2HN" crossorigin="anonymous"/>  
    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/js/bootstrap.bundle.min.js" integrity="sha384-C6RzsynM9kWDrMNeT8bh95OGNyZPhcTNXj1NW7RuBCsyN/o0jlpcV8Qy q46cDfL" crossorigin="anonymous"></script>  
  </head>  
  <body style="background-color: #e3f2fd;">  
    <div class="text-center">  
      <h1>---- DASHBOARD ----</h1>  
      <iframe src="https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FN  
          M_PROJECT%2FStudent_perf%2Bdashboard&closeWindowOnLastView=true&ui_app  
          bar=false&ui_navbar=false&shareMode=embedded&action=view&mode=dash  
          board&subView=model0000018b58c55de8_00000002" width="1200" height="800"  
          frameborder="0" gesture="media" allow="encrypted-media" allowfullscreen=""></iframe>  
    </div>  
  </body>  
</html>
```

Story.html

```
<html>  
  <head>  
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/css/bootstrap.min.css" rel="stylesheet"  
          integrity="sha384-T3c6CoIi6uLrA9TneNEoa7RxnatzjcDSCmG1MXxSR1GAsXEV/Dwwykc2MP  
          K8M2HN" crossorigin="anonymous"/>  
    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/js/bootstrap.bundle.min.js" integrity="sha384-C6RzsynM9kWDrMNeT8bh95OGNyZPhcTNXj1NW7RuBCsyN/o0jlpcV8Qy q46cDfL" crossorigin="anonymous"></script>
```

```

</head>
<body style="background-color: #e3f2fd;">
<div class="text-center">
    <h1>---- STORY ----</h1>
    <iframe src="https://us3.ca.analytics.ibm.com/bi/?perspective=story&pathRef=.my_folders%2FNM_PROJECT%2FStudent_Perf%2Bstory&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&action=view&sceneId=model0000018b58dac28a_00000002&sceneTime=0" width="1200" height="800" frameborder="0" gesture="media" allow="encrypted-media" allowfullscreen=""></iframe>
</div>
</body>
</html>

```

Report.html

```

<html>
    <head>
        <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-T3c6CoLi6uLrA9TneNEoa7RxnatzjcDSCmG1MXxSR1GAsXEV/Dwwykc2MPK8M2HN" crossorigin="anonymous">
        <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/js/bootstrap.bundle.min.js" integrity="sha384-C6RzsynM9kWDrMNeT87bh95OGNyZPhcTNXj1NW7RuBCsyN/o0jlpcV8Qyq46cDfL" crossorigin="anonymous"></script>
    </head>
    <body style="background-color: #e3f2fd;">
        <div class="text-center">
            <h1>---- REPORT ----</h1>
            <iframe src="https://us3.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FNM_PROJECT%2FStudentPerformance%2BReport&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMode=embedded&action=run&format=HTML&prompt=false" width="1200" height="800" frameborder="0" gesture="media" allow="encrypted-media" allowfullscreen=""></iframe>
        </div>
    </body>
</html>

```

13.2 GitHub & Project Demo Link

GitHub Link

<https://github.com/m-swetha2110/Naan-Mudhalvan>

Project Demo Link

https://drive.google.com/file/d/1PKU_n58BtKflp3K6Mp0Rd1G1gFsAACN7/view